



Shellharbour Employment Lands Study

PREPARED FOR

Shellharbour City Council

July 2009



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CONTENTS

ABBREVIATIONS	7
1. EXECUTIVE SUMMARY	8
2. INTRODUCTION	16
2.1 Study Context	16
2.2 Study Objectives.....	19
2.3 Study Methodology.....	20
2.4 Background Documentation	20
3. PLANNING AND POLICY REVIEW	21
3.1 NSW State Statutory Provisions	21
3.2 NSW Standard Local Environmental Plan Template.....	21
3.3 Illawarra Regional Strategy (2006-31)	22
3.4 Illawarra & South Coast Employment Lands Strategy (2004-06).....	23
3.5 Shellharbour Local Environmental Plan (2000)	24
3.6 Shellharbour Development Control Plans and Masterplans.....	25
3.7 Wollongong LGA Planning Context.....	28
4. TRENDS IMPACTING EMPLOYMENT LANDS	32
4.1 Growth of the Global Economy	32
4.2 Accessibility and the Need for Space.....	32
4.3 Economic Gateways.....	33
4.4 Tourism	33
4.5 Transport and Infrastructure.....	35
4.6 Commercial Office	36
4.7 Business Parks	38
4.8 Industry	39
4.9 Home Based Business	40
4.10 Implications to the Illawarra Region	40
4.11 Implications to Shellharbour LGA.....	43
5. ASSESSMENT OF INDUSTRIAL PRECINCTS	45
5.1 Guiding Employment Land Principles	46
5.2 Classification of Land Uses	47
5.3 Assessment Criteria	48
5.4 Supply of Employment Lands.....	51
5.5 Supply of Industrial Zoned Land	51
5.6 Precinct 1 – Albion Park Rail.....	54
5.7 Precinct 2 – Illawarra Regional Airport.....	59
5.8 Precinct 3 – Oak Flats	65
5.9 Precinct 4 – Central Business Park, Albion Park Rail	69
5.10 Precinct 5 – Warilla.....	73
5.11 Precinct 6 – Barrack Heights.....	77
5.12 Precinct 7 – Shell Cove Marina (Proposed).....	80
6. SHELLHARBOUR EMPLOYMENT PROFILE	84

6.1	Key Demographic Characteristics	84
6.2	Population Growth	85
6.3	Resident Workforce by Occupation.....	85
6.4	Resident Workforce by Industry	87
6.5	Where Residents Work.....	88
6.6	How Residents Travel to Work.....	90
6.7	Jobs Provided by Industry	90
7.	DEMAND FOR EMPLOYMENT LAND IN SHELLHARBOUR	93
7.1	Methodology	93
7.2	Development outside Shellharbour	93
7.3	TDC Forecast Method	94
7.4	Shellharbour City Council Method.....	96
8.	SPECIFIC LOCAL INNOVATION.....	101
8.1	Boman Estate, Wagga Wagga.....	101
8.2	Wollongong Innovation Campus	103
8.3	Steel River, Newcastle	104
8.4	Honeysuckle, Newcastle	105
8.5	TradeCoast Central, Brisbane.....	106
8.6	Airport Business Parks	107
8.7	Business Incubators	109
8.8	Art and Cultural Incubators.....	110
8.9	Implications for Shellharbour LGA	114
9.	GUIDING LAND PRINCIPLES AND RECOMMENDATIONS	116
9.1	Employment Lands Demand	116
9.2	Schedule of Industrial Lands	116
9.3	Recommended Zoning Categories	117
9.4	Guiding Principles for Industrial/Employment Lands	118
9.5	Retailing and Commercial in Industrial Zones	119
9.6	Business Parks/Hi-Technology Parks	119
9.7	Home Based Business	120
9.8	The “Aerotropolis”	121

APPENDIX 1 - Dept. of Planning, Employment Lands Guidelines for the Illawarra (2008)

APPENDIX 2 - Special Use Zoned Lands

APPENDIX 3 - Shellharbour LGA, ABS Census (2006)

LIST OF FIGURES

Figure 1 - Map: Illawarra Region 16

Figure 2 - Aerial Map: Precinct 1 - Albion Park Rail..... 54

Figure 3 - Zoning Map: Precinct 1 - Albion Park Rail 55

Figure 4 - Photos: Princes Highway, Albion Park Rail 56

Figure 5 - Photos: Rivulet Crescent, Albion Park Rail..... 57

Figure 6 - Photos: Miall Way, Albion Park Rail 57

Figure 7 - 69 Princes Highway, Albion Park Rail 58

Figure 8 - Aerial Map: Precinct 2 - Airport 59

Figure 9 - Zoning Map: Precinct 2 - Airport..... 60

Figure 10 - Photos: Airport Road, Illawarra Regional Airport 61

Figure 11 - Photos: Airport Road, Illawarra Regional Airport 62

Figure 12 - Photos: Croom Lane, Albion Park Rail 62

Figure 13 - Zoning of Proposed Illawarra Regional Business Park 64

Figure 14 - Aerial Map: Precinct 3 – Oak Flats 65

Figure 15 - Zoning Map: Precinct 3 – Oak Flats 66

Figure 16 - Photos: Storey Street, Oak Flats 67

Figure 17 - Photos: Industrial Road, Oak Flats 67

Figure 18 - Photos: Industrial Road, Oak Flats..... 68

Figure 19 - Aerial Map: Precinct 4 – Central Business Park, Albion Park Rail 69

Figure 20 - Zoning Map: Precinct 4 – Central Business Park, Albion Park Rail..... 70

Figure 21 - Photos: Durgadin Drive, Central Business Park 71

Figure 22 - Photos: Durgadin Drive, Central Business Park 71

Figure 23 - Photos: Shaban Street, Central Business Park 72

Figure 24 - Photos: Shandan Street, Central Business Park 72

Figure 25 - Aerial Map: Precinct 5 – Warilla 73

Figure 26 - Zoning Map: Precinct 5 – Warilla..... 74

Figure 27 - Photos: Princes Highway, Warilla..... 75

Figure 28 - Photos: Grove Circuit, Warilla 75

Figure 29 - Photos: Commerce Drive, Warilla 76

Figure 30 - Photos: Veronica Street, Warilla 76

Figure 31 - Aerial Map: Precinct 6 – Barrack Heights 77

Figure 32 - Zoning Map: Precinct 6 – Barrack Heights 78

Figure 33 - Photos: Princes Highway, Barrack Heights 78

Figure 34 - Photos: Sunset Avenue, Barrack Heights..... 79

Figure 35 - Photos: Sunset Avenue, Barrack Heights..... 80

Figure 36 - Aerial Map: Shell Cove..... 81

Figure 37 - Shell Cove Masterplan 82

Figure 38 - Graph: Where Shellharbour Residents Work 2006 89

LIST OF TABLES

Table 1 - Shellharbour Schedule of Employment Lands	14
Table 2 - Standard Instrument (Local Environmental Plans) Order 2006	22
Table 3 - Summary of International and Domestic Travel to Shellharbour LGA (4 year average to June 2007).....	34
Table 4 - Summary of Tourism Business in Shellharbour LGA (as at June 2007)	34
Table 5 - ANZSIC 2006 Division Codes	47
Table 6 - ANZSIC 2006 Division S Other Services, Subdivision, Group Codes and Titles	48
Table 7 - Employment Lands Evaluation Table	50
Table 8 - Existing Zoned Employment Lands in Shellharbour LGA.....	51
Table 9 - Supply of Industrial Land in Shellharbour LGA Employment Precincts (ha)*	52
Table 10 - Types of Businesses Occupying Industrial Precincts in Shellharbour LGA	52
Table 11 - Supply of Industrial Zoned Floorspace in Shellharbour LGA (sqm)	53
Table 12 - Shellharbour LGA Population Growth by Age 2006- 2031	85
Table 13 - Labour Force by Occupation Category in Illawarra and Sydney SD.....	86
Table 14 - Shellharbour, Wollongong & Kiama SD Resident Employment by Occupation 2006.....	86
Table 15 - Resident Workforce in Illawarra Region and Sydney SD	87
Table 16 - Resident Workforce in Shellharbour, Wollongong & Kiama 2006.....	88
Table 17 - Selected Areas of Usual Residence by Selected Areas of Workplace 2006.....	90
Table 18 - Method of Travel to Work by Place of Usual Residence 2006.....	90
Table 19 - Jobs in the Illawarra Region by Industry 1991 – 2006	91
Table 20 - Jobs in Shellharbour, Wollongong & Kiama by Industry 2006.....	91
Table 21 - Jobs in Shellharbour by Industry 1991 – 2006.....	92
Table 22 - TDC Forecast of Jobs in Shellharbour 2006 to 2031	95
Table 23 - Demand for Employment Zoned Land	95
Table 24 - Total Jobs in Shellharbour and Southern Wollongong Area (2006).....	96
Table 25 - Number of Working Residents within 20 minutes of these Employment areas (2006).....	97
Table 26 - No. of Jobs for Shellharbour Residents (2006)	97
Table 27 - Estimated Additional Jobs for Eligible Workers from Shellharbour 2031	98
Table 28 - No. of Jobs and Required Land Area by Land Use Zone in Shellharbour by 2031	98
Table 29 - Vacant and Planned Employment Land in the Job Zone.....	99
Table 30 - Job Capacity by Vacant and Planned Sites in Job Zone.....	99
Table 31 - Shellharbour's Proportion of Workers in the Worker Zone	99
Table 32 - Supply and Demand of Jobs in the Industrial Zones of Shellharbour in 2031.....	100
Table 33 - Steel River LEP Design Criteria	105
Table 34 - Shellharbour Schedule of Employment Lands	116

ABBREVIATIONS

The following abbreviations may be found in this report:

ABS	Australian Bureau of Statistics
ANZSIC	Australian and NZ Standard Industrial Classification
GLA	Gross Lettable Area
LEP	Local Environmental Plan
LGA	Local Government Area
SD	Statistical Division

1. EXECUTIVE SUMMARY

Hill PDA was engaged by Shellharbour City Council to research and prepare an Employment Lands Study for the local government area (LGA) of Shellharbour. Shellharbour LGA is situated on the south coast of NSW, and together with the LGAs of Wollongong and Kiama, defines the Illawarra region.

In 1991, manufacturing, construction, retail trade and education were the main industries located in the Region. Jobs in manufacturing have been declining (due to automation and an increasing level of manufacturing being done offshore), as have jobs in mining, utilities, and wholesale trade.

Industries that have inclined in the Illawarra Region since 1991 have included hospitality, personal services, government administration and defence, and property and business services. These trends in declining and prospering industries have also been felt strongly in Wollongong and Kiama. Whilst personal service jobs increased substantially in both Kiama and Wollongong since 1991, jobs in agriculture, manufacturing, mining and wholesale trade have all decreased, influencing the overall trend in the Illawarra Region.

However, these are not trends necessarily experienced in Shellharbour LGA. Since 1991, Shellharbour has experienced a growing number of jobs in hospitality, cultural and recreation services, mining, manufacturing, personal services, property and business services, and government administration. The only industries in Shellharbour, which experienced a negative change in job numbers since 1991 were agriculture, forestry and fishing and personal / other services.

The Employment Lands Study forms a strategic platform on which to base the future direction of the LGA in terms of zoning and the effective management of employment lands in the development of the comprehensive Local Environmental Plan.

The Department of Planning has defined employment lands¹ as land that could be used for employment generating activities including land zoned for industrial and commercial uses. To this Hill PDA adds land currently zoned for special uses, which are used for employment purposes.

Employment zoned lands in Shellharbour LGA vary in scale and location. Zone 4(a) Light Industrial lands are predominately located in Albion Park Rail, Oak Flats, Warilla/Lake Illawarra, and Barrack Heights. Zone 4(a3) Airport Light Industrial and IN2 Light Industrial lands are adjacent to Illawarra Regional Airport and in parts of Albion Park Rail. Total industrial zoned lands account for around 151.3ha.

There are various sites across the LGA classified Zone 5(a) Special Uses and Zone 5(b) Special Railway Uses. Special uses currently cover various land uses including Illawarra Regional Airport, public car spaces, places of worship, schools, libraries, cemeteries, caravan parks, utility stations, clubs, community centres, and special railway uses. Lands zoned for special uses account for 313.3ha of land in the LGA.

Zone 3(a) Mixed Use Commercial lands are located in all major and secondary commercial centres like Shellharbour City Centre, Albion Park, Warilla, Shellharbour Village, Oak Flats, Warilla Grove, Albion Park Rail and Barrack Heights. Additionally, there are numerous neighbourhood centres across the LGA zoned 3(b)

¹ Employment Lands Guidelines for the Illawarra, NSW Department of Planning, February 2008

Neighbourhood Business. Business zones account for 53ha of land across the LGA, of which the majority is occupied.

It is recognised that the Shellharbour Retail and Commercial Centres Study (2008) examined and surveyed all business zones across the LGA, making recommendations for the future zoning of existing 3(a) Mixed Use Commercial Zones and 3(d) Neighbourhood Business Zones. Hence, these precincts are excluded from the physical assessments of employment lands within this study.

Planning and Policy Review

Hill PDA reviewed the planning context in which centre activity in Shellharbour LGA is managed. The Department of Planning's Illawarra Regional Strategy (2006-31) should be considered when determining specific strategies and guiding principles for employment lands across Shellharbour LGA. The Regional Strategy also identifies that Shellharbour LGA has a shortfall of vacant employment land, which needs to be addressed to encourage small business growth and diversification.

Stage 3 of the Illawarra & South Coast Employment Lands Strategy (2006) produced a set of guidelines for land use planning decisions by NSW Government and councils. In February 2008, the NSW Department of Planning released the 'Employment Lands Guidelines for the Illawarra' based on Stage 3 of the Strategy. The purpose of the guidelines was to support the outcomes and actions of the Illawarra Regional Strategy

The guidelines as well as the general principles for all employment lands have been considered in the assessment of the appropriateness of existing employment zoned lands across Shellharbour LGA (detailed in Section 5 of this report).

Shellharbour Local Environmental Plan (2000) applies to the various employment lands in Shellharbour LGA. Specifically, this considers industrial zones, commercial zones, special use zones; and residential zones where mixed uses, including employment are permitted.

In the development of an Employment Lands Study for Shellharbour LGA, consideration must be given to the Standard Instrument (Local Environmental Plans) Order 2006, prepared by the NSW Department of Planning and known as the LEP Template.

Trends Impacting on Employment Lands

There are a number of local, regional and global trends that are, or may in the future affect employment generating uses in Shellharbour and the Illawarra Region. In particular, these trends can influence employment type, location, skill requirements, and the success and economic viability of businesses. These include:

- Growth of the Global Economy;
- Accessibility and the need for space;
- The importance of economic gateways²;

² Defined as the exit/entry points to a region that supports the movement of commodities, products, services, information and ideas between itself and regions with which it has economic and commercial relationships.

- Tourism trends;
- The provision of infrastructure and transport access;
- Commercial office and business park growth trends;
- Influences on demand for industrial lands; and
- Home based business.

Assessment of Key Industrial Precincts

Hill PDA undertook a physical survey of land within the LGA zoned for industrial and special uses and included the following key employment precincts:

- Precinct 1 – Albion Park Rail;
- Precinct 2 – Illawarra Regional Airport;
- Precinct 3 – Oak Flats;
- Precinct 4 – Central Business Park;
- Precinct 5 – Warilla; and
- Precinct 6 – Barrack Heights.

Most businesses located in industrial precincts within Shellharbour LGA are focussed on local services, construction services, retail trade, and manufacturing. The Oak Flats precinct is the most densely occupied precinct in the LGA with almost 150 businesses located on 28.1ha of land. Most businesses in the Oak Flats precinct are concentrated in construction services and local service industries.

Hill PDA's physical survey of key employment precincts identified Albion Park Rail as the largest industrial zoned precinct in Shellharbour LGA, followed by Oak Flats. Furthermore, the car sale yards, the construction industry, car and mechanical repairs (other services), and the manufacturing industry are the largest users of industrial zoned land. Since this survey, 45.1ha of land has been zoned IN2 Light Industrial adjoining to the west of the Airport. This is known as the Illawarra Regional Business Park.

Of the 343.1ha of land in Shellharbour Employment Precincts around 97ha is attributed to the special use zone for the operation of Illawarra Regional Airport. Note also that 77.6ha of industrial zoned land was vacant at the time of survey, most of which was associated with either the recently approved Illawarra Regional Business Park (45.1ha) located in the Airport precinct, or vacant sites in Albion Park Rail (16ha).

There are a total of 403 businesses occupying space within Shellharbour industrial precincts, this includes Illawarra Regional Airport where it is noted that some businesses are located on lands zoned for special uses.

Industrial zoned floorspace in Shellharbour LGA is concentrated on retail floorspace (given Mitre 10 and other retail affiliated space in Central Business Park), other services, construction services, and manufacturing floorspace. 14.4% of total floorspace was vacant at the time of survey.

Whilst Albion Park Rail and the Airport precinct contain the most zoned land, the Oak Flats precinct contains the most industrial zoned floorspace in Shellharbour LGA. Oak Flats has the largest component of service

industry floorspace in the LGA, as well as largest proportions of manufacturing and construction service floorspace.

Each industrial precinct identified in the LGA is described in terms of its location, land use characteristics, relevant planning framework and appropriate recommendations. As mentioned previously it is recognised that the retail and commercial precincts across the LGA, which are also categorised as employment land, have been analysed in the Shellharbour Retail and Commercial Centres Study (2008) and hence have been excluded from the physical assessment.

Recommendations concerning zoning and function of existing industrial lands across Shellharbour LGA were also based on fieldwork observations using the following assessment criteria:

- Accessibility
- Site encumbrances
- Extent of land use conflict
- Number of persons employed
- Topography
- Size and agglomeration
- Minimal potential residential amenity

Shellharbour Employment Profile

Based on analysis of demographic data spanning 1996-2006 for Shellharbour LGA, the key demographic characteristics and trends were found to be:

- Whilst professionals and managers generally resided in Wollongong and Kiama, Shellharbour experienced the greatest growth in white collar resident workers from 1996 to 2006 (76%) when compared to the other LGAs of the Illawarra.
- Shellharbour LGA had also experienced significant growth in community and personal services, sales workers, and clerical and administrative resident workers since 1996.
- Shellharbour LGA had the greatest percentage of labourers, technicians and trade workers, and machinery operators/drivers in the Illawarra.
- Those industries which saw the greatest decline in resident workers were similar for both Sydney SD and the Illawarra and included: agriculture, forestry and fishing, mining, manufacturing, wholesale trade, and information media and telecommunications.
- At a local level, ABS data indicates Shellharbour and Kiama in fact experienced a positive change in resident workers in mining compared with the regional trend of the Illawarra. However, negative changes in agriculture, forestry and fishing, manufacturing, wholesale trade and information media and telecommunications were in line with the Region. A decline in manufacturing and wholesale trade was most prevalent in Wollongong compared with Shellharbour and Kiama LGA's.
- The number of Shellharbour residents working in retail trade, arts and recreation services, administrative and support services, public administration and safety, and education and training, increased significantly since 1996. Shellharbour also had a larger proportion of resident workers in retail trade and manufacturing than either Wollongong or Kiama LGA's.

- The ABS 2006 Census shows 30.7% of the resident workforce in Shellharbour live and work in Shellharbour LGA. Furthermore, 46.8% of the resident workforce in Shellharbour leaves the LGA to work in Wollongong, and 7.3% leave to work in the Sydney Greater Metropolitan Area.

Demand for Employment Land in Shellharbour

Demand for employment land is expected to increase in Shellharbour LGA due largely to a combination of growth in local population and base industries. Two methods were used to forecast demand and supply of jobs being:

- NSW Transport Data Centre (TDC) job forecasts; and
- Shellharbour Council's methodology.

The TDC forecasts are based on ABS journey to work data also forecasting where particular job types are located. Using TDC forecasts, modelling suggests Shellharbour will require a further 23.5ha of industrial zoned land and 18ha of special uses land to 2031. Given that Shellharbour currently has almost 30 hectares of vacant employment land and given that a further 46 hectares will be provided at the site adjoining the airport (Illawarra Regional Business Park), there is no reason to rezone further land.

However, rather than accept the TDC forecasts Council derived their own methodology based on achieving job sustainability by adopting a target driving time of 20 minutes between home and work and assessed demand and supply relative to this area (Shellharbour LGA and southern Wollongong). The Council method, which also builds in additional supply to address unemployment, suggests that both available and planned areas for employment uses will accommodate up to 2,300 more jobs than required by Shellharbour workers. Therefore planned areas are sufficient to meet demand to 2031.

A large proportion of industrial and service related jobs are located in the southern half of the Wollongong LGA particularly in Port Kembla and Unanderra. These localities south of Spring Hill are within 20 minutes drive of Shellharbour. Hence any assessment of supply and demand for jobs in Shellharbour needs to have regard to the Southern Wollongong area. In total there is around 59 hectares (30 hectares in Shellharbour LGA and 29 hectares in Unanderra) of vacant yet serviced land within a 20 minute drive from Shellharbour residents. A further 446 hectares will come on stream to meet growth in demand over the next 25 years.

Notwithstanding the two different methods the conclusions are similar – that is forecast supply of industrial land will be sufficient to meet demand for jobs in the sub-region to the year 2031.

Specific Local Innovation

As part of this study, Hill PDA was required to research and find case studies of regions and municipalities which have facilitated economic initiative/innovation to improve meaningful local job opportunities and general prosperity. As such Hill PDA examined such regional developments as Bomen Estate (Wagga Wagga), Innovation Campus (Wollongong), Steel River (Newcastle), Honeysuckle (Newcastle), and TradeCoast Central (Brisbane). Furthermore, Hill PDA examined airport business parks, art and cultural incubators, and business incubators.

Shellharbour can apply lessons learnt from these case studies to Shell Cove, Illawarra Regional Airport, and other industrial precincts in the LGA. Trends to note include:

- Industrial zones tend to display an agglomeration of land uses that are diverse in their characteristics, and which have established for a diversity of reasons. Cumulative experience with individual firms demonstrates that locational decisions range between the logical (access to labour/market) and the highly personal and original.
- The land requirements of different firms can vary including needs for different land size, tenure (leasehold versus freehold), particular requirements for large lots, space for expansion, and operational constraints (e.g. sensitivity to electromagnetic radiation or vibration etc).
- Some sectors will tend to be more predictable (e.g. bulky goods retail, local service industries such as car servicing and home improvements); however, the general run of development is highly variable in its demand characteristics.
- Technology and research industries should be encouraged, which will also provide a diversification in base industries in the region. Successful clustering can occur via research and development functions. There may be some scope for research facilities with affiliations with universities or aviation to occur.
- Future activity and land use controls around Illawarra Regional Airport should be appropriately flexible, enabling a variety of uses to be accommodated within overarching objectives that promote industrial, airport related, and employment uses.
- There is a role for State and local government in funding of infrastructure and the coordination of land development.
- Council might consider acting as a developer that services the land and offers lease build packages for industry to purchase.
- Shellharbour is at an advantage to other surrounding local government areas, due to the availability of large single owned blocks of vacant land. Albion Park Rail and land surrounding the Airport provides large parcels of vacant serviced land. For example: one large warehouse for distribution, or alternatively the land can be subdivided, with an internal road and smaller industrial units.

Schedule of Employment Lands and Recommended Zonings

Industrial zones for the Shellharbour LGA should be consistent with the LEP Template and include the following zoning categories:

- IN2 Light Industrial Zone: permitted with consent - Depots; Light industries; Neighbourhood shops; Warehouse or distribution centres.
- B6 Enterprise Corridor: permitted with consent - Business premises; Community facilities; Hotel or motel accommodation; Landscape and garden supplies; Light industries; Passenger transport facilities; Timber and building supplies; Warehouse or distribution centres.
- SP1 Special Activities: permitted with consent - The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose.

The assessment of the existing industrial precincts across the Shellharbour LGA is summarised in the table below which identifies total lot numbers, land area (ha), estimated workers, proposed future zone (in line with the LEP Template) and area (hectares) of industrial precincts.

Table 1 - Shellharbour Schedule of Employment Lands

	Precinct	Total Precinct Area (ha)	Estimated Vacant (ha)	Lots	Est. Workers	Est. Businesses	Employment Land Assessment Score	Current Employment Zones	Proposed Employment Zones
1	Albion Park Rail	37.1	16.0	77	395	68	41/50	4(a) Light Industrial	B6 Enterprise Corridor
								4(a3) Airport Light Industrial	B6 Enterprise Corridor
2	Illawarra Regional Airport	245.8*	45.7	138	352	25	30/50	5(a) Special Use	SP1 Special Activities
								4(a3) Airport Light Industrial	B6 Enterprise Corridor
								78 Tongarra Road – IN2 Light Industrial under Major Projects SEPP	IN2 Light Industrial
3	Oak Flats	28.1	3.6	121	451	143	31/50	4(a) Light Industrial	IN2 Light Industrial
								4(a) Light Industrial	IN2 Light Industrial
								5(a) Special Use	IN2 Light Industrial
4	Central Business Park, Albion Pk Rail	14.8	7.6	81	272	66	39/50	4(a) Light Industrial	B6 Enterprise Corridor
								9(b) Arterial Road Reservation	SP2 Infrastructure
5	Warilla	8.1*	1.5	57	400	45	43/50	4(a) Light Industrial	IN2 Light Industrial
								2(e) Mixed Use Residential	B4 Mixed Use
								9(b) Arterial Road Reservation	SP2 Infrastructure
								2(b2) Residential	B6 Enterprise Corridor
								Princes Highway 4(a) Light Industrial	B6 Enterprise Corridor
6	Barrack Heights	9.2	3.2	57	236	56	43/50	4(a) Light Industrial	IN2 Light Industrial
								Princes Highway 4(a) Light Industrial	B6 Enterprise Corridor
TOTAL		343.1	77.6	531	2,106	403			

* Area includes land not currently zoned for employment uses. See Chapter 5 Assessment of Industrial Precincts.

General Guiding Principles – Industrial Lands

- Council adopt the recommended zones of the specific industrial precincts (based on the underlying land uses and economic and strategic planning factors) in a holistic manner and with the objectives of the end zones clearly identified.
- Encourage the use of light industrial land to provide residential support services (including car and house repairs).
- Provide a range of lot sizes to accommodate a variety of industry types.
- Preserve zoned land that can accommodate relatively large floor plates (larger sized lots) and that are well serviced or connected to main road networks.
- Develop buffer areas of low impact industrial uses (e.g. storage, parking, and landscaped areas) around land zoned industrial to minimise its impact with residential uses.
- Encourage the clustering of industries.
- Maintain high standards of environmental quality for industrial development which enhance the streetscape and amenity of industrial areas.
- Do not permit bulky goods retailing in industrial zones. Allow retailing in industrial areas only where it is ancillary to industrial uses.

Light Industrial

- Preserve large parcels and clusters of light industrial land of different sizes. For example clusters like those that exist in Albion Park Rail, Oak Flats and Barrack Heights.
- Attempt to preserve light industrial land adjacent to major/arterial roads, rail and or port.
- Create and/or improve buffer areas around land zoned light industrial to reduce environmental impact and land use conflict.
- To be consistent with the DoP LEP Planning Template the following key uses should be permitted within this zone: depots; light industries; neighbourhood shops; warehouse or distribution centres.
- A minimum site area of 1,500 square metres for light industrial zoned lots and a frontage of not less than 20 metres should be required.

Enterprise Corridor

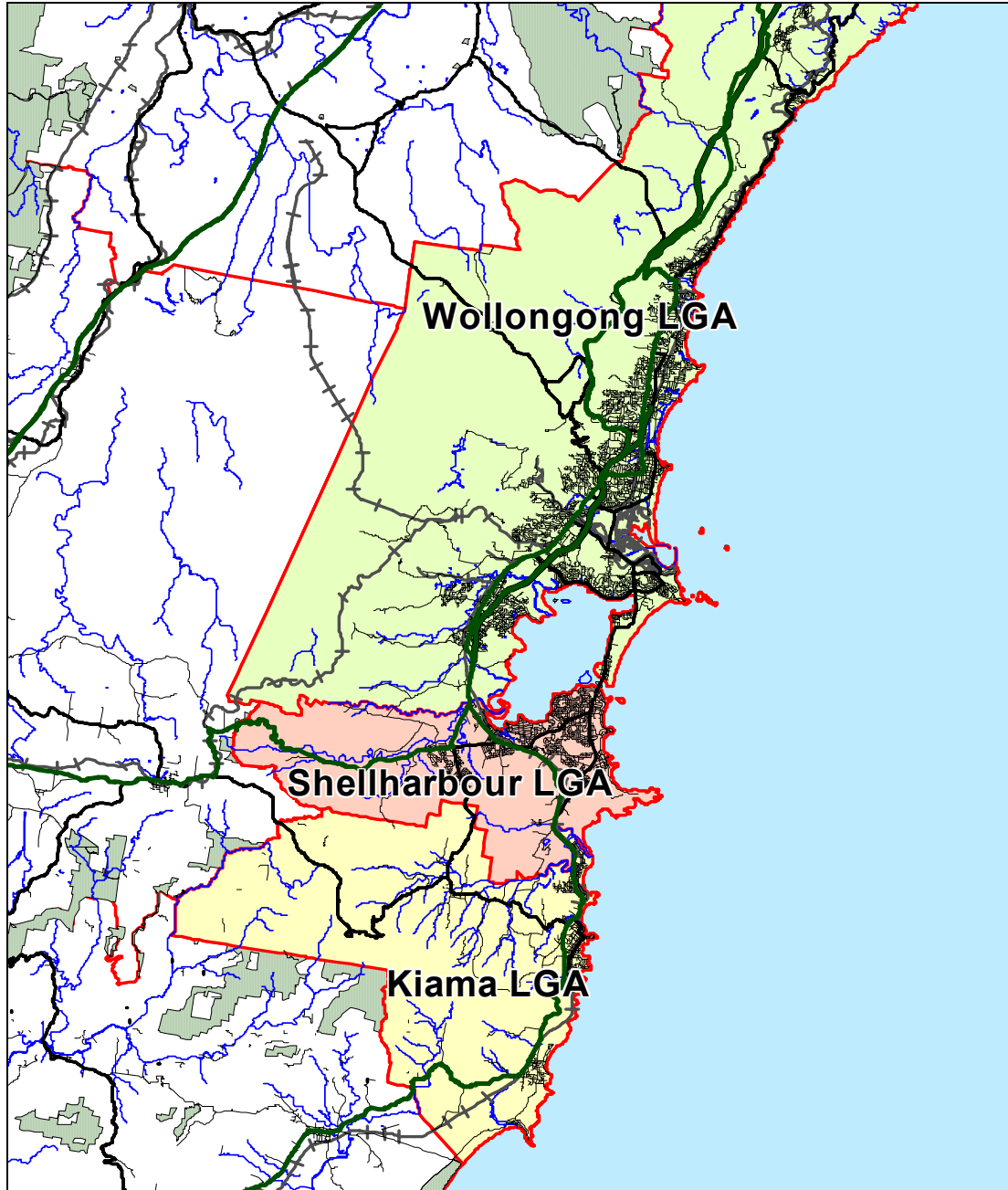
- Enterprise corridors should be located only on major transport routes and should accommodate businesses that require main road frontage and high visibility.
- Retailing should be permitted where it meets the DoP's definition of "bulky goods retailing".
- It is noted from the Shellharbour Retail & Commercial Centres Study (2008), ING are also proposing a 10,000sqm brand outlet centre as part of Stage 1 of their development in Albion Park Rail. The Study considered that the ING proposal be allowed within the Enterprise Zone, adding to the peripheral retailing role of Albion Park Rail.
- Residential should not be permitted in the enterprise corridor.
- A minimum site area of 1,500 square metres for light industrial zoned lots and a frontage of not less than 20 metres should be required.

2. INTRODUCTION

2.1 Study Context

The Shellharbour LGA is situated on the south coast of NSW, and together with the LGAs of Wollongong and Kiama, defines the Illawarra region.

Figure 1 - Map: Illawarra Region



The Illawarra Region adjoins Sydney, the South Coast and the Southern Highlands, which has consequences for connecting employment, transport and settlement opportunities between the surrounding regions. The north of the Illawarra Region is defined by smaller communities, located on the escarpment, looking out over the Pacific Ocean.

Kiama and areas of Shellharbour LGA to the south are characterised by cultural landscapes together with agricultural lands, which offer a long term resource for sustainable food production. The spatial focus of the study is Shellharbour LGA.

Shellharbour LGA contains a number of urban and rural localities. Urban areas within the LGA where retail and commercial facilities are found include Shellharbour City Centre, Shellharbour Village, Barrack Heights, Shell Cove (proposed), Barrack Point, Warilla, Lake Illawarra, Mt Warrigal, Oak Flats, Albion Park Rail and Albion Park.

Rural localities include Dunmore, Croom, Yellow Rock, Tullimbar (proposed), Calderwood, Tongarra and North Macquarie. Whilst light industrial activities are predominately located in Albion Park Rail, Oak Flats, Central Business Park, Warilla/Lake Illawarra, and Barrack Heights. There are also Airport related industrial land uses adjacent to Illawarra Regional Airport and in parts of Albion Park Rail.

In the 1970's Shellharbour was defined as an area for residential growth and since this time has experienced significant increases in its population, with more growth forecast in the next decade. Supporting and overseeing this growth has been an important focal point of Council. Making sure there is key infrastructure such as employment lands to provide employment for residents is also a fundamental aim³.

Hill PDA's 2006 study⁴ on employment lands in the Illawarra and South Coast (which formed part of the Illawarra & South Coast Employment Lands Strategy), noted that despite the fact Shellharbour City is one of the state's youngest cities (having being gazetted in January 1996); it ranks as one of the most progressive non-metropolitan communities in NSW.

Historically, Shellharbour has been a dormitory LGA, relying on Wollongong LGA for jobs, with much of the traditional economic activity of the LGA revolved around mining, dairy farming and some manufacturing. Today, Shellharbour LGA is a vibrant centre for residential and commercial development. New residential developments are not only increasing the area's population, but also having a dramatic impact on its economy. In particular, the fast pace of development requires a large building and construction industry.

Between 1996 and 2006, Shellharbour showed strong employment growth in service industries as well as government and health. Jobs in primary and manufacturing industries have declined since 1991. However, this does not translate to reduced demand for industrial floorspace. Much of the decline in these jobs is attributable to increased automation in manufacturing and other blue collar industries.

³ Illawarra and South Coast Employment Lands Audit, July 2004 (SGS Economics & Planning)

⁴ Illawarra and South Coast Employment Lands Study, 2006 (Hill PDA)

Over time, the influence of particular industries in the Illawarra has changed, heralding movements in job trends. It is acknowledged that there has been an increasing trend for residents in Shellharbour LGA to leave the city boundaries to work, mainly to Wollongong and Sydney.

In order to provide more detailed analysis of issues at a regional level, to strengthen regional economies and to plan for jobs, the NSW Government released regional strategies for defined regions in NSW. The Illawarra Regional Strategy (2007) incorporates the LGA's of Kiama, Shellharbour and Wollongong.

Manufacturing remains the main economic driver of the region (\$6billion annual turnover⁵). However, the expansion of Port Kembla will broaden the industry base of the region, whereby lands will be required to support port related activities, whilst transport infrastructure and corridors are required to ensure freight links to Sydney markets are maintained.

The Regional Strategy identifies the economic challenges of the Region being to:

- Provide opportunities and investor confidence to support local job creation;
- Strengthen the Region's links to Sydney and other regional markets;
- Protect transport corridors both within the Region and to adjoining regions;
- Protect, monitor, and in some cases expand, employment lands to avoid fragmentation; and
- Establish a commercial hierarchy that clearly identifies the roles of centres and the relationship between them.

It is understood that Council requires the Employment Lands Study to strengthen the role of Shellharbour as an employer, through job containment and the protection of strategically important employment lands. Currently 15.8%⁶ of the Illawarra Region's residential workforce commutes to Sydney for employment making job containment a goal for all councils in the Illawarra.

Council acknowledges there is a need to balance the demand for residential uses with the retention of key employment sites and rural land to find a synergy of uses that best suits the future needs of the LGA and its community.

This study takes a holistic approach to employment, considering not only the contribution of employment lands to jobs and the economy across Shellharbour, but also the contribution of commercial and retail centres, in addition to special uses such as health, education, leisure and recreation.

Relevant and unique environmental and social characteristics of Shellharbour that influence employment matters are also considered by the study. These matters include traffic and transport, the natural environment, housing and the changing socio demographics of the population.

It is often critical for councils to protect and enhance strategic employment sites as well as plan for new employment sites that will accommodate the changing needs of industry and commerce. However, this needs

⁵ Illawarra Regional Strategy, NSW Department of Planning, 2007

⁶ Illawarra Regional Strategy, NSW Department of Planning, 2007

to be done whilst relinquishing those that cause conflicts and are better suited to alternative 'Higher & Better Uses'.

With the NSW Department of Planning calling for all Councils to prepare a new LEP by 2011, the Employment Lands Study is an integral component of Council's strategic planning reform. The study is required to provide a basis for identifying employment related objectives and provisions to be included into a new comprehensive LEP.

2.2 Study Objectives

Hill PDA has been commissioned by Shellharbour City Council (Council) for the provision of consultancy services to research and prepare an Employment Lands Study for the local government area (LGA) of Shellharbour.

The Department of Planning has defined employment lands⁷ as land that could be used for employment generating activities including land zoned for industrial and commercial uses.

The Employment Lands Study forms a strategic platform on which to base the future direction of the LGA in terms of zoning and the effective management of employment lands in the development of the comprehensive Local Environmental Plan (LEP).

The objective of study is to provide a vision for the sustainable management and development of employment lands in Shellharbour LGA now and in the future. Additionally the study provides the planning and policy framework to practically achieve this vision.

The key objectives of this study are to:

- Form a detailed understanding of existing and future employment trends in the LGA;
- Identify strategically important employment lands (e.g. working port, hospital etc);
- Understand the demand created by these uses and their effect on land supply in the LGA;
- Provide a range of opportunities for sustainable development and efficient use of employment lands;
- Identify the appropriate zoning for existing and potential growth based on the Department of Planning's Standard LEP Template;
- Inform opportunities for regeneration of underutilised / redundant employment lands; and
- Provide a strategy that is tailored to the existing and likely future needs of Shellharbour.

⁷ Employment Lands Guidelines for the Illawarra, NSW Department of Planning, February 2008

2.3 Study Methodology

The following methodology was applied to inform the study:

- Review relevant studies, development approvals and planning policies for Shellharbour LGA and the Illawarra Region as appropriate;
- Discuss economic and employment trends influencing the Region, wider Sydney and globally;
- Analyse demographic characteristics based on ABS Census data and appropriate population projections;
- Analyse existing employment trends and characteristics of Shellharbour LGA;
- Identify and assess existing industrial precincts across Shellharbour LGA;
- Forecast employment growth and the resulting impact demand for employment land; and
- Identify strategies and principles to accommodate demand for additional employment generating uses and to identify appropriate precincts/ centres for growth.

2.4 Background Documentation

Hill PDA examined the following key documents as background to this study:

- Shellharbour Retail & Commercial Centres Study, Hill PDA (2008);
- Illawarra & South Coast Retail Centres Study, Hill PDA (2004);
- Shellharbour City Economic Opportunity Study, Melissa Nobes (2000);
- Illawarra & South Coast Employment Lands Strategy, Stages 1-3, SGS Economics & Planners, Diana Gibbs & Associates, Hill PDA (2004-2006);
- Household Type & Formation Study – Illawarra Region, SGS Economics & Planning (2006);
- Illawarra Regional Strategy, NSW Department of Planning (2006);
- Shell Cove Structure Plan Review Report, Leyshon Consulting (1999);
- Shellharbour Town Centre Land Use Demand Analysis, Leyshon Consulting (1998); and
- Illawarra Regional Airport Masterplan (1990).

Reports and studies from outside Shellharbour LGA (e.g. Wollongong Council planning documents and strategies) were also examined and are referenced as appropriate throughout the report.

3. PLANNING AND POLICY REVIEW

This section provides an overview of the planning context in which employment land activity in Shellharbour LGA is managed. It includes the following provisions as applicable to employment land use and development:

- State statutory provisions (including relevant Acts, State Environmental Planning Policies, Ministerial Directions, Illawarra Regional Strategy, and Illawarra & South Coast Employment Lands Strategy);
- State planning reforms (including the State's LEP Template); and
- Local statutory provisions (including LEP's and Development Control Plans).

3.1 NSW State Statutory Provisions

For the present study, a brief outline is presented below of the key state planning policies which are relevant to the planning and development of employment activity in Shellharbour LGA.

- State Environmental Planning Policy No.11 – Traffic Generating Development (1985 as amended);
- State Environmental Planning Policy No.22 – Shops and Commercial Premises (1987 as amended);
- State Environmental Planning Policy No. 33 - Hazardous and Offensive Development (1992);
- State Environmental Planning Policy – Infrastructure (2007);
- Draft State Environmental Planning Policy No. 66 – Integration of Land Use and Transport Policy (2001);
- Ministerial Direction No. 3 – Business Zones;
- Ministerial Direction No.12 – Development near Licensed Aerodromes; and
- Ministerial Direction No. 17 – Integrated Land Use Transport.

3.2 NSW Standard Local Environmental Plan Template

In the development of an Employment Lands Study for Shellharbour LGA, consideration must be given to the Standard Instrument (Local Environmental Plans) Order 2006, prepared by the NSW Department of Planning and known as the LEP Template.

The Department's aim in developing this LEP Template is to simplify the State's planning system and to modernise local planning controls and make the planning system simpler to understand and use. The recommendations in this report have considered the concepts of the LEP Template and nomenclature of employment and industrial lands.

It is recommended that for each of Shellharbour's existing zoning categories and provisions be revised to take into consideration those identified in the LEP Template. This is not to say that all zonings and provisions defined in the LEP Template should be adopted.

The land use zones identified under this LEP Template are as follows:

Table 2 - Standard Instrument (Local Environmental Plans) Order 2006

Residential Zones	Business Zones	Industrial Zones	Special Purpose Zones
R1 General Residential	B1 Neighbourhood Centre	IN1 General Industrial	SP1 Special Activities
R2 Low Density Residential	B2 Local Centre	IN2 Light Industrial	SP2 Infrastructure
R3 Medium Density Residential	B3 Commercial Core	IN3 Heavy Industrial	SP3 Tourist
R4 High Density Residential	B4 Mixed Use	IN4 Working Waterfront	
R5 Large Lot Residential	B5 Business Development		
	B6 Enterprise Corridor		
	B7 Business Park		
Rural Zones	Recreation Zones	Environment Protection Zones	Waterway Zones
RU1 Primary Production	RE1 Public Recreation	E1 National Parks and Nature Reserves	W1 Natural Waterways
RU2 Rural Landscape	RE2 Private Recreation	E2 Environmental Conservation	W2 Recreational Waterways
RU3 Forestry		E3 Environmental Management	W3 Working Waterways
RU4 Rural Small Holdings		E4 Environmental Living	
RU5 Village			
RU6 Transition			

Source: Standard Instrument (Local Environmental Plans) Order 2006

These standard zones contain mandatory land uses which must be included. However, the Minister has directed that Council's may add to these to cater for specific conditions within their areas. For example, it may be possible to include Rural Tourism, which would be a zone that maintained the agricultural integrity of the rural lands, while permitting complementary activities that supported economic diversification.

The application of appropriate zones as defined in the LEP Template existing employment zones of the LGA are identified in Section 9 of this report.

3.3 Illawarra Regional Strategy (2006-31)

The original regional plan that applied to Shellharbour LGA was the Illawarra Regional Environmental Plan No.1. It is acknowledged that REP 1 is now outdated and will be replaced in the near future as a consequence of the Illawarra Regional Strategy (2006-31).

The Regional Strategy as prepared by the NSW Department of Planning should be considered when determining specific strategies and guiding principles for employment lands across Shellharbour LGA.

The Strategy provides a 25 year land use blue-print for the 3 LGAs of the Illawarra (Shellharbour, Kiama and Wollongong). The Strategy also provides a commercial centre hierarchy for the region. Councils are required to implement mechanisms and controls to protect and support the hierarchy of commercial centres and implement the land use planning principles for employment land.

The Regional Strategy also identifies that Shellharbour LGA has a shortfall of vacant employment land, which needs to be addressed to encourage small business growth and diversification. The Strategy also requires that Councils implement the Employment Lands Principles and which are further discussed in Section 9 of this report.

Direction No. 30 of Section 117 Ministerial Directions refers to the implementation of regional strategies indicating Draft LEPs should be consistent with regional strategies as released by the Minister of Planning. As

such, a draft LEP may be inconsistent with the strategy only if Council can satisfy the Department of Planning that the extent of the inconsistency with the regional strategy:

- a) Is of minor significance; and
- b) The draft LEP achieves the overall intent of the regional strategy and does not undermine the achievement of its vision, land use strategy, policies, outcomes or actions.

3.4 Illawarra & South Coast Employment Lands Strategy (2004-06)

The Illawarra Regional Strategy (2006-31) was informed by the Illawarra & South Coast Employment Lands Strategy (2004-06).

The NSW Department of Planning together with the Department of State and Regional Development, Premiers Department and the Southern Group of Councils, commissioned several expert consultants to assist in the preparation of an employment lands strategy for the Illawarra and South Coast Region.

The main purpose of the strategy was to make certain that there will be sufficient employment opportunities for future populations within the Region. The Region comprises the LGA's of Wollongong, Shellharbour, Kiama, Shoalhaven, Eurobodalla, Bega Valley and Wingecarribee. The Employment Lands Strategy comprised 3 stages.

Stage 1 - Illawarra and South Coast Employment Lands Audit, SGS Economics & Planning (2004): This stage involved the performance of an audit of employment lands in the Illawarra and South Coast Region. The report identified a profile of the existing employment land supply, including details of developed and vacant land area plus details of land use by industry type.

Stage 2 – Illawarra and South Coast Employment Lands Strategy – Economic and Employment Opportunities Study, Diana Gibbs and Partners (2005): The Stage 2 report provided an overview of the Regions economic and employment context. The report also developed an employment lands demand assessment model based on the existing employment profile and anticipated population growth of the Region.

Stage 3 – Illawarra and South Coast Employment Lands Study, Hill PDA (2006): The final stage of the Strategy focussed on regional planning issues by:

- a) Reviewing the existing environmental planning instruments and policies regarding employment lands;
- b) Developing land use planning and policy options to accommodate future economic activity and optimise the region's ability to facilitate employment generating land uses through the land use planning process; and
- c) Identifying implications for land use planning and regional policy development.

3.5 Shellharbour Local Environmental Plan (2000)

This section examines the existing Shellharbour LEP (2000) that applies to the various employment lands in Shellharbour LGA. Specifically, this considers the following:

- Industrial zones;
- Commercial zones;
- Special Use zones; and
- Residential zones where mixed uses, including employment are permitted.

Industrial Zone Provisions

General industrial uses are permitted in **Zone 4(a) Light Industrial** with the objective of providing for a wide variety of light industrial uses which are generally compatible with nearby residential neighbourhoods.

As well, general industrial uses are also permitted in **Zone 4(a3) Airport Light Industrial** around Illawarra Regional Airport to provide for a wide variety of light industrial uses which are generally compatible with nearby residential neighbourhoods. Additionally, the zone is to encourage, where appropriate, the development of industries that are airport-related and, as a result, to diversify the industrial base of Shellharbour in a manner compatible with use of the adjacent Illawarra Regional Airport.

Generally, bulky goods retailing may be permitted in Zone 4(a) Light Industrial and Zone 4(a3) Airport Light Industrial providing that there has been consideration of the availability of other suitable business centres, that development is predominately of an industrial nature, and that the effect of the viability of any nearby business centres have been considered.

Motor showrooms are not permitted in Zone 4(a) Light Industrial, including certain land on Princes Highway (13-97 Princes Highway), and near Albion Park Rail (2-6 and 1-7 Mye Place or 6-8 Creole Road) unless additional vehicle egress and access points have been provided to the Princes Highway. Similarly, in Zone 4(a3) Airport Light Industrial the Council should not grant consent for development of land unless additional access and egress points are also provided for.

Extractive industrial uses are permitted in **Zone 4(c) Extractive Industrial**.

Special Industrial uses are provided for in **Zone 4(f) Special Industrial** which provides suitable areas for those industrial uses which are more appropriately located away from residential areas by reason of the emission of noise, fumes, dust or the like.

Commercial Zone Provisions

Zone 3 (a) Mixed Use Commercial aims to provide for mixed use retail/commercial centres in locations that have developed historically or, which are centrally located. Additionally, the zone allows for mixed use development incorporating residential and commercial or retail activities, and encourages the development of commercial/retail centres that provide for daily convenience and higher order needs of the surrounding residential areas.

Permitted uses within the zone include (but are not limited to): home businesses (child care, businesses and occupations); shops; commercial premises; bulky goods stores; dwellings; dwelling houses; medium density housing; warehouse; motor showrooms; hotels; motels; clubs; child care centres; general agriculture.

Zone 3(d) Neighbourhood Business allows for retail and commercial businesses of a scale that is unlikely to prejudice the viability of a higher order commercial centre. Furthermore, the zone provides for retail and commercial services that may cater for the daily convenience needs of the local community, and allows for mixed use development incorporating residential and commercial or retail activities.

Permitted uses include (but are not limited to): home businesses (child care, businesses and occupations);shops; commercial premises; dwellings; dwelling houses; medium density housing; child care centres.

Bulky goods retailing is permitted in both zones, whilst motor showrooms and warehouses are permitted only in the 3(a) Mixed Use Commercial Zone. Motels; clubs, hotels and taverns are permitted in the 3(a) Mixed Use Commercial Zone but prohibited in the 3(d) Neighbourhood Business Zone.

Special Uses Zone Provisions

Zone 5(a) the Special Uses maintains land for certain community facilities and services, whilst **Zone 5(b) Special Railway Uses** maintains land for railway purposes.

Clauses 40 to 42 concerns consideration of interim development, commercial or retail uses in these zones, as well as temporary uses by charities and service clubs.

Residential Zone Provisions

It should be noted that commercial and retail development is permitted in **Zone 2(e) Mixed Use Residential** and **Zone 2(f) Mixed Use Residential**.

Clause 25 of Part 3 Residential Zones Provisions in the LEP specifies that despite any other provision of this plan, Council may consent to commercial or retail development (or mixed commercial and retail development) on land within Zone 2(e) or 2(f) only if, in the opinion of the Council, it will promote the commercial hierarchy for the Shellharbour City Local Government Area.

3.6 Shellharbour Development Control Plans and Masterplans

The section identifies the existing Development Control Plans (DCPs) and Masterplans within the Shellharbour LGA that apply to employment lands, specifically identifying their key objectives. These controls should be considered when examining employment lands across Shellharbour LGA.

Industrial Development Control Plan (2006)

The Industrial Development Control Plan applies to all land within Shellharbour LGA under Zone 4(a) Light Industrial, Zone 4(a3) Airport Light Industrial, Zone 4(f) Special Industrial, and other lands where industrial development may be allowed. The aims of the plan are to:

- Improve the appearance and quality of individual industrial developments and estates;
- Ensure building bulk does not become undesirable;
- Consider traffic functions, on-site car parking, waste and manoeuvring on site;

- Ensure development is not unreasonably detrimental to the surrounding area in terms of use, design, height, scale, open space, landscape and density;
- Minimise and regulate activities that have a negative impact on the environment, and are detrimental to public health;
- Minimise the causes of non-compatibility between different land uses and provide adequate buffers and screen storage areas;
- Ensure industrial developments are designed with a height that takes into account site constraints;
- Ensure industrial developments are constructed and operated to comply with cleaner production principles; and
- Create a pleasant working environment for employees.

The DCP also contains a number of provisions that relate to building line setbacks, setbacks for fencing, landscaping and car parking, height of industrial buildings, parking and access driveways, manoeuvring areas, building standards, general site requirements, hours of operation, and fencing.

Commercial Development Control Plan (1992)

The Commercial Development Control Plan defines the planning controls for all land within the Shellharbour LGA which is zoned to permit commercial or shop development. Specifically the plan applies to the development or redevelopment of any land under Zone 3(a) Mixed Use Commercial and Zone 3(d) Neighbourhood Business as well as other lands where commercial development may be permitted.

Motor Showroom Development Control Plan (1997)

This development control plan applies to all land on which motor showrooms are permitted. The objectives of the Motor Showroom DCP are to balance the practical requirements of the motor sales industry with the Council objectives in relation to design, visual appearance etc. Additionally, the DCP aims to ensure that motor showroom developments do not unduly impact on the streetscape, and to ensure that the design of showrooms considers the car parking and car delivery functions are appropriate and do not impact adversely on traffic flows along Princes Highway.

Former School Site, Shellharbour Road, Shellharbour (Tawarra Site) Development Control Plan No.1/92 (1992)

This plan aims to control development on the former school site on Shellharbour Road near the intersection of Beach Road in Shellharbour, having regard to the inherent opportunities and constraints of the site. The objectives of the plan are to enable greater flexibility in the potential use of the land, ensuring that development of the land is compatible with surrounding land uses and local planning strategies.

The DCP notes that preferred land use types for the site include low scale tourism related developments, short-stay accommodation, low-scale commercial/office uses (exclusive of high traffic generating businesses), child-minding facilities, and technology centres. The DCP notes that Council will not support multi-unit housing forms, significant permanent residential occupation, subdivision for residential development, nor significant

traffic generating developments; as these are considered to be inappropriate land use activities in regards to the overall objectives of the plan.

Lake Entrance Road, Blackbutt Development Control Plan No.3/91 (1992)

This DCP applies to lots 1-3, DP 786327 at the corner of Government Road and New Lake Entrance Road, Blackbutt. The plan aims to encourage commercial and bulky goods development and to minimise any possible adverse impacts of such development upon existing development and traffic movements within the locality by identifying performance standards and controls.

Albion Park Commercial Development Control Plan (1997)

The Albion Park Commercial Development Control Plan provides a framework to guide developments in Albion Park Commercial Centre bounded by Tongarra Street to the north, Terry Street to the east, Russell Street to the south and west. The key objectives of the DCP are to ensure that development in the centre is in a coordinated way; access is maximised; urban design is harmonious and aesthetically appealing; and the provision of 'shop top' style residential development is promoted. This DCP applies to part of Albion Park retail centre only.

Warilla Professional Suites Development Control Plan (2001)

The Warilla Professional Suites Development Control Plan applies to land located at Lots 27-24, DP 23988, 97-103 Shellharbour Road and Lots 32-28, DP 23454, 105-113 Shellharbour Road, Warilla. The plan aims to guide development in this area to promote a consistent approach; identifying key design elements and principles which will improve the visual amenity and cohesiveness of the area; and provide a way through which the area can attain a distinctive identity as a professional medical services area. This DCP applies to residential zoned land outside of Warilla retail centre.

Shellharbour Township Commercial Centre Development Control Plan (1990)

This DCP focuses on commercial development in Shellharbour Village, and specifically aims for commercial development to be concentrated on Addison Street rather than side streets. The objective of the DCP is to establish architectural guidelines for the 'erection, alteration or renovation of commercial developments which provide a distinctive quality and character for the Shellharbour Township Commercial Centre'.

Former School Site, Shellharbour Road, Shellharbour (Tawarra Site) Development Control Plan No.1/92 (1992)

This plan aims to control development on the former school site on Shellharbour Road near the intersection of Beach Road in Shellharbour, site having regard to the inherent opportunities and constraints of the site. The objectives of the plan are to enable greater flexibility in the potential use of the land, ensuring that development of the land is compatible with surrounding land uses and local planning strategies.

The DCP notes that preferred land use types for the site include low scale tourism related developments, short-stay accommodation, low-scale commercial/office uses (exclusive of high traffic generating businesses), child-minding facilities, and technology centres. The DCP notes that Council will not support multi-unit housing forms, significant permanent residential occupation, subdivision for residential development, nor significant

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Shellharbour City Centre Masterplan (2008)

The Shellharbour City Centre Masterplan is aimed at providing guidance and direction for the future development of Shellharbour City Centre. It is understood that this Masterplan supersedes the original Shellharbour City Centre Masterplan adopted by Council in December 1998.

Prior to the introduction of this Masterplan, the centre was faced with uncoordinated growth. Specifically, the Masterplan is aimed at creating a defined City Centre – a place with the level of public domain, 24 hour access, amenities and facilities expected of a City Centre. Future features of the City Centre Masterplan include the City's new Central Library, an expansive 5-hectare City Park and recreational areas, continued growth of the "main street" retail and entertainment precinct including better physical integration with an expanded Stockland Shellharbour, a mix of commercial and residential developments, and a new civic precinct.

Shellharbour City Centre Development Control Plan (2001)

The Shellharbour City Centre Development Control Plan, was adopted to provide the guidelines and controls for development in the City Centre based on the principles defined in the Shellharbour Master Plan.

Shellharbour City Centre – Precinct Development Strategies

The Precinct Development Strategies acts as an advisory document prepared as specified under the Shellharbour City Centre Development Control Plan to support developers, builders, investors etc. in the interpretation of the Masterplan and DCP.

3.7 Wollongong LGA Planning Context

Hill PDA reviewed existing and draft planning strategies for Wollongong LGA covering plan making and rezoning. Additionally, strategies relating to the future economic development within Wollongong LGA were examined, which may impact future employment activities and land within Shellharbour LGA.

Wollongong Economic Development Strategy (2006)

The Economic Development Strategy highlighted the following:

- Development within Wollongong LGA over the next 20 years has the potential to increase Wollongong LGAs population by up to 50,000;

- West Dapto will be a planned community, resulting in 20,000 dwellings and 178 hectares of employment land; and
- Development will be staged over 20 years from 2007.

West Dapto Economic & Employment Study Draft (2004)

The Economic & Employment Study for West Dapto concluded the following:

- Potential new activities at West Dapto will include:
 - Agriculture, hunting and trapping – horticulture and fruit cropping;
 - Manufacturing – Metals, clothing and footwear, non-metallic mineral products, basic metals and products, transport equipment, other machinery and equipment, miscellaneous manufacturing;
 - Distribution and storage – road freight transport, services to transport;
 - Wholesale trade – basic material wholesale; farm produce wholesale; metal product wholesaling; building and construction wholesaling; personal and household good wholesaling; storage;
 - Construction and fabrication – General construction trade services; installation trade services; site preparation services; building structure services; building completion services; and
 - Services – neighbourhood centre retailing; medical and dental provision; aged care health provision; leisure centre; housing types with scope for home based business; primary and secondary schools; childcare; community centres; café/restaurant provision; property and business service local provision; finance (banks/post office) provision; personal service provision (e.g. beauticians, hairdressers etc).

Wollongong Economic Development Strategy (2006)

The study identified those sectors which offer long term sustainable opportunities for Wollongong and highlighted the following:

Settlement and Land Use Patterns:

- The report notes that for Shellharbour LGA – population growth and associated residential development has lead to some development in retail and services, plus limited growth in light industrial activity. Recommencement of commercial flights at Illawarra Regional Airport in Albion Park is seeing some aviation related industry agglomerate at the site.

Economic, Technological, Social and Demographic Change:

- Significant population growth is expected over the next two decades as a result of new housing development in West Dapto and Shellharbour LGA.
- Industry and employment trends include:
 - Growth of the service sector;

- Significant growth of employment in the city centre.
- Increase in number of commuters to the Sydney metropolitan area;
- Increase in higher skill level jobs and a contraction in lower skill entry level jobs;
- Increase in participation of women in the workforce; and
- Growth in part time and casual work.
- Employment in Wollongong LGA is focussed in the city centre (30%); Port Kembla; Warrawong; Berkeley; North Wollongong; and Dapto.
- Wollongong's population in 2001 was 181,612 representing 70% of the total population of the Illawarra Region.
- Between 1996-2001 employment growth was negative, with Sydney constantly being an employment escape valve.
- Major industries include manufacturing, retail, health and community services, business services and education.

Regional Development and Prospects:

- The major economic challenge for Wollongong's future is job growth. The LGA needs to ensure job growth in order to cope with the increased labour force generated from a growing regional population (including West Dapto).
- Wollongong needs to enforce its position as a regional services centre.
- Major threat to job growth is infrastructure and lack of funding for infrastructure.
- Wollongong needs to continue as the regional centre for the Illawarra and parts of the South Coast and to have a business base that is linked with domestic and international markets.
- Wollongong needs to focus on major projects, business growth and action on constraints. Major projects include:
 - Revitalisation of the city centre and strengthening of its regional service role;
 - Successful diversification of the Port and development of supporting industries;
 - Success in attracting companies to the Innovation Campus and achieving a staged development of the precinct;
 - City wide LEP modernisation of the city.
- Recommended that in the planning of West Dapto, Council continues to focus on employment lands and developing local jobs in the area, including unlocking employment lands at Kembla Grange
- Recommended that Council initiate a targeted program of promotion of Wollongong as a business location, with this promotion being based on a marketing plan linked to a business/investment attraction strategy to secure new jobs and investment.
- Wollongong faced with constraints on development including a shortage in employment lands, aging infrastructure and a need to revitalise areas of the city centre.

- Wollongong LGA 2030 + 20,000 jobs of which 2,000 plus will be in retail and services

West Dapto:

- Major development for Wollongong;
- Development over the next 20 years has the potential to increase Wollongong LGAs population by up to 50,000.
- West Dapto will be a planned community, resulting in 20,000 dwellings and 178 hectares of employment land.
- Development will be staged over 20 years from 2007.

Other town centres are being redeveloped apart from West Dapto, these include Port Kembla, Berkeley and Thirroul. Other signature projects include the Foreshore Masterplan.

Wollongong City Centre Plan (2006)

The Wollongong City Centre Plan recognises the connection between economic development and the quality of place through redevelopment and improvement of Wollongong City Centre. As such, the Plan is the first step in delivering a city centre which is centred on a strong employment base and promotes Wollongong as the regional centre of the Illawarra Region.

The Plan forecasts that the population of Wollongong LGA is expected to increase by over 52,000 people over the next 25 years, resulting in increased demand for 32,400 new dwellings. The new release area of West Dapto will supply over half of this housing demand, whilst 6,500 dwellings will be required in higher density housing forms in existing established areas.

4. TRENDS IMPACTING EMPLOYMENT LANDS

There are a number of local, regional and global trends that are, or may in the future affect employment generating uses in Shellharbour and the Illawarra Region. In particular, these trends can influence employment type, location, skill requirements, and the success and economic viability of businesses.

The following section analyses these trends at a macro (and in some cases at a micro level) to better understand the potential future influences on employment and employment generating uses in this Region.

4.1 Growth of the Global Economy

It can be seen that the economic strength of cities has historically coincided with their ability to capitalise on the dominant transportation network of that particular period. First it was the seaports. After these, it was rivers and canals, followed by the development of the railways, and then the highways. Today the catalyst for growth is widely seen to be airports, major highways (such as the M5 and M7) and high quality infrastructure.

Thus, cities favoured by the dominant transportation infrastructure and established trade routes became important focuses for immigration and market places for the exchange of goods and information. They evolved into 'Gateway Cities' and in some cases 'Global Cities'. A Global City may be defined as a city that has an effect on global affairs. Some of the key considerations in defining a Global City are whether it has:

- International familiarity;
- An active influence and participation in international events;
- A large and diverse population;
- A major international airport; and
- The presence of international institutions.

In Australia, it is Sydney that has emerged as Australia's international gateway and "*pre-eminent international business city*". The Metropolitan Strategy recognises Sydney's role as a Global City and that 50% of Australia's top 500 companies are located within Sydney and 65% of the regional headquarters for multinational corporations are located within NSW. Sydney is considered a "*primary link between the Global and Australian economies*" and "*the nation's main international air and communication gateway*".

4.2 Accessibility and the Need for Space

In all likelihood, and as current evidence suggests, demand for new employment lands across the Illawarra will be focussed on the development of high throughput distribution facilities and what has been termed "bulk fulfilment distribution centres", where large quantities of goods are broken down for distribution to consumers of small business markets. Locations for these facilities are being increasingly sought in hub/gateway areas in close proximity to major transportation infrastructure. In contrast there is likely to be reduced or stagnant demand for more traditional storage and commodity based industrial property.

In Sydney this pattern can be seen with the realisation of opportunities generated by the development of new transport infrastructure. In areas located on periphery of the Sydney metropolitan region (areas such as Arndell Park) comparatively inexpensive land serviced by new infrastructure (e.g. the Western Sydney Orbital and the M4 motorway) have become attractive alternatives to traditional industrial areas for transport and logistics related activity. The M5 Industry Park at Moorebank, which offers a high level of access to the M5 Motorway, Hume Highway and several other major arterial roads, exemplifies this trend. In this industrial park, the logistics group, Toll Ipec, occupy a large building comprising some 21,500sqm.

Whilst this trend is less evident outside the metropolitan there are a growing number of industries that seek proximity to major transport nodes and there are regional cities that offer these facilities with examples being Wollongong, Albury, Wagga Wagga and Parkes. These regional cities have airports, railways and major high-speed highways between the capital cities that have made them attractive destinations. Albury and Wagga Wagga in particular are positioned centrally in the triangle between Sydney, Melbourne and Adelaide. Additionally, the Illawarra has regional links to Canberra, Melbourne and Sydney. The airport and the upgrade of the Princes Highway and Southern Freeway links will improve the attractiveness of Shellharbour for future industries.

4.3 Economic Gateways

Of specific relevance to the present exercise is the increasingly significant role played by economic gateways in urban economies. Economic gateways are broadly defined as the exit/entry points to a region that supports the movement of commodities, products, services, information and ideas between itself and regions with which it has economic and commercial relationships. They are usually focussed on interaction points between the national and the global economy, but they can also be the interaction points between the metropolitan economy and other cities and regions of the national economy.

Specifically gateways are the physical infrastructure – such as airports and seaport, information technology and telecommunication systems – that facilitates the movement of tradeable products, services, data and information and/or people. Over the past 2-3 decades a dramatic expansion of production, trade, finance and the movement of people have resulted in a fundamental reorganisation of the global economy and widespread recognition of the need to reinforce the strategic role played by economic gateways.

This is evident in the growth of businesses around the airport and seaports. In the regional cities it is evident of business growth around the transport hubs or inland ports, and should be seen around the Illawarra given the expansion of port activities at Port Kembla.

4.4 Tourism

In 2005-06, the direct and indirect contribution of tourism to Australia's GDP was just over \$65 billion (6.8% of GDP). This translated into approximately 810,000 jobs (9.3% of jobs in Australia). Within Sydney, tourism contributes \$11 billion to the economy per annum. This is created through over 16 million day trips, 50 million International nights and 22 million domestic nights.

In 2008, Tourism Research Australia release local government tourism profiles developed to assist regional Australia. There are over 500 Local Government Areas located outside capital city tourism regions which TRA has development tourism profiles for based on data from the international and national visitor surveys.

The tables below summarise international and domestic travel to Shellharbour LGA as well as tourism businesses located in Shellharbour LGA and with state and national comparisons as at June 2007.

Table 3 - Summary of International and Domestic Travel to Shellharbour LGA (4 year average to June 2007)

	International	Domestic Overnight	Domestic Day
Shellharbour LGA:			
Visitors ('000)	na	60	191
Visitor Nights ('000)	na	164	-
Spend (\$million)	na	\$15	17
Average Stay (nights)	na	2.7	-
Average Spend per Trip (\$)	na	\$250	\$90
Average Spend per Night (\$)	na	\$92	-
State Average:			
Average Stay (nights)	19	3.5	-
Average Spend per Trip (\$)	\$1,849	429	\$97
Average Spend per Night (\$)	\$99	125	-
National Average:			
Average Stay (nights)	28.6	3.9	-
Average Spend per Trip (\$)	\$2,758	\$498	\$94
Average Spend per Night (\$)	\$97	\$126	-

Source: Tourism Research Australia, 2008. www.tra.australia.com

The table above indicates that based on a 4 year average to June 2007, Shellharbour LGA had 60,000 domestic overnight visitors and 191,000 domestic day visitors, spending an average of \$250 and \$90 per trip respectively. There was insufficient data to analyse international visitors.

Table 4 - Summary of Tourism Business in Shellharbour LGA (as at June 2007)

Tourism Business	Number	%	State Average %	National Average %
Non-Employing Business	465	44	50	50
Micro Business (1-4 employees)	348	33	29	27
Small Business (5-19 employees)	174	17	15	16
Medium to Large Business (20 or more employees)	63	6	6	7
Total	1,050	100%	100%	100%

Source: Tourism Research Australia, 2008. www.tra.australia.com

Tourism and recreation has not previously been a major industry in Shellharbour LGA, with tourism focussed on other parts of the Illawarra Region like Wollongong and Kiama. As such, at the Shellharbour level, there is little separate or accurate tourism related data. Much of the industry related data is reflected in jobs in various industry sectors such as accommodation, cafes and restaurants.

However, according to the Illawarra Regional Information Service⁸, tourism and recreation are seen as future growth industries for the Shellharbour area, given the natural advantages of the Illawarra escarpment, Lake Illawarra, new boat harbour proposed for Shell Cove and beautification and infrastructure improvements in Shellharbour Village.

It is understood from the Albion Park Chamber of Commerce, that Albion Park is implementing tourism initiatives to increase inland recreation especially taking advantage of Albion Park's heritage and proximity to the escarpment.

4.5 Transport and Infrastructure

The provision of local infrastructure is also one of the key determining factors for developers and businesses seeking to locate within a region. The suitable provision of infrastructure is also of significant social benefit and supports a healthy and safe community which in turn supports business function and a strong economy.

The Illawarra Region is served by an extensive arterial road network which includes Princes Highway linking Shellharbour to Sydney and the South Coast, as well as the Illawarra Highway connecting the Shellharbour to the major north-south corridor of the Hume Highway, Southern Highlands, Western Sydney and Sydney via the F6 Freeway.

The Region is also served the South Coast rail line which connects to Sydney and Nowra-Bomaderry, as well as the Moss Vale rail line providing connections to the Southern Highlands and on to the Main Southern Line (connecting to Melbourne and south west NSW). It is also recognised that there is a regional desire to increase the use of rail for freight movements, and improve linkages to and use of the Main Southern Line.

Over 72% of travel trips to work start and finish in the Illawarra Region according to ABS 2006 Census Journey to Work data. In order to address the matter of road congestion, transport connectivity, environmental sustainability and job containment, matters relating to traffic and transport require collaborative work at a Regional level. Some of the key regional transport actions in the Illawarra Regional Strategy (2006-31) include the need to:

- Protect important existing transport corridors within and out of the Region, including the Princes Highway;
- Local Environmental Plans are to recognise and protect the regional transport network through appropriate planning provisions;
- Land use planning decisions must consider transport access implications to minimise the need to travel, and encourage energy and resource efficiency;
- The Roads & Traffic Authority will monitor the ongoing performance of the road network. Monitoring will identify any potential planning requirements for future access to the Illawarra Region;
- Ensure the timely implementation of major transport infrastructure projects, which are planned and under construction. This includes upgrade to the Princes Highway, Oak Flats-Dunmore etc;

⁸ Illawarra Regional Information Service, www.iris.org.au

- Councils should identify strategic transport corridors (including public transport corridors) in consultation with the Department of Planning and the Roads & Traffic Authority. This will include identification of management measure to protect the long term function of the corridors;
- Rail Corp will continue to monitor the ongoing performance of the South Coast rail line, including future capacity requirements in terms of commuter numbers and freight movements. Monitoring will identify any potential planning requirements for future development of the rail network; and
- Land use planning decisions will protect Illawarra Regional Airport, recognising the link it provides to and from the Region.

Additionally, regional stakeholders are working with Government for transport strategies for the Illawarra and South Coast. The Illawarra Transport Taskforce released *Moving Together: A Transport Strategy for Kiama, Shellharbour and Wollongong (2004)* which developed a range of actions covering accessibility, communication, integration, and urban planning and policy. Principals of the Strategy include:

- Significantly reduce rail travel times between Wollongong and Sydney;
- Identify future key freight links and plan for improved freight movement on these links;
- Examine the feasibility of intermodal freight interchanges;
- Upgrade public transport interchanges; and
- Provide physical and timing priority for preferred road based modes (i.e. pedestrians, buses, taxis, and bicycles) by, for example, bus lanes, transit lanes and 'B' traffic phase lighting.

The State Government has also recognised this issue in the NSW State Plan. The Plan has established targets for transport to increase the share of peak journeys on safe and reliable public transport systems and to improve the efficiency of the road network.

Ongoing State and Local Government commitment to funding an array of infrastructure improvements within the Region will be critical to meeting the needs of a growing resident and business community and to continue to attract business confidence and investment in Shellharbour.

With the growth of the population, the ease of access within the Illawarra Region will become as critical from a social and economic point of view as from Illawarra to other regions and Sydney. Therefore the promotion of links within the Illawarra Region and the implementation of new roads, rail and bus connections should be of paramount importance. The promotion of sustainable methods of travel is also important as they help to maintain the environmental quality of the Region.

4.6 Commercial Office

Sydney's role as a Global City influences the types of employment generating uses and their spatial distribution. By way of example, Global Cities have a high concentration of multinational companies and the associated commercial office space. Much of this floorspace tends to focus around traditionally prestigious locations such as the Central Business District.

In Sydney's case, more than half (56%) of the total existing stock of office floorspace in the metropolitan area is located in the City Centre (4.2 million square metres) and its fringes around Pyrmont, Ultimo, and South Sydney (1.1 million sqm). This extends to 90% of Sydney office space if the North Shore and the South are included.

This concentration of office based activity is recognised as the Global Economic Corridor for Sydney. It is an important component of the competitiveness of Sydney as a global city. Hill PDA's commercial market research has found that the commercial office market in Sydney CBD and North Sydney is experiencing some of the most significant increases in demand and pre-let values experienced for 30 years.

This trend is a likely result of a strong Australian economy and a 32 year low in unemployment rates. Coupled with the low rate of recent office completions within Global Sydney (Sydney CBD and North Sydney), a growth in demand has sparked a market for premium office rates.

Whilst it is not likely that the demand for high specification, premium commercial only developments and global office headquarters will extend to Shellharbour, the tight supply of office space within Sydney CBD will push businesses into accessible and more affordable locations outside and around the Sydney Greater Metropolitan Area.

Wollongong as a Regional City Centre therefore has some potential to become an attractive location for commercial overflow owing to its road and rail connectivity to the Sydney CBD. Other attributes of the Illawarra Region and hence Shellharbour LGA include lower land values and rents comparative to locations such as Bankstown, Liverpool, Campbelltown, Penrith and Parramatta CBD, as well as an increasing professional skilled local workforce.

Coupled with this growth in demand is the growing recognition of the value of the 'incubator space' concept. By way of example this concept has successfully been developed and supported by Sutherland Shire Council's SSHED (Sutherland Shire Hub for Economic Development)⁹. The Sutherland example is a purpose built business unit at Loftus designed to assist new and growing ventures in Sutherland Shire accelerate their growth by providing mentoring and other support in the start-up and early stages of development. This concept could be investigated by Shellharbour City Council in conjunction with its local economic development programs to assist business and local employment.

Another consideration in relation to flexible office space in the Region is Australia's growth in economic wealth and therefore the resulting growth in expenditure in the services economy. Accordingly demand for floorspace within accessible locations and with complimentary uses such as the retailing of services has grown. These uses could be well suited to small units above ground floor retail in Shellharbour's centres and villages, as identified in Hill PDA's Shellharbour Retail & Commercial Centres Study (2008) and would help to support the vitality and viability of these centres.

⁹ Further information can be found via the Sutherland Shire Council's website www.sutherland.nsw.gov.au, or alternatively at www.sshed.com.au.

4.7 Business Parks

Traditionally commercial office floorspace has been located within town centres where a range of retail and business support services cluster around traditional retail activities. However, with the decline of the office market in the 1970's and changes in business composition and technology over the last decade and a half, there has been a significant shift in the location of office-based activities. This shift has been towards the creation of new business park developments and industrial zones along the new motor transport corridors of Sydney. Whilst this is relatively untested in the Illawarra Region, in Sydney's South West this has occurred to some extent along the M5 and M7 Motorways.

Sydney's Metropolitan Strategy for example classifies some Business Parks across the Sydney Metropolitan area as Specialised Centres comprising major airports, ports, hospitals, universities, research and business activities that perform fundamental economic and employment roles.

Business Parks generally comprise the following key characteristics:

- They are predominantly office parks with a component of warehousing, and in some cases a component of research and development and high-technology users;
- Apart from providing A-grade commercial space with cheaper rent than Sydney CBD, business parks enable purpose designed buildings and plenty of on-site car parking;
- Provision of on-site amenities that attract large corporations, which follows in the footsteps of business park developments in Britain and the USA;
- They hold a sense of prestige, which is a further factor that attracts large corporations. Tenants sign up with a business park for its marketable image. There is a preference for a good clean suburb, which is away from polluting industries. Business parks enable large corporations to custom build their headquarters, providing them with their own stand alone identity, which cannot be achieved in a CBD building of mixed tenants;
- They have lower floorspace ratios, typically 1:1 or lower compared to 2:1, or higher in established commercial centres. This allows more cost-effective building construction; and
- They have flexible floor plates and cheaper ground rent, which allows warehousing and office space to be integrated.

A growing trend in business parks has been the declining proportion of warehousing and traditional manufacturing space in comparison to growth in office space. The increasing leakage of office space from established major centres and suburban centres is recognised as a real and serious threat to the economic balance of the established centres. Business parks are competing with traditional high density centres, making it more difficult for centres in rapidly growing subregions to attract office based jobs".

Research undertaken by Hill PDA has revealed that many businesses have relocated to these complexes so they can 'co-locate' their administration and warehouse needs. A mix of industrial/ commercial uses is seen as a legitimate need that would not be practical or economical in an established commercial centre with its higher land values and smaller land parcels.

Whilst Hill PDA supports the role of business parks for the location of appropriate businesses, caution is raised, however, to ensure that Shellharbour's industrial land is not used for office based activities that can be accommodated in the various established town centres. Planning strategies should aim to avoid this mismatch of use and the erosion of the vitality of the town centre as a commercial business zone.

It is therefore recommended that commercial uses are carefully planned to ensure that they are well suited to the existing and future strengths of the various local regional centres. This is especially important in the various town centres poised for major growth such as Albion Park, and planned new centres such as Shell Cove and Tullimbar. Increasingly commercial uses will support the vitality and economic viability of these centres and their role as key employment destinations.

4.8 Industry

The demand for industrial floorspace is being influenced by trends such as the globalisation of trade and the wider use of information technology. The global economy today consists of sophisticated linkages between businesses, which are designed to enable the efficient sharing of information and the delivery of goods now through a global supply chain. This supply chain, once thought of as the flow of goods through production to the end user, can now be seen as an alignment of firms that design, develop, market and produce goods and services, and deliver them to the customer when needed.

An example of this change can be seen in the motor industry. Once concentrated in cities, the industry has evolved into process where design, manufacture, and assembly occur in many different locations worldwide. Owing to the ability to utilise markets around the world, costs savings may be achieved by transferring manufacturing of goods to cheaper locations such as China and Indonesia. All this has heightened time based competition and flexibility, with consequential implications for the functional characteristics and spatial disposition of industrial activity.

In response to the changing format of industrial activities and the growth of inner metropolitan land values, there has been a spatial redistribution of more traditional forms of industrial activity. Those activities with lower rent sensitivities have relocated to less expensive land often on the urban periphery. Others have simply stopped operations in Sydney or altogether. This trend is recognised as the "suburbanisation" of industry whereby cheaper land opportunities have attracted industry out of urban areas.

The term used to describe the growing efficiencies of industry, with particular respect to manufacturing is "deindustrialisation". This effect has resulted in a reduction in the number of industrial jobs for the same input through greater equipment and procedural efficiencies. This is evident in the trends emerging in parts of the Illawarra and Greater Western areas that have born industrial growth, and decreasing local manufacturing jobs.

As a result of the above trends, over the past two decades, the development of industrial land and floorspace in NSW has generally occurred at a rate slower than employment growth. This however, has varied considerably between specific sectors of activity. In manufacturing and wholesale trade, employment growth has, with only a few exceptions, either declined or remained stagnant. Contrasting this pattern has been the performance of transport and storage, which has shown strong growth.

Industrial floorspace used primarily for storage is predicted to be in secular decline, whereas space built for the transfer of goods may increase (industries affected include wholesaling, utilities, transport and storage). This “high throughput distribution” space is essentially designed to facilitate the rapid movement of goods through the supply chain. In essence, businesses with low inventory turnover are gravitating to inexpensive land and low cost buildings.

In contrast, businesses that have high inventory turnover, high value products, and typically provide value added functions (including product customisation, packaging, and customs) are more prepared to pay a premium for excellent access to a large customer base and proximity in time and space to roads, ports and airports. This can be seen at Illawarra Regional Airport and parts of Albion Park Rail.

4.9 Home Based Business

Employment generation is no longer simply a matter of attracting large companies, but rather attracting mobile workers who run their own businesses or subcontract their labour from home.

A 2004 study undertaken for the Department of Planning¹⁰ indicated that in 2001, the share of total Sydney employment which was home-based had increased from 3.95% in 1996 to 4.1% in 2001. In 2001, the study indicated 3% of the workforce in Wollongong LGA worked at a home-based business.

Furthermore, there is evidence that the proportion of home based employment is continuing to increase under the combined influences of existing firms encouraging employees to increase the proportion of time they spend working at home, and the ‘out sourcing’ of services by many larger firms. Both are creating opportunities for home based businesses.

4.10 Implications to the Illawarra Region

Shellharbour LGA is part of the greater Illawarra Region which includes Wollongong and Kiama LGA's. On a regional scale, non residential approvals have more than doubled over the last 15 years. Identified base industries and the major contributors to ongoing economic development in the Illawarra, continue to be Port Kembla, BlueScope Steel, Illawarra Regional Airport, and the mining industry.

However, it also appears that investment in the region is still greatly surpassed by comparable areas, like for example Newcastle¹¹. Additionally, job provision in Shellharbour LGA is low. ABS 2006 Census data shows only 30.7% of the resident workforce in Shellharbour live and work in Shellharbour LGA. 46.8% of the resident workforce in Shellharbour leaves the LGA to work in Wollongong, and 7.3% leave to work in the Sydney Greater Metropolitan Area. These trends tend to indicate there is a lack of available jobs to the number of residents in Shellharbour LGA, with the majority of residents commuting to Wollongong to work.

Section 7 of this report deals with demand for and supply of employment lands. Two methodological scenarios are used, one of which is derived by Shellharbour City Council and has the principal objectives of providing

¹⁰ SGS Economics & Planning, Sydney's Economic Geography: Trends & Drivers, 2004

¹¹ Source: Illawarra Property & Investment Report 2008, IRIS Research.

jobs within 20 minutes drive of home, for all eligible workers from Shellharbour LGA. It seeks to facilitate jobs for all by allowing for a supply which aims to prevent unemployment.

Illawarra Mining Industry

The Illawarra is a significant producer of coal, especially coking coal used for the production of steel, with exports from the southern coalfields estimated at around \$700m in 2006/07. The high demand for coal from the likes of China and India has led to expansion of coal facilities in the Illawarra including¹²:

- USD\$126m Dendrobium coal mine expansion. The mine is used to support the Port Kembla steelworks as well as for international exporting. The project is responsible for 1,000 plus direct and indirect jobs contributing \$400m annually to the local economy; and
- Development of the NRE Wongawilli Colliery commenced in February 2008 which is a combination of the recently acquired Elouera mine and NRE Avondale. The \$65m project will bring the mine to full production within 2 years, with employment upon completion expected to be over 200 jobs.

Port Kembla, Wollongong

Port Kembla, managed by the Port Kembla Port Corporation, is the closest specialist industrial port to Sydney. The port handled approximately 26m tonnes of cargo in 2005/06 with a total of 591 ship visits. Port Kembla contributed 19% of the total trade of the three major NSW Ports the same year. Furthermore, 63% of total trade were exports and 37% were imports. The major commodities shipped through Port Kembla in 2005/06 were coal, iron ore, grain, steel products and other various bulk, break bulk and liquid bulk cargoes¹³.

Whilst Port Botany in Sydney is continuing to expand as a result of pressure from increased volumes being handled, the NSW Government released its Ports Growth Plan (2003), indicating the relocation of containerised and general cargo, as well as car stevedoring from Port Jackson to Port Kembla. Additional coal and mineral developments are also likely to see an increase in volumes through Port Kembla.

Since the Ports Growth Plan, Port Kembla has commenced expansion of the inner harbour. This project was planned to occur over three stages involving development of approximately 43ha of land, however due to demand the development has increased to 53ha meaning that land in the inner harbour is now fully leased¹⁴.

With work on the new inner harbour facilities due for completion in late 2008, the demand for port facilities in the outer harbour is growing and will continue to do so into the future. It is understood¹⁵ Maunsell Aecom has been appointed to develop a Masterplan and environmental assessment to guide the development of the Port Kembla's outer harbour. The plan will provide the basis for decision making and staging of port development in the medium to long term.

¹² Source: Illawarra Property & Investment Report 2008, IRIS Research.

¹³ Source: Port of Port Kembla Economic Impact Study, Econsearch, March 2007

¹⁴ Source: www.portkembla.com.au

¹⁵ Source: www.portkembla.com.au

BlueScope Steel, Wollongong

BlueScope Steel is the leading steel company in Australia and New Zealand, supplying a large percentage of all flat steel products sold in these markets. BlueScope Steel's Port Kembla Steelworks is a 5m tonne a year integrated steelworks. It produces a wide range of finished and semi-finished flat steel products for Australian and international customers. Within their Coated Steel Australia business, Illawarra Coated Products has an output of 0.9m tonnes per year produce cold rolled, metallic coated and pre-painted steel coils for local and overseas markets.

In May 2008, BlueScope Steel announced it will undertake the reline of its No. 5 Blas Furnace at Port Kembla, with the \$370m project scheduled to take around 3-4months¹⁶. The furnace is one of the company's key assets. The reline project will be a comprehensive overhaul of the facility and will restore the blast furnace to peak operating condition and secure the iron making capacity of the site into the future. The project is expected to commence during 2009. The furnace currently produces approximately 2.6m tonnes of hot metal (iron) per year. It was last relined in 1991.

It is understood BlueScope is also considering the development of a Steelworks Cogeneration Plan at its Port Kembla site¹⁷. The construction of the Plant is expected to provide 350 new construction jobs.

Unanderra, Wollongong LGA

Unanderra is the largest concentration of industrial activity focused on a combination of transport/warehousing and manufacturing. Together with Port Kembla and the Steelworks, Unanderra is within close proximity (20minute drive) to Shellharbour.

Bombo Quarry, Kiama LGA

It is understood a Structure Plan is currently being prepared for Bombo Quarry in Kiama. The Structure Plan will assess the potential land use development opportunities and constraints, and develop future land use principles and objectives for the site. This site could potentially provide jobs for residents in Shellharbour LGA, although this is a long term assumption.

Illawarra Regional Airport, Shellharbour LGA

Illawarra Regional Airport is located at the intersection of the Princes Highway and Illawarra Highway at Albion Park Rail and is the only operational airport for the Illawarra Region. The Airport is a licensed aerodrome owned and managed by Shellharbour City Council and operated under the Civil Aviation Safety Authority (CASA).

The Airport caters for pilot training, general aviation, charter, and aerial work. Apart from the runway and associated terminal buildings, the Airport is also home to:

- Airport terminal containing Historic Aircraft Restoration Services (HARS) shop and Aviator Lounge Café/Restaurant;

¹⁶ www.bluescopesteel.com

¹⁷ Source: Illawarra Property & Investment Report 2008, IRIS Research.

- HARS restoration/workshop/museum;
- NSW Fire Brigade Emergency Training Facility;
- Aerial Patrol Base;
- Aircraft Maintenance Services company;
- Total Aerospace Solutions - aircraft modification (e.g. fit outs for Flying Doctor Service);
- AIRag - aircraft repairers;
- AeroV - build and sell kits for 1 and 2 seater hobby planes;
- Capital Aircraft Services - specialized aircraft fit outs/modification;
- CHC Helicopter Corporation (CHC) - air rescue/ambulance service;
- Cleary Bros/Go Jet - private hangar for jet charter;
- Sydney Microlights - microlight training and joy flights;
- Community bus parking and Shell depot for plane refueling; and
- NSW Air - pilot training and joy flights.

The Light Aeronautics Industry Cluster is a new industry for Illawarra Regional Airport, launched in 2005, which brings substantial economic benefits and employment opportunities to the region.

The Australian Government provided a grant of \$330,000 under its Regional Partnerships Program following a funding submission in which Council pledged over \$900,000 to construct new hangars at the Airport. The aim of the project was to develop the Airport as employment lands to maximise its potential for business and jobs growth. It is understood that some aviation related industries have already relocated from other regional airports (Camden, Queanbeyan, and Bankstown).

Shell Cove, Shellharbour LGA

With a tourism and employment focus, the Shell Cove project when completed will include a 300/350-berth marina constructed within an in-shore boat harbour, and an 18-hole championship-standard golf course (opened in 2004). Community facilities include a public school (opened 2005), community centre (interim – opened 2005), and sporting facilities. A 6,000-7,000sqm retail centre is also proposed.

4.11 Implications to Shellharbour LGA

Historically, Shellharbour was an extension of the Wollongong urban area. With many of Wollongong's workers living in Shellharbour, the area was populated with young families and blue collar workers. However, Shellharbour has been evolving with the addition of new base industries, the Illawarra Regional Airport, growth in professional services in Shellharbour City Centre, and the proposed development of the new Shell Cove Marina.

Into the future, tourist related industries including eco-tourism, expanding airport related businesses and growth in professional related businesses in Shell Cove will all contribute to the evolution of Shellharbour from

its earlier role of housing Wollongong's blue collar workers to a more attractive and sustainable LGA for live, work and play.

Opportunities include:

- The Airport is the regional airport for Illawarra so there is the opportunity to capitalise on vacant surrounding land to accommodate airport related business or to attract new businesses with synergies to the airport like logistics and freight, couriers, aircraft maintenance, high value good distribution (goods which need to be transported quickly or safely like medical goods transporting, dried flowers, food products), private aircraft hangers, aircraft services etc.
- The continual upgrading and widening of the Princes Highway improves accessibility and transport links between Kiama and Wollongong, and further along to Sydney. This improves the attractiveness of Shellharbour to industry for accessibility reasons.
- Due to the growth of white collar workers and industry in Shellharbour, the area is suitably located for the promotion of small to medium enterprises, by offering a range of business support services and an innovative and flexible land use zoning. These initiatives are specifically targeted to encourage the establishment of businesses within Shellharbour City Centre. Small to medium enterprises (including home based businesses) are of significant importance because of their positive growth across virtually all industry sectors.
- Consider the development of a Business Support Centre to provide a range of unique services, in order to both encourage businesses to locate in Shellharbour City Centre, and to meet their ongoing training and growth needs.

5. ASSESSMENT OF INDUSTRIAL PRECINCTS

The bulk of employment land within Shellharbour LGA is located in commercial and retail centres, industrial precincts, and rural land holdings.

It is recognised that the Shellharbour Commercial Centres Study (2008) examined and surveyed all business zoned across the LGA, making recommendations for the future zoning of existing 3(a) Mixed Use Commercial Zones and 3(d) Neighbourhood Business Zones. The Centres Study provided recommendations as to employment within retail and commercial zones. Hence, these precincts are excluded from the physical assessments of employment lands within this study.

As a result this section identifies the criteria for assessment used in order to make recommendations concerning the future zoning and land use of existing employment land including:

- 5(a) – Special Uses;
- 4(a) – Light Industrial Zones;
- 4(a3) – Airport Light Industrial Zones; and
- 4(f) – Special Industrial Zones.

Rezoning recommendations take into consideration the zoning categories defined within the Standard Instrument (Local Environmental Plans) Order 2006 prepared by the NSW Department of Planning (LEP Template).

Hill PDA undertook a physical survey of land within the LGA zoned for industrial and special uses and included the following key employment precincts:

- Precinct 1 – Albion Park Rail;
- Precinct 2 – Illawarra Regional Airport;
- Precinct 3 – Oak Flats;
- Precinct 4 – Central Business Park;
- Precinct 5 – Warilla; and
- Precinct 6 – Barrack Heights.

The physical assessment of precincts excludes those locations zoned for extractive industry.

5.1 Guiding Employment Land Principles

Stage 3 of the Illawarra & South Coast Employment Lands Strategy (2006) produced a set of guidelines for land use planning decisions by NSW Government and councils. In February 2008, the NSW Department of Planning released the Employment Lands Guidelines for the Illawarra based on Stage 3 of the Strategy. The purpose of the guidelines was to support the outcomes and actions of the Illawarra Regional Strategy as well as to:

- Promote the orderly planning and development of employment land in the Region, particularly in the preparation of strategic plans, new local environmental plans, and development control plans;
- Monitor the supply of employment lands, and their appropriate location and zoning, through the continued update of the Illawarra and South Coast Employment Lands Database; and
- Establish greater certainty and confidence for private sector investment and community generally.

General principles for employment lands as defined in the Guidelines are as follows:

1. Ensure an adequate supply of employment land to encourage sustainable regional economies and promote the Regional Strategy centres hierarchy.
2. Cluster businesses and industries with similar environmental impacts and business synergies to reduce land use conflicts, and improve business efficiency and identity.
3. Consolidate major trip generating businesses around public transport nodes to provide the economies of scale required to support public transport infrastructure. Where this is not appropriate, consider extending or 'retrofitting' transport nodes, maximising developer contribution.
4. Ensure new urban and greenfield releases provide adequate supply and mix of employment land that is flexible in use to meet long term employment demand.
5. Ensure that the subdivision of employment land is associated with an application for an end use to avoid ad hoc and speculative subdivision of the land.
6. Support the Regional Strategy commercial centres hierarchies with mechanisms to promote this hierarchy at a regional and local government area level.
7. Preserve lands of regional significance for employment generating use, including the ports, rail corridors, airport lands and highway intersections that service them. Proposals for rezoning of employment lands must give consideration to the regional significance of the site for employment.

Additionally, the Guidelines consider principles for:

- Industrial and commercial lands including: heavy industrial, light industrial, business parks, commercial, retail, tourism, entertainment, hospitality, bulky goods, and home based business;
- Agricultural and rural lands;
- Transport and logistics;
- Education, health and government; and
- Spot rezonings.

The guidelines for each of the above as well as the general principles for all employment lands, have been considered in the assessment of the appropriateness of existing employment zoned lands across Shellharbour LGA (detailed in Section 5 of this report). A full copy of the Employment Lands Guidelines for the Illawarra is provided in Appendix 1 of this report.

5.2 Classification of Land Uses

Land uses of employment lands surveyed have been categorised as per the 2006 Australian and NZ Standard Industrial Classification (ANZSIC) as produced jointly by the ABS and Statistics New Zealand. The ANZSIC code is implemented for all ABS industry-classified statistics and is an important reference for organisations wishing to interpret these statistics or to compile their own statistics on a comparable basis.

This 2006 edition of the ANZSIC replaces the 1993 edition, which was the first version produced. ANZSIC 2006 reflects the outcome of a substantial review of the classification, which included extensive consultation with internal and external users and alignment with the upcoming revision of the International Standard Industrial Classification of All Economic Activities (ISIC, Revision 4).

Table 5 - ANZSIC 2006 Division Codes

Division	Title
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	Financial 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
Q	Health Care and Social Assistance
R	Arts and Recreation Services
S	Other Services

Source: ABS Catalogue No. 1292.0

To the above divisions, Hill PDA also added the classifications of residential, vacant, and auto sales given their prevalence in the industrial precincts. Whilst car sales yards are classified under the ANZSIC as retail trade, it was concluded that it be more appropriate for car sales to be separated from general retail uses (e.g. shops).

Subdivisions and group codes under each ANZSIC division were also consulted to further classify some industries. For example, under ‘other services’ further subdivisions and groups include:

Table 6 - ANZSIC 2006 Division S Other Services, Subdivision, Group Codes and Titles

Division S: OTHER SERVICES		
94	Repair and Maintenance	
	941	Automotive Repair and Maintenance
	942	Machinery and Equipment Repair and Maintenance
	949	Other Repair and Maintenance
95	Personal and Other Services	
	951	Personal Care Services
	952	Funeral, Crematorium and Cemetery Services
	953	Other Personal Services
	954	Religious Services
	955	Civic, Professional and Other Interest Group Services

Source: ABS Catalogue No. 1292.0

It is also noted that some businesses fall into more than one category. For example the classification of ‘construction’ as per ANZSIC 2006 is building construction, heavy and civil engineering construction, and construction services. Construction services include land development and site preparation services, building structure services (e.g. concreting, bricklaying, roofing, structural steel erection), building installation services (e.g. plumbing services, electrical, air-conditioning, fire and security alarm services), building completion services (e.g. plastering services, carpentry, tiling, carpeting, painting, decorating and glazing), and other construction services (e.g. landscape services).

This is compared to the purchase of machinery and equipment, supplies, or materials (e.g. floor coverings, electricals, sport equipment, camping equipment, hardware and building supplies) which under ANZSIC is classified as either ‘retail trade’ or ‘wholesale trade’.

Those businesses identified as wholesale have been recognised as so in accordance with the ANZSIC. Note the classification of ‘retail trade’ includes motor vehicle parts, fuel, food retailing, bulky goods, electrical good retailing, hardware, garden supplies, clothing, and department stores.

Those businesses which cover more than one ANZSIC are generally relating to the building, construction and home improvement industries and include for example plumbing centres, window and door showrooms, fencing and gate supplies, blinds and awnings, pools and spas, kitchens and joinery. In these cases, showrooms can sell direct to the public, can sell wholesale to builders, and can also include installation services. As such, Hill PDA has classified these businesses as ‘construction’ for the purposes of this report.

5.3 Assessment Criteria

Recommendations concerning zoning and function of existing industrial lands across Shellharbour LGA were also based on fieldwork observations using the following assessment criteria:

- Accessibility – access to main arterial roads and internal access within the precinct for large vehicles/machinery, as well as the precincts location to available infrastructure and services, is a key factor in determining the suitability of a site for industrial use.
- Minimal Land Use Conflict – ensuring that the surrounding uses are conforming uses. Industrial lands with limited conflict with surrounding incompatible land uses (i.e. surrounding residential or commercial), are suitably zoned for industrial/employment purposes. Conflict with residential for example may occur where industrial land directly adjoins residential uses. Alternatively it may result from trucks and other industrial traffic accessing sites through residential streets.
- Topography – the slope of the land is an important consideration when assessing the most appropriate land use zone for a site. Land that is rather steep or sloped is not appropriate for industrial uses.
- Minimal Potential Residential Amenity – the surrounding natural environment and setting may prove more appropriate for residential land uses, than industrial or employment. For example, proximity to the escarpment or beach may have a higher aesthetic appeal or be more suitable for tourism and/or residential uses.
- Site Encumbrances – issues such as environmental protection, proximity to airport obstacle lines and surfaces, a site's cultural significance, flooding/bushfire issues, proximity to creek lines, and contamination.
- Employment – The number of persons employed on existing industrial land, has been an important tool in identifying future uses/zonings (i.e. noteworthy consideration should be given to preserve an existing precinct of industrial zoned land that accommodates a high number of employees).
- Size and Agglomeration – the size and clustering in precincts is a consideration when assessing the future zoning of existing industrial land (i.e.: it is appropriate to preserve large sized or clustered industrial lands).
- Strategic Economic Importance – is an important consideration when examining the future uses of industrial lands.

Furthermore constraint mapping as provided by Shellharbour City Council was used to evaluate employment lands. Constraint mapping examined included:

- Flood prone land
- Bushfire prone land
- Coastal zone protection land
- Aviation height restricted land
- Vegetated land
- Contamination prone land
- Aviation noise effected land

In the assessment of each industrial precinct, the following rating and evaluation table was applied.

Table 7 - Employment Lands Evaluation Table

	Assessment Criteria	If Rating = 1	Rating = 3	Rating = 5
1	Arterial Road Accessibility	Poor	Average	Good
2	Internal Road Accessibility	Poor	Average	Good
3	Minimal Land Use Conflict	High	Moderate	Minimal
4	Topography	Steep/sloped	Moderate Slope	Flat
5	Residential Amenity*	High Potential	Average	Minimal Potential
6	Agglomeration	No Cluster	Reasonable Cluster	Large Cluster
7	Low Bushfire Risk	High Risk	Average	Minimal Risk
8	Low Contamination	High Risk	Average	Minimal Risk
9	In close Vicinity to Natural Creek/Drainage Lines	Close Vicinity	Average	No Creek/Drainage Lines in Vicinity
10	Low Airport Obstacle Lines and Surfaces	High Risk	Average	Minimal Risk
	TOTAL RATING (out of 50) =	SUM OF ABOVE RESULTS		

* Areas identified as having 'high potential' identifies land suitable for either residential or tourism uses.

In general terms, each precinct had the ability to score ratings between 1 and 5. The higher the rating for each assessment criteria, the more suited the precinct is for industrial type uses. For example, a rating of 5 for accessibility indicates that the precinct has good access which is an important characteristic for an industrial zone. Similarly, a rating of 5 for topography indicates the precinct is flat and is thus ideal for industrial use. The total rating for the precinct is the sum of all score results.

In considering the future zoning of an existing industrial precinct all the abovementioned assessment criteria is considered and weighed up to arrive at an appropriate recommendation.

It is important to note that in some cases a high total rating may not necessarily result in a recommendation to retain the existing industrial zone, as certain criteria in particular areas have more significance than others.

Also a combination of moderate ratings will lift the total rating, but the precinct may not be appropriate for industrial use. In addition to this, consideration should be given to all the criteria assessed. Despite the fact that the total rating of a precinct is high (which suggests this precinct is suitable as an industrial zone), the recommendation may not be to retain this zone, as the precinct may have a flat topography, good access yet extensive land use conflicts. In this instance, the land use conflict criteria outweighed the other assessment criteria. In summary, although the total rating may be reasonable, one factor for assessment may cause significant constraint rendering the site inappropriate for some industrial uses.

Employment Numbers

Employment numbers for each defined industrial precinct were estimated by examining the ABS 2006 Journey to Work at a travel zone level together with the land use survey undertaken by Hill PDA.

Employment numbers were estimated for each industrial precinct to assist in the formulation of recommendations of their most appropriate future zoning. Those precincts that accommodate a significant number of employees are more likely to be preserved as industrial/employment zoned lands.

5.4 Supply of Employment Lands

Employment zoned lands in Shellharbour LGA vary in scale and location. Zone 4(a) Light Industrial lands are predominately located in Albion Park Rail, Oak Flats, Central Business Park, Warilla/Lake Illawarra, and Barrack Heights. Zone 4(a3) Airport Light Industrial lands is adjacent to Illawarra Regional Airport and in parts of Albion Park Rail.

Zone 3(a) Mixed Use Commercial lands are located in all major and secondary commercial centres like Shellharbour City Centre, Albion Park, Warilla, Shellharbour Village, Oak Flats, Warilla Grove, Albion Park Rail and Barrack Heights. Additionally, there are numerous neighbourhood centres across the LGA zoned 3(b) Neighbourhood Business. Business zones account for 53ha of land across the LGA, of which the majority is occupied.

There are various sites across the LGA classified Zone 5(a) Special Uses and Zone 5(b) Special Railway Uses. Special uses currently covers various land uses including Illawarra Regional Airport, public car spaces, places of worship, schools, libraries, cemeteries, caravan parks, utility stations, clubs, community centres, and special railway uses. Lands uses over and above the Airport, which are zoned for special uses are identified and listed in Appendix 2 of this report.

Table 8 - Existing Zoned Employment Lands in Shellharbour LGA

Use	Zone	Zoned Land (ha)
Industrial	IN2 Light Industrial (Illawarra Regional Business Park)	45.1
	4(a) Light Industrial	81.5
	4(a3) Airport Light Industrial	14.7
	4(f) Special Industrial	10.0
Business	3(a) Mixed Use Commercial and 3(d) Neighbourhood Business	53.0
Special Uses	5(a) Special Uses	260.9
	5(b) Special Railway Uses	52.4
TOTAL		517.6

Source: Shellharbour City Council 2008.

Industrial zones account for 151.3ha of land across the LGA; of which 75.6ha was vacant at the time of survey (this includes the 45.1ha of IN2 Light Industrial land at Illawarra Regional Business Park). The majority of Shellharbour's industrial land is zoned 4(a) Light Industrial (54%), with 30% zoned IN2 Light Industrial, and 10% zoned 4(a3) Airport Light Industrial. Many of the industrial precincts have a reasonable buffer from the residential areas. There are a number however that have poor interface with the residential creating land use conflicts. Most precincts have reasonable access to higher order road networks.

5.5 Supply of Industrial Zoned Land

Most businesses located in industrial precincts within Shellharbour LGA are focussed on local services, construction services, retail trade, and manufacturing. The Oak Flats precinct is the most densely occupied precinct in the LGA with almost 150 businesses located on 28.1ha of employment zoned land. Most businesses in the Oak Flats precinct are concentrated in construction services and local service industries.

Hill PDA's physical survey of key employment precincts identified Albion Park Rail as the largest industrial zoned precinct in Shellharbour LGA, followed by Oak Flats. Furthermore, the car sale yards, the construction industry, car and mechanical repairs (other services), and the manufacturing industry are the largest users of industrial zoned land.

Table 9 - Supply of Industrial Land in Shellharbour LGA Employment Precincts (ha)*

Land Use Category	Albion Park Rail	Oak Flats	Warilla	Central Business Park	Airport	Barrack Heights	TOTAL
Agriculture, Forestry, Fishing	-	-	-	-	0.3	-	0.3
Mining	-	-	-	-	-	-	-
Manufacturing	3.7	3.9	0.2	0.5	-	0.2	8.4
Electricity, Gas, Water, Waste Services	-	-	-	-	0.2	-	0.2
Construction	0.9	3.4	0.5	1.1	-	1.1	7.0
Wholesale Trade	2.0	0.8	0.9	0.5	0.6	0.3	5.0
Retail Trade	7.9	2.5	0.5	3.7	0.4	0.9	15.9
Accommodation, Food Services	0.0	-	-	0.0	-	-	0.1
Transport, Postal, Warehousing	1.8	1.1	0.1	-	108.9	0.2	111.9
Information Media, Telecommunications	0.1	-	-	0.1	-	-	0.2
Financial, Insurance Services	0.3	-	-	-	0.1	-	0.3
Property, Businesses Services	-	0.9	0.2	0.1	-	-	1.1
Public Administration, Safety	-	5.0	-	-	0.2	-	5.2
Education, Training	-	-	-	-	-	-	-
Health Care, Social Assistance	-	-	-	-	-	-	-
Arts, Recreation Services	0.8	0.1	0.0	0.2	-	1.2	2.2
Other Services	2.8	5.2	0.9	0.6	0.2	2.0	11.7
Vacant but Zoned	16.0	3.6	1.5	7.6	45.7**	3.2	77.6
Non Classifiable	0.1	0.7	0.1	0.1	0.1	-	1.1
Under Construction	0.9	0.1	-	0.2	-	0.2	1.4
Residential Dwellings in Industrial Zones	-	0.7	-	-	4.5	-	5.2
TOTAL EMPLOYMENT ZONED LAND	37.1	28.1	4.6	14.8	161.1	9.2	255.0
Other Land in Precinct	-	-	3.5	-	84.7***	-	88.2
TOTAL LAND IN PRECINCTS	37.1	28.1	8.1	14.8	245.8	9.2	343.1

Source: Hill PDA physical survey 2007/2008. *Note includes land zoned industrial and special use (employment zones) lands within identified industrial precincts. Generally does not include non-employment zoned land. See Chapter 5 Assessment of Industrial Precincts. **Includes that land approved as Illawarra Regional Business Park. *** Includes land approved as Illawarra Regional Business Park conservation and infrastructure land uses as well as other rural lands within the precinct.

Of the above around 97ha is attributed to the special use zone for the operation of Illawarra Regional Airport. Note also that 77.6ha of industrial zoned land was vacant at the time of survey, most of which was associated with either the recently approved Illawarra Regional Business Park (45.1ha) located in the Airport precinct, or vacant sites in Albion Park Rail (16ha).

There are a total of 403 businesses occupying space within Shellharbour industrial precincts, this includes Illawarra Regional Airport where it is noted that some businesses are located on lands zoned for special uses.

Table 10 - Types of Businesses Occupying Industrial Precincts in Shellharbour LGA

Land Use Category	Albion Park Rail	Illawarra Regional Airport	Oak Flats	Central Business Park	Warilla	Barrack Heights	TOTAL
Agriculture, Forestry, Fishing	-	1	-	-	-	-	1
Mining	-	-	-	-	-	-	-
Manufacturing	9	-	13	8	3	3	36

Land Use Category	Albion Park Rail	Illawarra Regional Airport	Oak Flats	Central Business Park	Warilla	Barrack Heights	TOTAL
Electricity, Gas, Water, Waste Services	-	1	-	-	-	-	1
Construction	4	-	28	10	9	10	61
Wholesale Trade	9	2	16	7	9	4	47
Retail Trade	23	2	29	20	6	7	87
Accommodation, Food Services	2	-	-	2	-	-	4
Transport, Postal, Warehousing	3	4	5	-	1	1	14
Information Media, Telecommunications	1	-	-	2	-	-	3
Financial, Insurance Services	1	1	-	-	-	-	2
Property, Businesses Services	-	-	7	2	2	-	11
Public Administration, Safety	-	1	2	-	-	-	3
Education, Training	-	-	-	-	-	-	-
Health Care, Social Assistance	-	-	-	-	-	-	-
Arts, Recreation Services	3	-	1	4	1	8	17
Other Services	10	11	35	7	12	20	95
Non Classifiable	2	1	6	2	2	2	15
Under Construction	1	1	1	2	-	1	6
TOTAL	68	25	143	66	45	56	403

Source: Hill PDA physical survey 2007/2008. Note - Includes businesses in active occupation of buildings.

Industrial zoned floorspace in Shellharbour LGA is concentrated on retail floorspace (given Mitre 10 and other retail affiliated space in Central Business Park), other services, construction services, and manufacturing floorspace. 14.4% of total floorspace was vacant at the time of survey.

Table 11 - Supply of Industrial Zoned Floorspace in Shellharbour LGA (sqm)

Land Use Category	Albion Park Rail	Illawarra Regional Airport	Oak Flats	Central Business Park	Warilla	Barrack Heights	TOTAL
Agriculture, Forestry, Fishing	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-
Manufacturing	18,711	-	14,656	4,684	1,253	1,267	40,571
Electricity, Gas, Water, Waste	-	-	-	-	-	-	-
Construction	3,406	-	16,165	8,256	3,235	6,848	37,910
Wholesale Trade	6,762	-	4,857	5,101	5,246	1,828	23,794
Retail Trade	16,958	699	13,483	22,683	3,499	5,730	63,052
Accommodation, Food Services	160	-	-	444	-	-	604
Transport, Postal, Warehousing	9,958	2,573	7,497	-	268	1,419	21,715
Info. Media, Telecommunications	657	-	-	587	-	-	1,244
Financial, Insurance Services	1,300	138	-	-	-	-	1,438
Property, Businesses Services	-	-	3,499	724	1,090	-	5,313
Public Administration, Safety	-	182	-	-	-	-	182
Education, Training	-	-	-	-	-	-	-
Health Care, Social Assistance	-	-	-	-	-	-	-
Arts, Recreation Services	3,092	-	332	1,955	258	7,163	12,800
Other Services	12,207	-	23,608	5,720	5,267	12,038	58,840
Vacant	3,163	906	8,296	24,976	1,994	6,728	46,063
Non Classifiable	502	-	1,841	936	600	-	3,879
Under Construction	-	-	-	1,014	-	-	1,014
TOTAL	76,876	4,498	94,234	78,080	22,710	43,021	319,419

Source: Hill PDA physical survey 2007/2008, analysis of aerial photos and floor space ratios.

Whilst Albion Park Rail and the Airport precinct contain the most zoned land, the Oak Flats precinct contains the most industrial zoned floorspace in Shellharbour LGA. Oak Flats has the largest component of service industry floorspace in the LGA, as well as largest proportions of manufacturing and construction service floorspace.

Each industrial precinct identified in the LGA is described below in terms of its location, land use characteristics, relevant planning framework and appropriate recommendations. As mentioned previously it is recognised that the retail and commercial precincts across the LGA, which are also categorised as employment land, have been analysed in the Shellharbour Commercial Centres Study (2008) and hence have been excluded from the physical assessment below.

5.6 Precinct 1 – Albion Park Rail

The Albion Park Rail industrial area is located to the east of Princes Highway and is bound by Darcy Dunster Reserve, the railway line, and Mallee Street.

Figure 2 - Aerial Map: Precinct 1 - Albion Park Rail



Precinct Snapshot

Existing Zoning:	4(a) Light Industrial and 4f Special Industrial.
Total Zoned Employment Lands (approx):	37.1ha
Vacant Employment Lands (approx):	16.0ha
Employment Floorspace:	76,876sqm
No. Lots:	77
Range of Lot Sizes:	1,500 to 9,000sqm on average. Exemptions include those large lots in the south of the precinct which are either vacant or have multiple buildings and businesses on one title. These southern lots range from 3-3.6ha.
FSR Range:	0.2:1 to 0.6:1
No. Businesses:	68
No. Workers:	395

Figure 3 - Zoning Map: Precinct 1 - Albion Park Rail

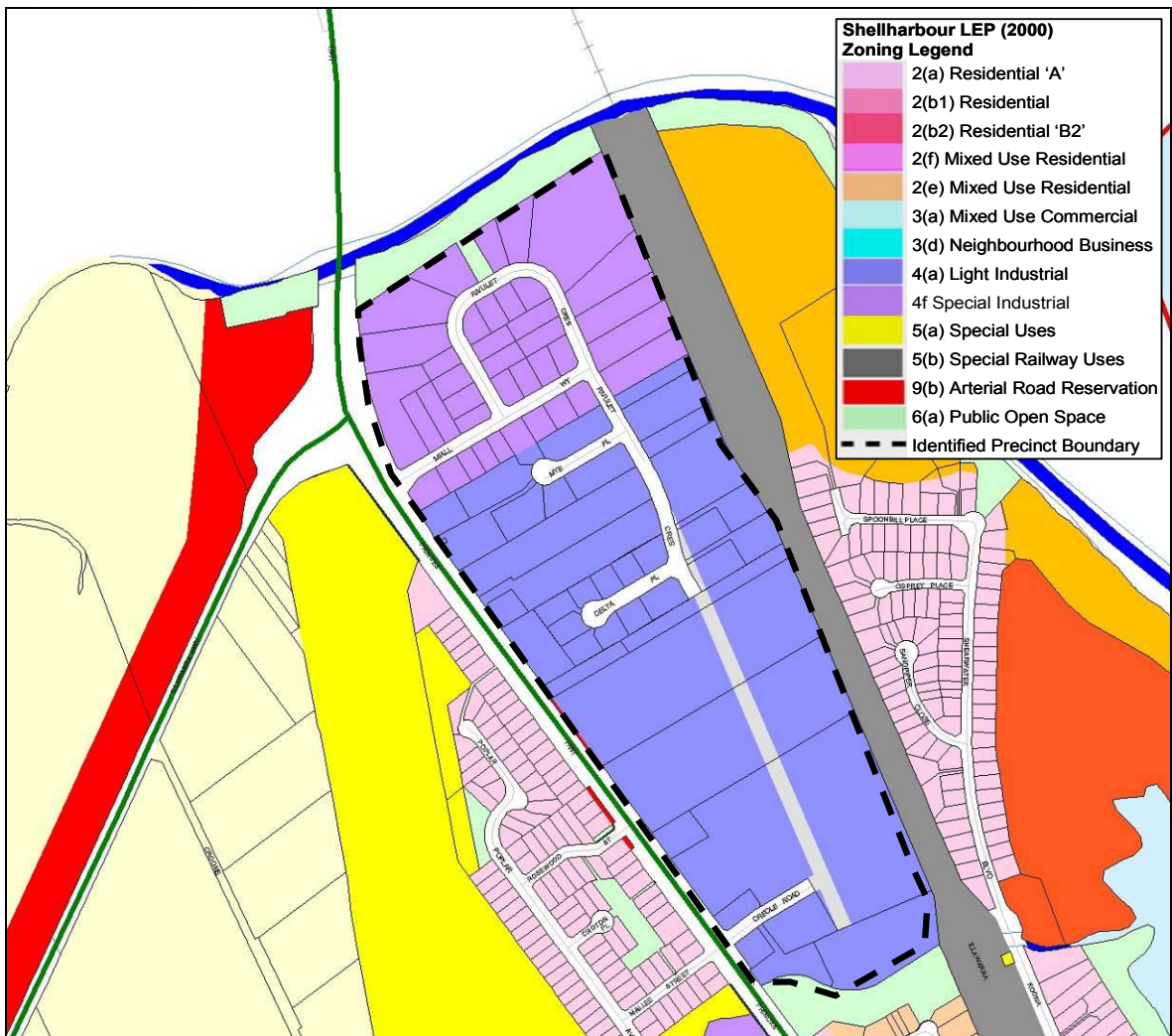


Figure 4 - Photos: Princes Highway, Albion Park Rail



Assessment and Evaluation Results

Assessment Criteria	Albion Park Rail
Arterial Road Accessibility	4
Internal Road Accessibility	5
Minimal Land Use Conflict	5
Topography	5
Residential Amenity	5
Agglomeration	3
Low Bushfire Risk	4
Low Contamination	3
In close Vicinity to Natural Creek/Drainage Lines	4
Low Airport Obstacle Lines and Surfaces	3
TOTAL RATING	41 / 50

General Commentary

Whilst Albion Park Rail is the largest employment land precinct and largest cluster of industrial zoned land in Shellharbour LGA, a large component of the precinct is vacant (16ha). The southern portion of the precinct is predominantly undeveloped, comprising of large tracts of cleared or partially cleared land. At the time of survey, 86% of vacant land in the precinct was located in the southern portion where land is typically zoned 4(a) Light Industrial. Furthermore 3,160sqm of building floorspace was for lease or sale across the precinct.

The precinct consists of a mix of different sized local service based businesses including car smash repair businesses, car sales yards, transport and storage firms, and light manufacturing industries. These local service businesses are mainly located within the northern portion of the precinct either fronting Princes Highway or along Miall Way and Rivulet Crescent. This is land predominantly zoned 4(a3) Airport Light Industrial.

The precinct is surrounded by parkland, creek lines, the railway line and Princes Highway, giving the precinct a good buffer to residential uses. Although there is residential opposite the precinct along Princes Highway, it is noted that some of these are being used for commercial premises (see Precinct 2 – Illawarra Regional Airport). The bushland bordering the north of the precinct along the creek line is zoned public open space.

Figure 5 - Photos: Rivulet Crescent, Albion Park Rail



The site is within proximity to the regional road network with direct access to Princes Highway, although there are time restrictions for turning right of the precinct from Miall Way onto Princes Highway. It is noted that the zoning map indicates the possible extension of Rivulet Crescent to Creole Road once the south of the precinct is further developed.

Figure 6 - Photos: Miall Way, Albion Park Rail



It is also be noted that both the zoning map and a review of ownership titles reveals that there were various large lots (13ha to 39ha) zoned 4(a) Light Industrial with more than one business located on them. In many cases, each business has their own building on the property rather than being part of a strata titled building. Most of these instances are located in the southern portion of the precinct. This type of haphazard development may restrict the future redevelopment and subdivision potential of the land.

For example, 69 Princes Highway (as highlighted below) is registered as one lot of 13.37ha, however 5 businesses are located on site and within separate buildings. This includes Frankies Auto Electricals, car wash, Tiger Putt Putt Golf and Tiger Café, Danics Tyres & Mags, BP Service Station and various vacant lands.

Figure 7 - 69 Princes Highway, Albion Park Rail



Source: Red Square, 2008

Market Assessment

The majority of sales transactions in Albion Park Rail over the past 5 years have been industrial development sites ranging from 1- 13ha, averaging 2.3ha. Past sales evidence suggests development sites of this nature have been typically trading at around \$300/sqm (\$196-\$405/sqm), although local agents indicate they are currently achieving around \$390/sqm. 2 lots of vacant land on Rivulet Crescent of around 6ha each are currently on the market with an average asking price of \$275/sqm.

Local industrial agents suggest new industrial buildings in Albion Park Rail have the capability of achieving up to \$1,700/sqm (NLA), with second-hand buildings recently averaging closer to \$1,300- \$1,400/sqm. Building leases are achieving around \$99/sqm (NLA).

Harbour Town is a concept proposed by ING on a 7.6 hectare site on the Princes Highway in Albion Park Rail. The proposal is for a single storey retail outlet with approximately 28,000sqm of letable retail space. The concept plan includes:

- 14,000sqm brand outlet centre;
- 4,000sqm of existing bulky goods stores;
- 9,700sqm of new bulky goods / homemaker stores;
- Tourist bus lounge and bus parking; and
- 980 on grade parking spaces.

The centre may also have entertainment uses such as cinemas and/or ten-pin bowling. The brand outlet component would be a single storey building with tenancies fronting an open pedestrian street. The brand outlet centre would comprise of brand name stores selling predominately apparel but also including homewares, travel goods and the like. Other ING examples are Adelaide and the Gold Coast. The DFO at Homebush is a close example and the Tuggerah Supacentra is the closest example of a combined bulky goods / factory outlets centre.

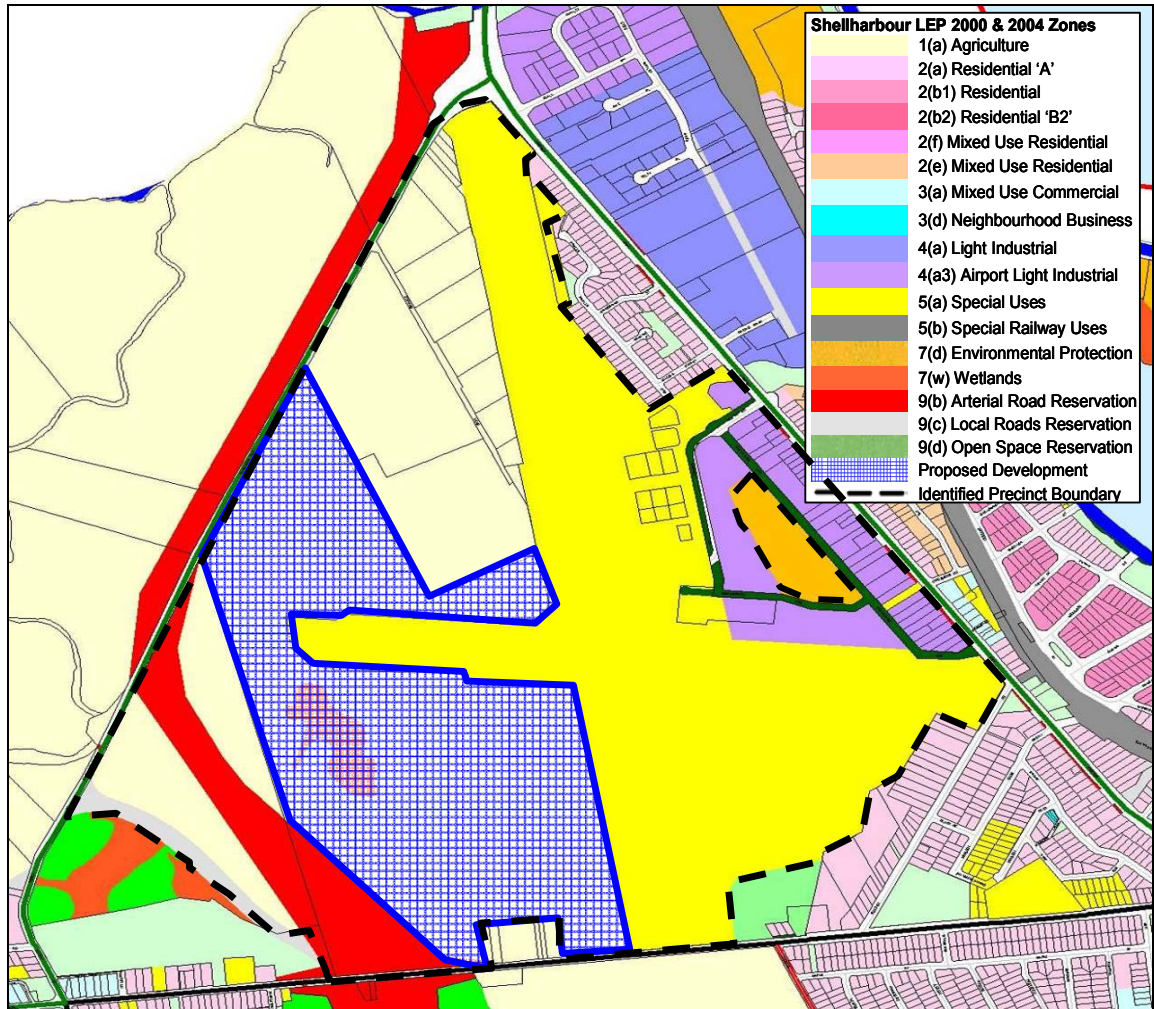
5.7 Precinct 2 – Illawarra Regional Airport

The Airport precinct is identified as Illawarra Regional Airport and those lands along Princes Highway between Hargraves Avenue and Airport Road.

Figure 8 - Aerial Map: Precinct 2 - Airport



Figure 9 - Zoning Map: Precinct 2 - Airport



Precinct Snapshot

Existing Zoning:	5(a) Special Use, 4(a3) Airport Light Industrial, IN2 Light Industrial, SP2 Infrastructure, E2 Environmental Conservation.
Total Employment Zoned Lands (approx):	5(a) Special Use – 97ha 4(a3) Airport Light Industrial – 19ha IN2 Light Industrial Illawarra Regional Business Park – 45.1ha TOTAL: 161.1ha
Total Other land in Precinct (approx):	SP2 Infrastructure Illawarra Regional Business Park – 1.2ha E2 Environmental Conservation Illawarra Regional Business Park – 22.65ha Other Zones (e.g. rural) – 60.8ha TOTAL: 84.7ha
Total Land in Precinct (approx):	245.8ha
Vacant Employment Zoned Lands (approx):	45.7ha
No Lots:	5(a) Special Use – 17 4(a3) Airport Light Industrial – 44 IN2 Light Industrial Illawarra Regional Business Park – 2 Remainder – 18 TOTAL: 81 lots
Range of Lot Sizes:	5(a) Special Use (not including land associated to the runway) – 1,000-8,000sqm mainly for aeroplane hangers. 4(a3) Airport Light Industrial – 800sqm to 3.5ha. Remainder – 1,200sqm to 70ha.
No. Businesses:	Industrial and special use zones – 25 Remainder – 33 TOTAL: 58

No. Workers:	352
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Assessment and Evaluation Results

Assessment Criteria	Airport
Arterial Road Accessibility	4
Internal Road Accessibility	4
Minimal Land Use Conflict	3
Topography	5
Residential Amenity	2
Agglomeration	4
Low Bushfire Risk	2
Low Contamination	2
In close Vicinity to Natural Creek/Drainage Lines	4
Low Airport Obstacle Lines and Surfaces	0
TOTAL RATING	30 / 50

Figure 10 - Photos: Airport Road, Illawarra Regional Airport



Land Use Characteristics and General Commentary

The Illawarra Regional Strategy (2006-31) recognises the Illawarra Regional Airport as being a significant facility for the greater Illawarra Region, having identified the site as a location for employment generating activity. The Regional Strategy highlights airport related activities, general transport, light industrial uses, commercial activities related to light industrial, and support services being appropriate for the site.

It is understood that Council is to commission an airport study which will include an aircraft capability/performance assessment, community consultation and a final Masterplan.

Clause 84, of the Shellharbour LEP (2000), relates to development applications lodged with Council for development within the vicinity of Illawarra Regional Airport. Clause 84(a) notes that development consent cannot be granted unless height, noise exposure, lighting and bird hazard management is acceptable. Additionally, if the proposal does not comply with the LEP, Clause 84(b) indicates that the Civil Aviation Safety Authority is given notice of the proposal and is provided with comments by the consent authority.

Figure 11 - Photos: Airport Road, Illawarra Regional Airport



The Airport precinct includes Illawarra Regional Airport, a mix of airport affiliated services and businesses, and residential dwellings. Those businesses related to airport operations or businesses are predominantly located along Boomerang Road and Airport Road. The majority of buildings fronting Princes Highway are residential, although it's acknowledged some are used as commercial premises (e.g. accountants, cabinet makers).

The Airport itself is zoned 5(a) Special Uses and includes a terminal building, parking, enclosed parking, aviation facilities, and aircraft parking (both permanent and temporary). Those aviation activities clustered around the airport along Airport Road and Boomerang Road include light aircraft manufacture, aircraft maintenance and repairs, search and rescue, aerial surveillance, aircraft instrument/electrical installation, charter operations, aircraft restoration, flying training, Shell Aviation, skydiving operations, Sydney Microlight Centre, helicopter operators, and emergency services. A new rural fire service control centre is also under construction adjacent to the Airport.

It is acknowledged that there are various lands zoned 1(a) Rural adjoining the Airport lands to the west along Croom Lane and Illawarra Highway on which light industrial or retailing activity is based (approx. 11ha). At this stage, given the uses on this land they have been included within the Airport precinct.

Figure 12 - Photos: Croom Lane, Albion Park Rail



Those businesses located along Croom Lane occupy include motor vehicle repairs. RTA Operations -Southern Road Services, Coastside Civil, Earthmovers & Plant Hire, MJ Rowles Landscaper Suppliers, and, Fourth Reich Motorcycle Club. Remaining lots to the west of the Airport are rural in nature.

Total vacant sites accounted for 135.63ha of total land in the precinct which was mainly zoned for rural land uses. Furthermore, whilst there are some businesses located in residential cottages, 29 cottages appear to be zoned industrial but used as private residential dwellings equating to around 4.5ha of land.

Residential dwellings surround the Airport to the north east (fronting Princes Highway) and to the south east (fronting Tongarra Road and Station Road). However, it is noted that bushland does provide some buffers between the runway and those residential dwellings on Station Street. Some of those dwellings fronting Princes Highway have rear access from Hargraves Avenue.

Whilst the precinct is located adjacent to local and regional roads, access is limited to Airport Road for traffic travelling north and south along Princes Highway, and Hargraves Avenue for north only traffic along Princes Highway. The Airport is only accessible from Airport Road and there is no access to the precinct from Illawarra Highway or Tongarra Road.

Bushland along the western side of Hargraves Avenue is zoned 7(d) Environmental Protection (Scenic), which may constrain potential expansion of industrial lands in the precinct.

Market Assessment

Given Precinct 1 – Albion Park Rail, is located opposite the Airport, the market commentary for Albion Park Rail in Section 5.6 of this report would similarly apply for the Airport Precinct.

However, it is recognised a development approval has recently been approved to the west of the Airport Precinct and is identified as Illawarra Regional Business Park. The Business Park received approval in 2008 to be listed as a State Significant Site in Schedule 3 of State Environmental Planning Policy (Major Projects 2005). Part 13 of Schedule 3 indicates the site has been zoned IN2 Light Industrial (45.09ha), SP2 Infrastructure (1.2ha) and E2 Environmental Conservation (22.65ha).

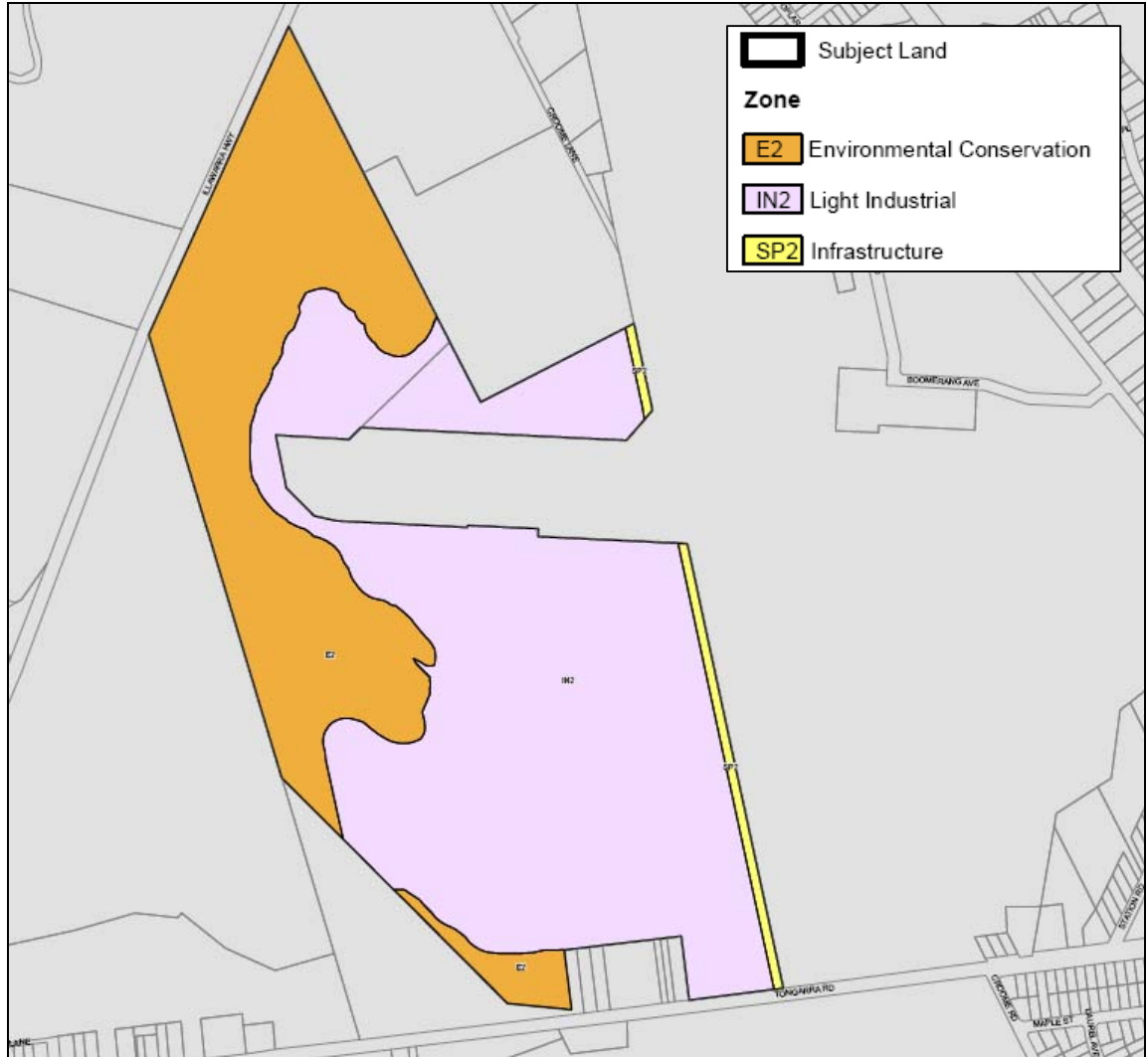
The 69ha site, identified as 78 Tongarra Road Albion Park, is located west of the Airport with frontages to both Tongarra Road and Illawarra Highway (as indicated in Figure 9 and 13).

In January 2009, the applicant (Delmo Albion Park Pty Ltd) received concept plan approval under the provisions of Part 3A of the Environmental Planning and Assessment Act (1979). It is understood¹⁸ the approval is for a 60-lot subdivision (59 industrial lots and 1 lot for environmental conservation). The proposed lots will vary from 200sqm to 3.2ha¹⁹ and includes a café, hotel/motel and a service station.

¹⁸ Source: Illawarra Regional Business Park Concept Plan Director-General's Environmental Assessment Report, November 2008.

¹⁹ Source: Director-General's Environmental Assessment Report, Illawarra Regional Business Park, November 2008

Figure 13 - Zoning of Proposed Illawarra Regional Business Park



Source: State Environmental Planning Policy (Major Projects) 2005 (Amendment No. 28)

5.8 Precinct 3 – Oak Flats

The Oak Flats industrial area is located along Industrial Road, between River Oak Place and Central Avenue.

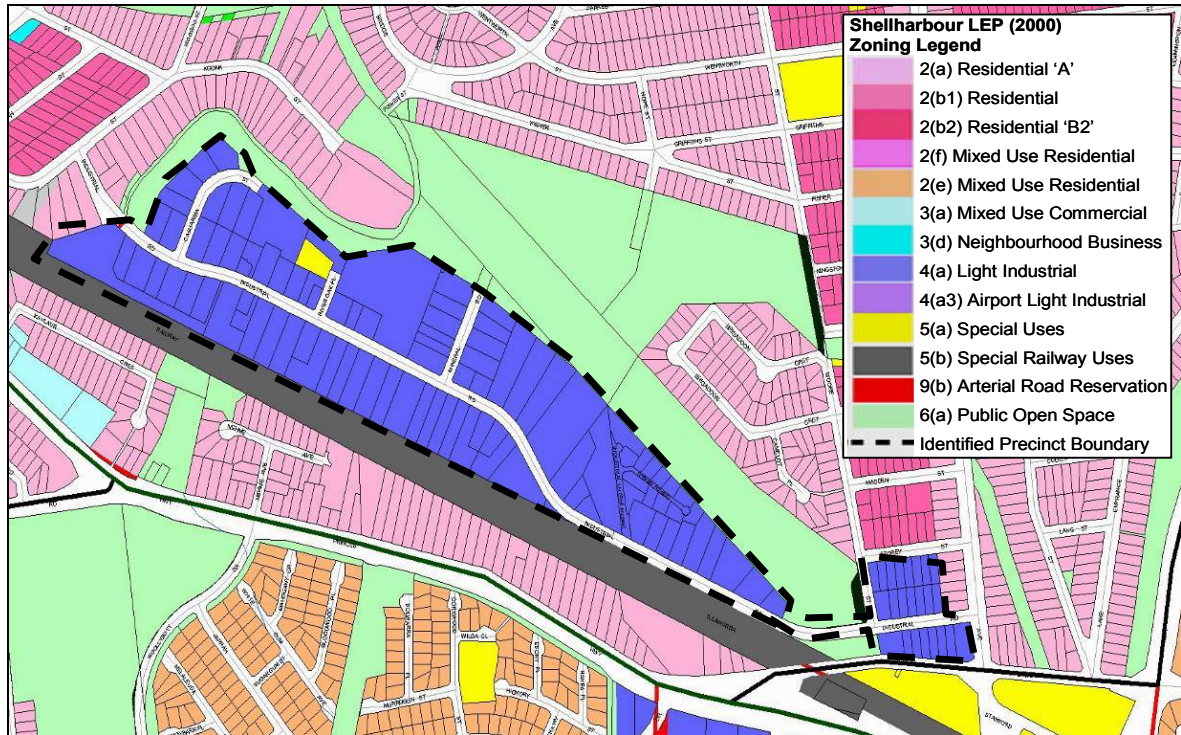
Figure 14 - Aerial Map: Precinct 3 – Oak Flats



Precinct Snapshot

Existing Zoning:	4(a) Light Industrial and 5(a) Special Uses
Total Zoned Employment Lands (approx):	28.1ha
Vacant Employment Zoned Lands (approx):	3.6ha
Employment Floorspace:	94,234sqm
No Lots:	121
FSR Range:	0.3:1 to 0.8:1
Range of Lot Sizes:	1,500 to 5,000sqm on average, although it is noted that George Weston Foods owns land totalling some 4ha of which 1.6ha is vacant.
No. Businesses:	143
No. Workers:	451

Figure 15 - Zoning Map: Precinct 3 – Oak Flats



Assessment and Evaluation Results

Assessment Criteria	Oak Flats
Arterial Road Accessibility	2
Internal Road Accessibility	2
Minimal Land Use Conflict	3
Topography	5
Residential Amenity	3
Agglomeration	4
Low Bushfire Risk	5
Low Contamination	3
In close Vicinity to Natural Creek/Drainage Lines	2
Low Airport Obstacle Lines and Surfaces	2
TOTAL RATING	31/50

Land Use Characteristics and General Commentary

The industrial precinct in Oak Flats contains a mix of local service based businesses including car smash repairs, construction and building industry businesses, light manufacturing, the council depot, transport and warehousing. Vacant sites accounted for 3.6ha at the time of survey, of which 1.6ha was associated with land owned by George Western Foods (Tip Top Bakery). Furthermore 8,300sqm of building floorspace was for lease or sale at the time of survey.

The vast majority of accommodation in the Oak Flats precinct is small light industrial units. In many cases, lots include multiple tenancies. Lots are generally deep and narrow, especially those along the southern side of the precinct between Industrial Road and the railway line.

Figure 16 - Photos: Storey Street, Oak Flats



The Corpus Christi School is also located adjacent to the precinct with entry off Industrial Road near the intersection with Pioneer Drive and Moore Street. Together with public open space and creek lines along the northern boundary of the precinct, the school provides a buffer between the light industrial uses and surrounding residential dwellings. Adjoining the precinct to the south is the railway line.

The physical survey together with examination of aerial photography reveals there is little land available for expansion of the precinct given the adjoining land uses to the precinct. However, given the proximity of the Oaks Flat precinct to the vacant and available land at Central Business Park, it is possible that pent up demand for land at Oaks Flat could be accommodated at Albion Park Rail.

Those industrial lots to the east of the precinct along Moore Street, Story Street, and Page Street do not have a buffer to surrounding residential dwellings. Those dwellings fronting Central Avenue between Story Street and Page Street directly adjoin light industrial uses and would be particularly affected.

The precinct has considerable access constraints to the regional road network with access only via local roads through Oak Flats. There is no direct access from the precinct to Princes Highway due to the railway line and surrounding residential development.

Figure 17 - Photos: Industrial Road, Oak Flats



Local road access is either via Creamery Road or New Lake Entrance Road. Creamery Road crosses the railway line from Princes Highway a considerable distance north-west of the precinct and also involves the use of numerous local residential streets before turning into Industrial Road from Wooroo Street.

From the north-east or south-east traffic enters the precinct via the roundabout at New Lake Entrance Road and Pioneer Drive, which is more appropriate for truck movements given the connection of New Lake Entrance Road to Princes Highway. Industrial Road is a 2 lane local road (one each way) and without a parking lane on the southern side, traffic congestion and parking difficulties can be an issue. However, it is noted that numerous properties provide customer parking on site which alleviates some congestion.

Figure 18 - Photos: Industrial Road, Oak Flats



Market Assessment

According to local sales agents, industrial buildings in Oak Flats can expect to achieve sales prices of around \$1,300/sqm (NLA). In addition to this, agents indicate there's no vacant industrial land available.

Analysing the current market, there is little property for sale or for lease. However, analysis of past leasing data indicates buildings are being rented at around \$115/sqm (NLA). This indicates yields of 8% to 8.5%.

5.9 Precinct 4 – Central Business Park, Albion Park Rail

Central Business Park is located in the south of Albion Park Rail adjacent to the Princes Highway and New Lake Entrance Road round about.

Figure 19 - Aerial Map: Precinct 4 – Central Business Park, Albion Park Rail

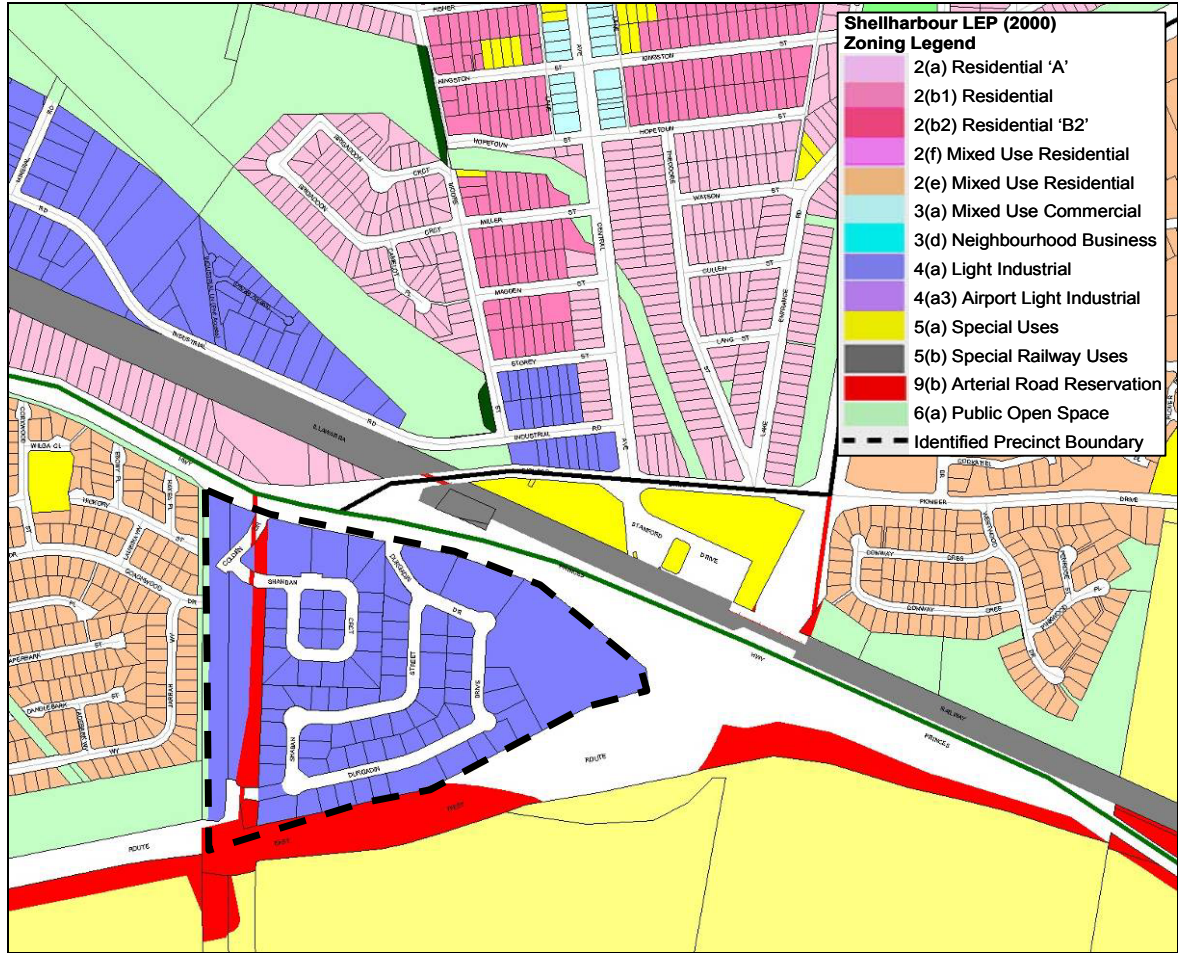


Precinct Snapshot

Existing Zoning:	4(a) Light Industrial and 9(b) Arterial Road Reservation.
Total Zoned Employment Lands (approx):	14.82ha
Vacant Employment Lands (approx):	7.65ha
Employment Floorspace:	78,080sqm
No. Lots:	81
FSR Range:	0.5:1 to 1:1
Range of Lot Sizes:	1,000 to 6,000sqm on average. Former Magnet Mart site (now vacant) is around 2ha.
No. Businesses:	66 (excludes Magnet Mart)
No. Workers:	272 ²⁰

²⁰ * Subsequent to the date of survey (2007), Magnet Mart has closed representing a loss of an estimated 150 out of 272 jobs. However, at the time of survey some buildings were for lease and some sites were under construction. As a result some jobs additions would have also occurred since that time.

Figure 20 - Zoning Map: Precinct 4 – Central Business Park, Albion Park Rail



Assessment and Evaluation Results

Assessment Criteria	Central Business Park
Arterial Road Accessibility	4
Internal Road Accessibility	2
Minimal Land Use Conflict	5
Topography	3
Residential Amenity	4
Agglomeration	4
Low Bushfire Risk	2
Low Contamination	5
In close Vicinity to Natural Creek/Drainage Lines	5
Low Airport Obstacle Lines and Surfaces	5
TOTAL RATING	39 / 50

Figure 21 - Photos: Durgadin Drive, Central Business Park



Land Use Characteristics and General Commentary

Central Business Park contains mostly construction industries, retail trade, car sales yards, and vacant land. Construction industries include paints, kitchens, blinds, tiles, plumbing centres, fencing/gate supplies, doors, fireplaces, window suppliers, and construction/ building services.

The classification of 'retail trade' as per ANZSIC 2006 is motor vehicle parts, fuel, food retailing, bulky goods, electrical good retailing, hardware, garden supplies, clothing, and department stores. Other retailing within the precinct is from takeaway food outlets, Mitre 10 Home & Trade, Autobarn, and Pet Warehouse.

Figure 22 - Photos: Durgadin Drive, Central Business Park



It is understood that since Hill PDA's 2007 land use survey, Magnet Mart (11,148sqm), which was the largest retail land user in the precinct, has now vacated the site. The site remains unoccupied. A large proportion of land within the precinct (5.60ha) also remains undeveloped. Undeveloped land in the precinct is focussed along Shandon Circuit and the north side of Durgadin Drive. 13,828sqm of floorspace within the precinct was for lease or sale at the time of survey.

Accommodation along Durgadin Drive consists of terrace style double story warehouse units with ancillary office space. The terrace lots along Durgadin Drive range from 1,000sqm to 2,000sqm of land, with units from 250sqm – 1,500sqm of floorspace. Generally these include two tenancies per lot with roller door access and

customer car parking out front. Remaining accommodation throughout the precinct varies from traditional large span warehouses, to car sales yards, and smaller custom built showrooms.

Figure 23 - Photos: Shaban Street, Central Business Park



Minimal land use conflicts exist given the precinct is surrounded by Princes Highway, arterial road reservations, and public open space. South of the site is the Cleary Brothers Quarry.

Access to the precinct is constrained with plans indicating Colden Drive was to run north/south along the western boundary of the precinct through land currently occupied by a private road with no public access. As a result the precinct is divided into two separate sub-precincts. This disconnection means those customers visiting Durgadin Drive or Shaban Street are unable to internally access any occupants located on Shandan Circuit.

Figure 24 - Photos: Shandan Street, Central Business Park



The Princes Highway/Colden Drive entry is available for both north and south traffic travelling along Princes Highway. The Princes Highway/Durgadin Drive entry point is for north travelling traffic only along Princes Highway. Durgadin Drive is also accessible from the south via the round about at the intersection of East West Route.

Market Assessment

There has been considerable sales activity in Central Business Park over the past 5 years. This has comprised sales of industrial buildings, development sites, industrial units, workshops and some warehouses.

However, industrial development sites have dominated previous sales activity, especially along Durgadin Drive. Site sales have ranged from 600sqm to 7,000sqm although averaging approximately 1,000sqm a site. Land has achieved values of \$160- \$430/sqm, with most around \$300/sqm of land.

5.10 Precinct 5 – Warilla

The Warilla precinct is identified as that land surrounding Warilla Grove shopping centre to the east of Shellharbour Road along Woolworths Avenue, Grove Circuit, Commerce Drive, and Veronica Street. Given the precinct is on the suburb boundary of Lake Illawarra and Warilla, the precinct is often associated with both suburbs, although has been identified for the purpose of this study as Warilla.

It is acknowledged that lands zoned 3(a) Mixed Use Commercial have been examined within the Shellharbour Commercial Centres Study (2008) and hence have been excluded from the physical analysis of land within this report. Furthermore, that land zoned 2(e) Mixed Use Residential whilst within the precinct currently only includes residential dwellings (mainly in the form of multi-unit tenancies) with no business or retail related uses, and as such is also excluded from the physical examination of this precinct.

Figure 25 - Aerial Map: Precinct 5 – Warilla

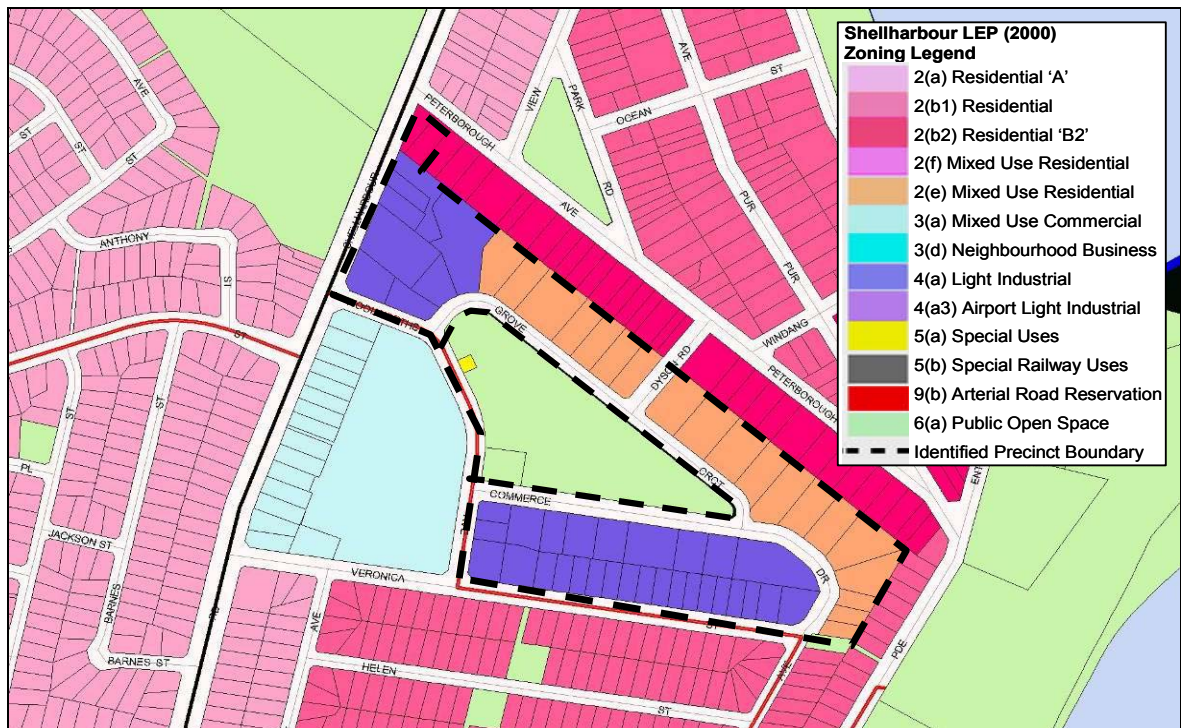


Precinct Snapshot

Existing Zoning:	4(a) Light Industrial, 2(e) Mixed Use Residential*, and 2(b2) Residential.
Total Zoned Employment Lands (approx):	8.1ha
Vacant Employment Lands (approx):	1.5ha
Employment Floorspace:	22,710sqm
No. Lots:	36 zoned 4(a) Light Industrial, 19 zoned 2(e) Mixed Use Residential, 2 zoned 2(b2) Residential
Range of Lot Sizes:	800sqm to 4,000sqm
FSR Range:	0.5:1 to 1:1
No. Businesses:	45
No. Workers:	400

* Includes little or no employment land uses in 2(e) Mixed Use Residential zoned area.

Figure 26 - Zoning Map: Precinct 5 – Warilla



Assessment and Evaluation Results

Assessment Criteria	Warilla
Arterial Road Accessibility	4
Internal Road Accessibility	5
Minimal Land Use Conflict	2
Topography	5
Residential Amenity	3
Agglomeration	4
Low Bushfire Risk	5
Low Contamination	5
In close Vicinity to Natural Creek/Drainage Lines	5
Low Airport Obstacle Lines and Surfaces	5
TOTAL RATING	43 / 50

Figure 27 - Photos: Princes Highway, Warilla



Land Use Characteristics and General Commentary

The Warilla precinct is adjacent to Warilla Grove Shopping Centre (an enclosed shopping mall of some 11,840sqm of retail floorspace), and retail and hotel facilities along Shellharbour Road. The precinct includes that industrial land along Woolworths Avenue, Shellharbour Road, and Commerce Drive.

Figure 28 - Photos: Grove Circuit, Warilla



That industrial zoned land within the precinct contains a mix of construction industries, wholesale trade, retail trade, and other services (mainly car mechanics and car service). Vacant sites accounted for 1.5ha of land in the precinct at the time of survey, with 1,995sqm of building for lease or sale.

Building and home improvement businesses located in the precinct include builders services, kitchens and joinery, painting services, engineering services, roofing and roofing services, flooring, windows and doors. Wholesale trade in the precinct includes mostly electrical and carpet wholesalers as compared to retail trade which includes sporting goods, furniture stores, service station convenience stores, fitness equipment, pet store, Mission Op Shop and the Salvo's Store.

Figure 29 - Photos: Commerce Drive, Warilla



The vast majority of accommodation in the Warilla precinct is mostly in the form of warehouse buildings with ancillary office. Those lots fronting Shellharbour Road generally have multiple buildings and businesses, as compared to those lots along Commerce Drive and Veronica Street which are generally single occupancy lots.

Those industrial lots to the south of the precinct along Veronica Street and north along Shellharbour Road do not have a buffer to surrounding residential dwellings. Those residential dwellings fronting Peterborough Avenue and Veronica Street are impacted the greatest.

Figure 30 - Photos: Veronica Street, Warilla



The precinct has reasonable access both to Shellharbour Road and internally around the precinct. However, it is noted that access to Shellharbour Road to travel north is only provided by Veronica Street. To travel south access is provided by either Veronica Street or Woolworths Avenue.

Market Assessment

There have been few property transactions over the past 5 years in either the Warilla or Barrack Heights precincts. The transactions that have occurred have mainly included industrial units and some development site sales. Development site transacted have been around 1.5-2ha and have achieved an average of approximately \$200/sqm of land.

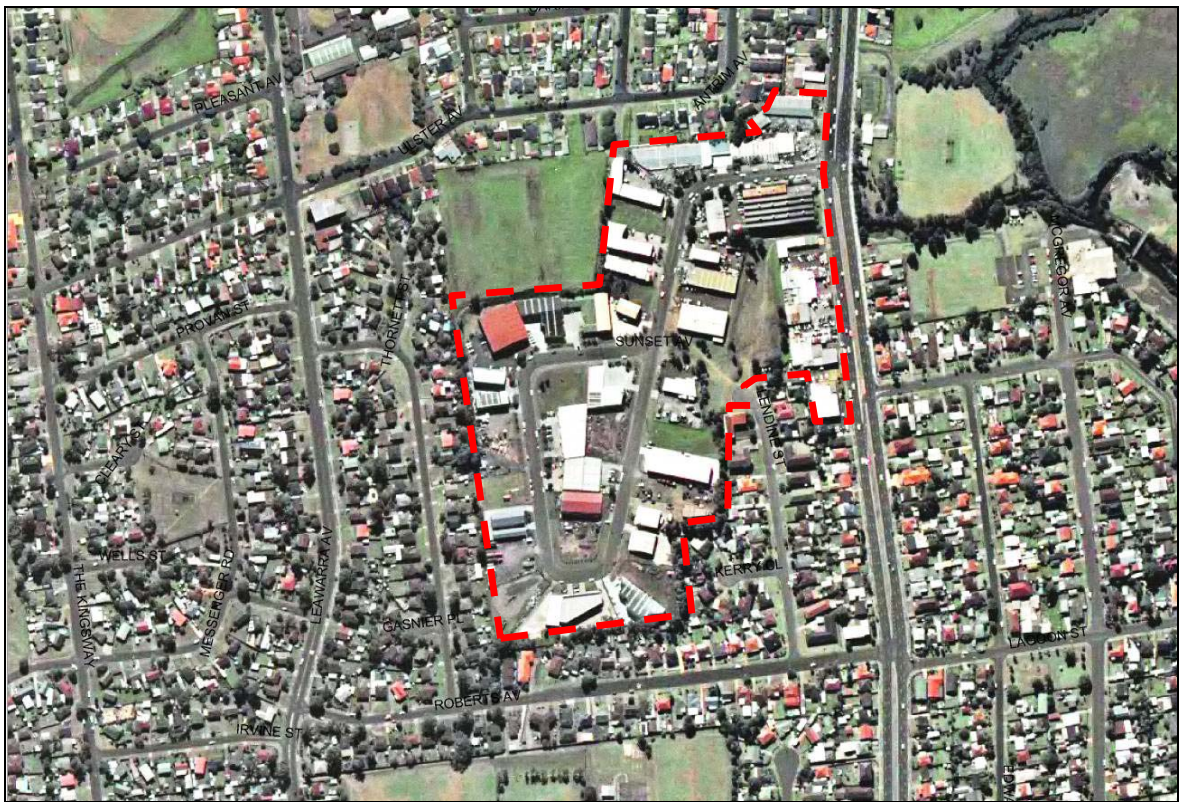
According to local industrial agents, development land in Warilla can expect to achieve around \$250/sqm - \$260/sqm, with industrial buildings achieving \$1,300/sqm (NLA).

There are currently some buildings for lease in the precinct with asking prices ranging from \$80- \$120/sqm (NLA).

5.11 Precinct 6 – Barrack Heights

The Barrack Heights precinct is located west of Shellharbour Road with entry via Sunset Avenue. The precinct is located opposite Oakleigh Park.

Figure 31 - Aerial Map: Precinct 6 – Barrack Heights



Precinct Snapshot

Existing Zoning:	4(a) Light Industrial
Total Zoned Employment Lands (approx):	9.2ha
Vacant Employment Lands (approx):	3.2ha
Employment Floorspace:	43,021sqm
No. Lots:	57
Range of Lot Sizes:	800sqm to 4,000sqm
FSR Range:	0.4:1 to 1:1
No. Businesses:	56
No. Workers:	236

Figure 32 - Zoning Map: Precinct 6 – Barrack Heights



Figure 33 - Photos: Princes Highway, Barrack Heights



Assessment and Evaluation Results

Assessment Criteria	Barrack Heights
Arterial Road Accessibility	4
Internal Road Accessibility	5
Minimal Land Use Conflict	3
Topography	3
Residential Amenity	3
Agglomeration	4
Low Bushfire Risk	5
Low Contamination	4
In close Vicinity to Natural Creek/Drainage Lines	5
Low Airport Obstacle Lines and Surfaces	5
TOTAL RATING	43 / 50

Land Use Characteristics and General Commentary

The Barrack Heights precinct is concentrated around the Sunset Avenue loop road, with some industrial zoned land also fronting Shellharbour Road. The precinct includes a mix of construction, recreation, and other services, as well as a large amount of undeveloped land. Total vacant sites accounted for 3.2ha at the time of survey. Furthermore 6,728sqm of buildings were for lease at the time of survey.

Figure 34 - Photos: Sunset Avenue, Barrack Heights



Land for recreation uses includes Shellharbour Swim Academy, Shellharbour Bowl, Playdays Shellharbour Indoor Sports Centre, a martial arts school, gymnastics centre, and various dance schools. That land associated to 'other services' includes the likes of car services, electronic repairs, caravan repairs, mower repairs, and security services.

Industrial accommodation in the Barrack Heights precinct ranges from 300 to 2,200sqm of floorspace and is mostly in the form of warehouse buildings with ancillary office. Various lots have multiple buildings and businesses accommodated in smaller industrial units (160 to 400sqm).

Figure 35 - Photos: Sunset Avenue, Barrack Heights



There is no buffering to surrounding residential dwellings and it appears there is a large vacant residential zoned lot adjoining the north west corner of the precinct.

The precinct has direct north/south access to Shellharbour Road and good general access internally around the precinct. However, it is noted that traffic travelling north only, can access those lots fronting Shellharbour Road.

Market Assessment

The market commentary provided for Precinct 5 – Warilla in Section 5.10 of this report would similarly apply for the Barrack Heights precinct.

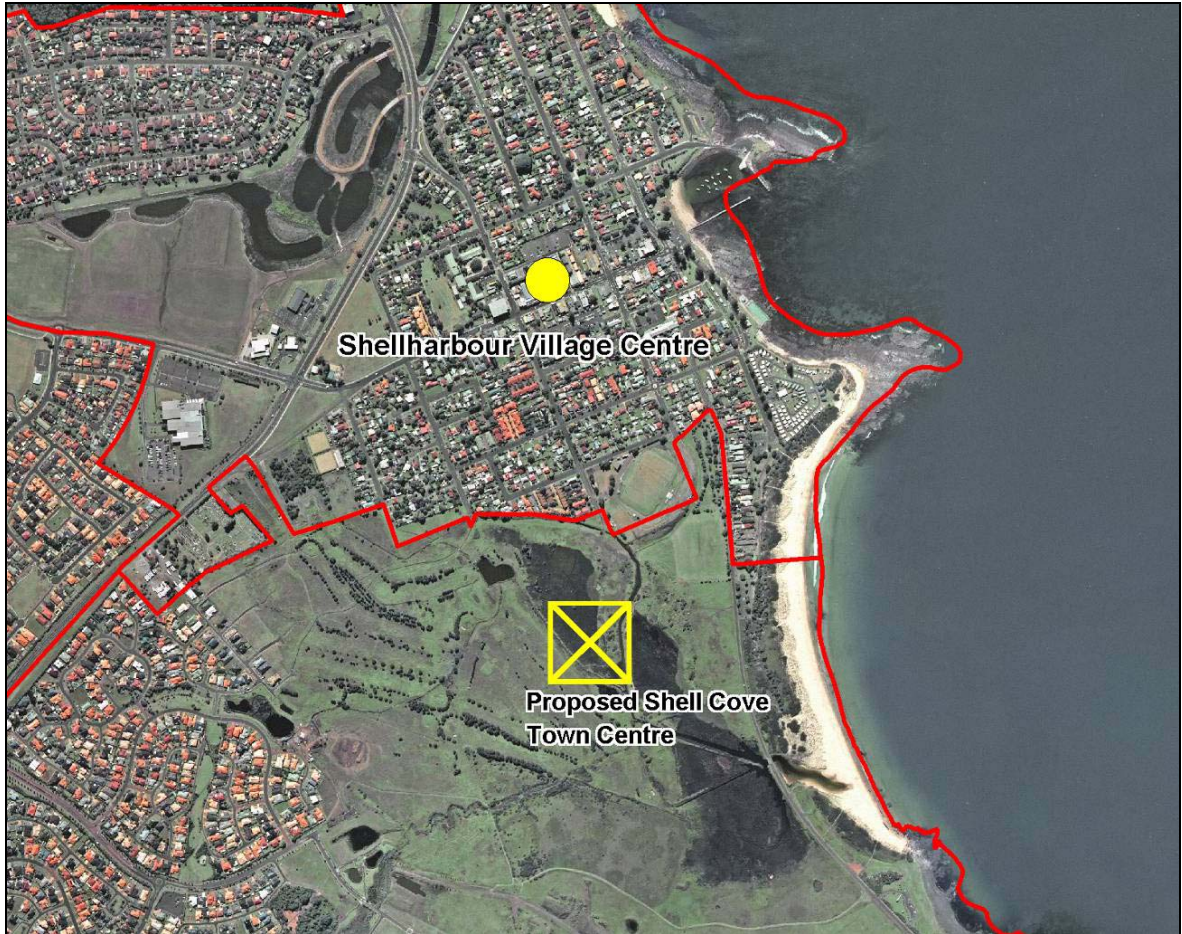
5.12 Precinct 7 – Shell Cove Marina (Proposed)

The proposed Shell Cove boat harbour and marina is located south of Shellharbour Village and north of Bass Point Quarry.

Shell Cove, was adopted by Council as a project in the 1990's, aiming to be the major focus for meeting the LGA's economic development objectives. The project is currently financed and managed by Australand. Potential land uses include:

- 300 berth marina constructed within an in-shore boat harbour including dry docks, launching ramps, refuelling and sewerage facilities.
- Community facilities include a public school (opened 2005), community centre (interim – opened 2005), and sporting facilities.
- 3,000 residential lots with much residential development already complete. Residential sales are expected to continue until approximately 2020.
- A retail hub which will be developed around the marina. 6,000-7,000sqm of retail floorspace is proposed, of which 2,500sqm will be attributed to a new full line supermarket. There appears to already be strong interest in the operation of the supermarket by prospective operators. It is hoped the retail component of the project will be operating by 2012.

Figure 36 - Aerial Map: Shell Cove



It is understood the Director General's Requirements for the environmental assessment (to be prepared by the proponent) have been issued for the project. The proposal comprises a concept plan approval for "Construction of Residential, Commercial, Retail, Hotel, Marina Facilities, Public Parklands and Technology Park and Subdivision".

The application will involve approval of conceptual key design parameters including land use, accommodation types (residential and tourist), density, floor space ratio, site coverage, built form, setbacks, indicative building heights, roads and vehicle access, car parking, public and community private open space and pedestrian and bicycle connectivity, public access to foreshore, public domain works and infrastructure requirements, stormwater management and landscaping.

Figure 37 - Shell Cove Masterplan



Source: www.shellcove.com.au

As part of the Shellharbour LGA Retail & Commercial Centres Study (2008), Hill PDA undertook a preliminary market analysis of the viability of business park development in the Shell Cove quarry buffer zone which included a series of discussions with local agents. These lands are currently zoned 2(f) Residential, but as the

quarry is still operating, residential is not allowed by provisions in Shellharbour Local Environmental Plan (2000). The site is roughly 9ha, however due to the lack of access to the site it is questionable as to whether a business park is the highest and best use for this land.

Research indicated that whilst there is demand for office space in Shellharbour LGA, there are no comparable business park developments in the area. As such, it is difficult to assess the viability of a business park in this location as it's an untested market.

The most recent comparable commercial development in Shellharbour LGA is the Cygnet Centre located in Shellharbour City Centre. Local agents indicated demand was initially quite strong; however, some potential buyers had withdrawn their offers due to construction delays. Many local agents suggested that before taking on a similar development it would be essential to secure a number of large pre-commitments to attract other firms to the location.

From a geographical perspective, local agents agreed that Shell Cove was probably the most suitable location for a business park, with support from the new marina development and access via two main roads. Farming land in Dunmore located opposite the council tip and train station was suggested by local agents as an alternate site for a business park. This was due not only to its location just off the freeway bypass, but due to the land being cheaper to develop. However, Shell Cove was viewed as a more prestigious location to Dunmore, with premium grade office space being more readily received than if developed at Dunmore.

Alternative suggestions for land uses within the quarry buffer zone at Shell Cove included subdividing the land into half acre residential lots or selling the whole site to a developer for luxury villas and residential resorts. These suggestions stemmed from constant demand for residential lots within close proximity to the water, particularly for the development of seniors living accommodation. However, as the quarry has an expected life of at least 40 years these uses will be unlikely to occur.

6. SHELLHARBOUR EMPLOYMENT PROFILE

As part of this study, Hill PDA undertook a demographic analysis and employment profile of Shellharbour LGA. This was undertaken to provide a better understanding of employment, economic, lifestyle and social characteristics of the LGA, and therefore requirements for future employment land uses. The analysis has been based on ABS Census data.

6.1 Key Demographic Characteristics

Based on analysis of demographic data spanning 2001-2006 for Shellharbour LGA, the key demographic characteristics and trends were found to be:

- Total population increased 4.5% between 2001 and 2006.
- Total households, total private dwellings, and total occupied private dwellings all experienced moderate growth between 2001 and 2006 of 8.1%, 9.2%, and 8.1% respectively. This growth was greater than that experienced in the Sydney SD.
- In 2006, Shellharbour had a high proportion of young people with 63.6% of the population under 44 years. The LGA also had a young population when compared with Sydney SD in 2006. For instance, there was a higher proportion in the 0-14 age group, whilst the Sydney SD had a higher proportion in the 25-54 age brackets. This emphasises the number of families living in the area.
- The median age rose in Shellharbour from 33 in 2001 to 35 in 2006.
- Shellharbour had a higher proportion of residents born within Australia and Oceania when compared with the Sydney SD (75.6% compared with 64%).
- Shellharbour maintained a relatively consistent proportion of separate houses to total occupied private dwellings from 2001 to 2006 (83% and 82.5% respectively). This was substantially higher than Sydney SD in 2006 (61.7%). Similarly the number of homes rented in Shellharbour between 2001 and 2006 remained stable (25%).
- Like Sydney SD, family households in Shellharbour were the dominant family type in 2006 (68.1% and 76.5% respectively).
- In 2006 the median weekly household income was slightly lower in Shellharbour (\$983) compared to Sydney SD (\$1,154). Shellharbour's median weekly income rose by 26.3% from 2001 (\$778).

Note employment trends are further analysed in the following sections of this chapter. The ABS census tables defining the above results are provided in Appendix 3 of this report.

6.2 Population Growth

The total population of Shellharbour LGA as per the 2006 ABS Census was 60,337 people.

Forecast population growth can be deduced from the NSW Ministry of Transport, Transport Data Centre (TDC) forecasts. The TDC is the premier source of transport data for NSW. Its role is to assist those involved in transport and land use planning to make informed decisions by providing information on current and future travel patterns and employment and population trends. This information is used by Government and the private sector for the evaluation of all major transport infrastructure developments, and strategic and service planning in NSW.

The TDC 2005 release of population projections for the statistical local areas of NSW was produced using data relating to births and deaths, overseas immigration and emigration, and internal in and out migration. Considering the TDC forecasts have not yet been updated to account for 2006 Census population data, Hill PDA used the growth rates from the 2021 and 2031 forecasts and applied these to the 2006 census population data.

Table 12 - Shellharbour LGA Population Growth by Age 2006- 2031

Age Group	2006 ¹	2021 ²	2031 ²	%Growth 2006-2031
0-4	4,195	4,022	3,868	-8%
5-9	4,742	4,230	4,141	-13%
10-14	4,923	4,350	4,190	-15%
15-19	4,284	4,127	3,851	-10%
20-24	3,741	3,449	3,082	-18%
25-29	3,355	3,430	3,119	-7%
30-34	4,060	4,028	3,908	-4%
35-39	4,272	4,577	4,406	3%
40-44	4,657	4,686	4,643	-0.3%
45-49	4,429	4,610	4,585	4%
50-54	3,818	4,418	4,379	15%
55-59	3,519	4,443	4,425	26%
60-64	2,849	4,457	4,432	56%
65-69	2,425	3,979	4,547	88%
70-74	1,955	3,661	4,421	126%
75-79	1,568	2,681	3,679	135%
80-84	967	1,858	2,926	203%
85+	578	1,774	2,846	392%
TOTAL	60,337	68,780	71,448	

1- Shellharbour Population from ABS 2006 Census. Data are based on place of enumeration.

2- Growth rates from Transport Data Centre projections.

6.3 Resident Workforce by Occupation

The characteristics of the resident workforce are an important factor in defining a region's employment strengths and weaknesses. The term 'resident workforce' refers to the workforce within a particular area. According to the 2006 ABS Census, a persons place of usual residence is the place where a person lived or

intended to live for a total of six months or more in 2006. The Shellharbour workforce comprises of employed people that live in Shellharbour. It is important to note that the resident workforce (or labour force) need not necessarily work within that area, but may travel outside the local government boundary to work.

The 2006 Census shows that the Illawarra Region had a lower proportion of resident workers employed as professionals, managers, clerical, and administrative workers (44%) compared with Sydney SD (54%). The technician, trade, and labourer occupations had a higher labour force participation in the Illawarra Region (26%) than in Sydney SD (21%).

Table 13 - Labour Force by Occupation Category in Illawarra and Sydney SD

Occupation	Illawarra Region		Sydney SD	
	2006	% change 1996 - 2006	2006	% change 1996 - 2006
Managers	10%	22%	13%	20%
Professionals	20%	29%	24%	33%
Technicians, trades	16%	4%	13%	-0.2%
Community, personal service	10%	42%	8%	27%
Clerical, administrative	14%	8%	17%	2%
Sales workers	10%	23%	10%	15%
Machinery operators, drivers	8%	-12%	6%	-7%
Labourers	10%	11%	8%	9%
Inad. described/ Not stated	2%	-31%	2%	-7%
TOTAL	100%		100%	

Source: ABS 2006 Census

At an LGA level, there were some important labour force differences that indicate the preferred place of residence for different types of workers.

Table 14 - Shellharbour, Wollongong & Kiama SD Resident Employment by Occupation 2006

Occupation	Shellharbour		Wollongong		Kiama	
	2006	% change 1996 - 2006	2006	% change 1996 - 2006	2006	% change 1996 - 2006
Managers	9%	27%	10%	22%	14%	14%
Professionals	13%	49%	21%	26%	25%	27%
Technicians, trades	18%	12%	16%	1.0%	15%	9%
Community, personal service	10%	57%	10%	38%	10%	43%
Clerical, administrative	14%	21%	15%	5%	13%	7%
Sales workers	12%	41%	10%	16%	9%	26%
Machinery operators, drivers	11%	-0.3%	8%	-16%	5%	-7%
Labourers	12%	25%	9%	6%	7%	22%
Inad. described/ Not stated	2%	-26%	2.0%	-32%	1.2%	-39%
TOTAL	100%		100%		100%	

Note: 'Occupation' was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO). This has replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition. In 1996 and 2001 'Technicians and trades workers' includes Engineering, Information and Communications Technology and Science Technicians and Tradespersons.

Analysing the occupation trends of residents from 1996 and 2006 Census data shows that:

- Shellharbour LGA had the greatest percentage of labourers (12%), technicians and trade workers (18%), and machinery operators/drivers (11%).

- Whilst professionals and managers generally resided in Wollongong and Kiama, Shellharbour experienced the greatest growth in white collar resident workers from 1996 to 2006 (76%) when compared to the other LGAs of the Illawarra.
- Shellharbour LGA had also experienced significant growth in community and personal services (57%), sales workers (41%), and clerical and administrative (21%) resident workers since 1996.

6.4 Resident Workforce by Industry

The ABS 2006 Census shows that like Sydney SD, the industries that employed the most residents in the Illawarra Region included: manufacturing (12%), retail trade (12%), health care and social assistance (12%), and education and training (10%). These industries also recorded strong growth in resident workers from 1996- 2006 in both the Illawarra Region and Sydney SD. Interestingly, arts and recreation services recorded the greatest change in the Illawarra Region since 1996 of 42%, when only representing 1.4% of the total resident workforce .

Those industries which saw the greatest decline in resident workers was similar for both Sydney SD and the Illawarra and included: agriculture, forestry and fishing, mining, manufacturing, wholesale trade, and information media and telecommunications.

Table 15 - Resident Workforce in Illawarra Region and Sydney SD

Industry	Illawarra Region		Sydney SD	
	2006	% change 1996-2006	2006	% change 1996-2006
Agriculture, forestry & fishing	0.5%	-24%	0.4%	-23%
Mining	2.0%	-13%	0.2%	-10%
Manufacturing	12%	-14%	10%	-8%
Electricity, gas, water, waste services	1.0%	3%	0.8%	16%
Construction	8%	24%	7%	30%
Wholesale trade	3%	-22%	6%	-6%
Retail trade	12%	29%	11%	24%
Accommodation, food services	7%	7%	6%	16%
Transport, postal, warehousing	5%	14%	5%	10%
Information media, telecommunications	1.5%	-13%	3%	-4%
Financial, insurance services	4%	26%	6%	21%
Rental, hiring, real estate services	1.8%	15%	2%	24%
Professional, scientific, technical services	5%	13%	9%	23%
Administrative, support services	3%	35%	3%	18%
Public administration, safety	7%	47%	6%	18%
Education, training	10%	34%	7%	23%
Health care, social assistance	12%	36%	10%	25%
Arts, recreation services	1.4%	42%	2%	12%
Other services	4%	4%	4%	-4%
Inadequately described/Not stated	2%	-14%	3%	2%
TOTAL	100%		100%	

Source: ABS 2006 Census

At a local level, ABS data indicates Shellharbour and Kiama in fact experienced a positive change in resident workers in mining compared with the regional trend of the Illawarra. However, negative changes in agriculture, forestry and fishing, manufacturing, wholesale trade and information media and telecommunications were in

line with the Region. A decline in manufacturing and wholesale trade was most prevalent in Wollongong compared with Shellharbour and Kiama LGA's.

The number of Shellharbour residents working in retail trade, arts and recreation services, administrative and support services, public administration and safety, and education and training, increased significantly since 1996. Shellharbour also had a larger proportion of resident workers in retail trade and manufacturing than either Wollongong or Kiama LGA's.

Table 16 - Resident Workforce in Shellharbour, Wollongong & Kiama 2006

Industry	Shellharbour		Wollongong		Kiama	
	2006	% change 1996-2006	2006	% change 1996-2006	2006	% change 1996-2006
Agriculture, forestry & fishing	0.4%	-39%	0.3%	-15%	2%	-24%
Mining	2%	10%	2%	-19%	1%	4%
Manufacturing	15%	-4%	12%	-18%	8%	1%
Electricity, gas, water, waste services	1%	16%	1%	1%	1%	-18%
Construction	9%	30%	7%	21%	10%	22%
Wholesale trade	3%	-17%	3%	-22%	2%	-34%
Retail trade	14%	49%	11%	23%	11%	24%
Accommodation, food services	6%	26%	7%	-1%	8%	29%
Transport, postal, warehousing	5%	30%	5%	8%	4%	18%
Information media, telecommunications	1%	-22%	2%	-11%	1%	-18%
Financial, insurance services	3%	34%	4%	25%	3%	16%
Rental, hiring, real estate services	2%	9%	2%	15%	2%	28%
Professional, scientific, technical services	4%	16%	6%	12%	5%	19%
Administrative, support services	3%	58%	3%	28%	2%	38%
Public administration, safety	6%	51%	7%	46%	8%	44%
Education, training	7%	53%	10%	32%	14%	22%
Health care, social assistance	11%	45%	12%	34%	11%	30%
Arts, recreation services	1%	63%	2%	41%	1%	11%
Other services	4%	25%	4%	-2%	3%	0%
Inadequately described/Not stated	2%	-19%	2%	-13%	2%	1%
TOTAL	100%		100%		100%	

Source: ABS 2006 Census

6.5 Where Residents Work

Journey to work data, as compiled by the NSW Ministry of Transport's Transport Data Centre (TDC), from ABS Census data, uses employment counts for specific locations, to analyse the likes of commercial centres, daytime population, profile of resident workforce, industry trends and method of travel to work.

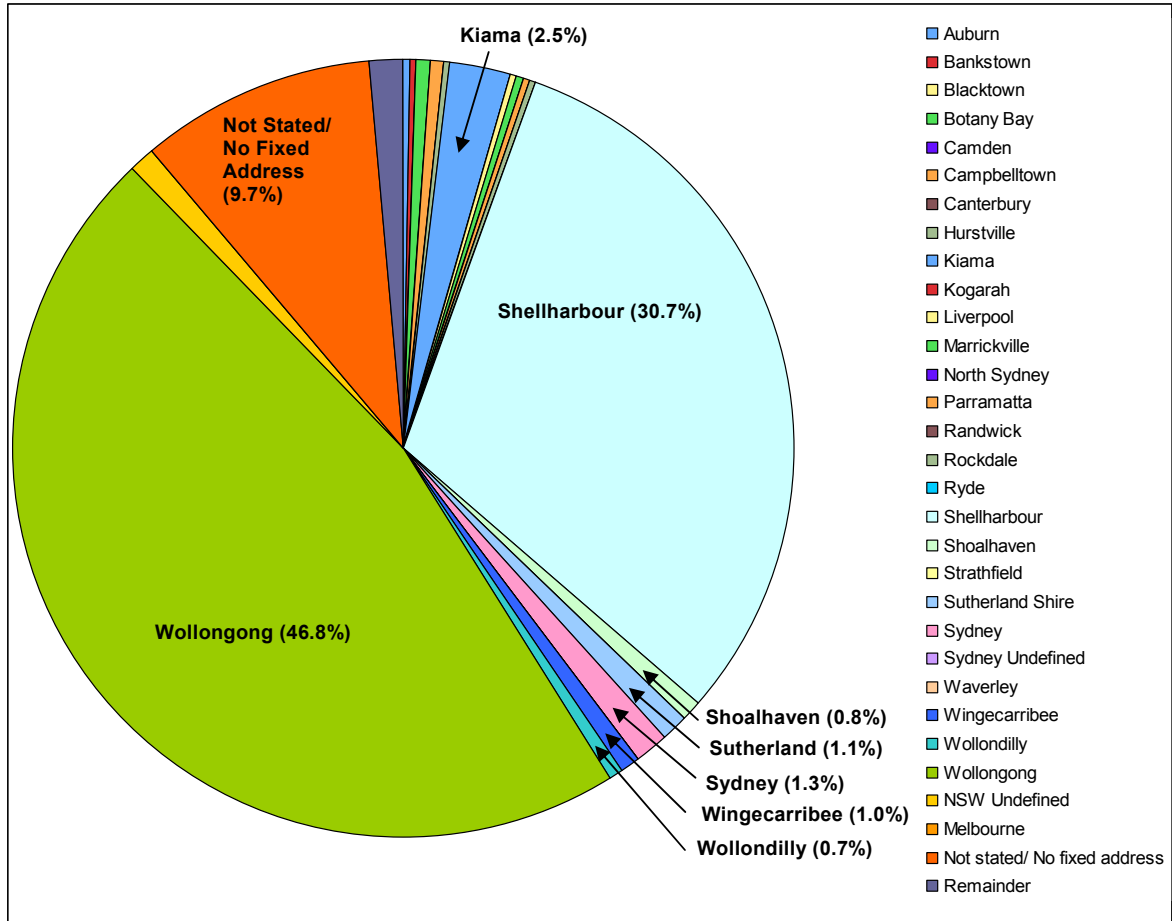
TDC journey to work data may produce slightly different counts to those obtained directly from ABS for the same geographic level due to:

- ABS confidentialising process (randomisation of small cells);
- Further validation and adjustment of the data by TDC; and
- Imputed of unknown destination counts across zones within a statistical local area to eliminate locality 'dump' codes.

Journey to work data also indicates where employees working in Shellharbour LGA live, as well as the mode of transport taken to work.

The ABS 2006 Census shows 30.7% of the resident workforce in Shellharbour live and work in Shellharbour LGA. Furthermore, 46.8% of the resident workforce in Shellharbour leave the LGA to work in Wollongong, and 7.3% leave to work in the Sydney Greater Metropolitan Area.

Figure 38 - Graph: Where Shellharbour Residents Work 2006



Source: ABS 2006 Census Journey to Work Data

67.8% of Wollongong’s resident workforce works locally within the LGA, with 9.5% leaving to work in Sydney and 4.0% leaving to work in Shellharbour.

Table 17 - Selected Areas of Usual Residence by Selected Areas of Workplace 2006

Place of Usual Residence	Place of Work				
	Shellharbour	Wollongong	Kiama	Sydney Greater Metropolitan Area*	Remainder
Shellharbour	30.7%	46.8%	2.5%	7.3%	12.8%
Wollongong	4.0%	67.8%	0.4%	9.5%	18.2%
Kiama	13.3%	25.0%	36.2%	5.9%	19.6%
Illawarra Region	4.9%	63.6%	4.0%	16.1%	11.4%

Source: ABS 2006 Census Journey to Work Data.

*Note Sydney includes: Campbelltown, Liverpool, Penrith and Wollondilly LGA's.

Kiama working residents mainly live and work within the LGA (36.2%), with 25.0% working in Wollongong, and 13.3% in Shellharbour. A further 5.9% of Kiama residents work in Sydney. Of all residents in the Illawarra Region, 16.1% leave the region to work in Sydney.

6.6 How Residents Travel to Work

Journey to work also analyses the methods of travel to work of residents. Analysing data based on the ABS 2006 Census, the majority of residents in Shellharbour (69.2%) drive to work.

Table 18 - Method of Travel to Work by Place of Usual Residence 2006

Method of Travel	Shellharbour LGA	Kiama LGA	Wollongong LGA
Train	1.7%	1.9%	5.1%
Bus	0.8%	0.4%	1.3%
Ferry	0.0%	0.1%	0.0%
Tram	0.0%	0.0%	0.0%
Taxi	0.2%	0.2%	0.3%
Car, as driver	69.2%	64.1%	62.9%
Car, as passenger	6.6%	5.5%	6.4%
Truck	1.6%	1.6%	1.2%
Motorbike/scooter	0.7%	0.7%	0.7%
Bicycle	0.4%	0.4%	0.9%
Other and Not stated	2.3%	2.0%	2.2%
Walked only	1.7%	3.3%	3.3%
Worked at home	2.5%	6.2%	2.8%
Did not go to work	12.2%	13.7%	12.9%
TOTAL	100.0%	100.0%	100.0%

Source: ABS 2006 Census Journey to Work Data

Similarly, the trend continues in Kiama and Wollongong, with 62.9% and 64.1% respectively being car dependent for daily work travel. The above data also shows 2.5% of residents in Shellharbour work from home, compared to 6.2% in Wollongong, and 2.8% of residents in Kiama.

6.7 Jobs Provided by Industry

Journey to work data also indicates where particular job types are located. Jobs provided in a particular location can be analysed against the profession of residents which may indicate why residents leave a LGA to work.

In 1991, manufacturing, construction, retail trade and education were the main industries located in the Region. Whilst this has not changed substantially, there have been changes whereby jobs in manufacturing have been declining (most probably due to automation rather than an actual decline in manufacturing industries being located in the Region), as have jobs in mining, utilities, and wholesale trade.

Table 19 - Jobs in the Illawarra Region by Industry 1991 – 2006

Industry	1991	2001	2006	% change 1991-2006
Accommodation, Cafes and Restaurants	4,053	4,509	6,569	62%
Agriculture, Forestry and Fishing	913	479	423	-54%
Communication Services	943	1,221	1,194	27%
Construction	5,140	4,778	5,718	11%
Cultural and Recreational Services	1,018	1,617	1,208	19%
Education	6,205	7,888	9,166	48%
Electricity, Gas and Water Supply	1,345	633	805	-40%
Finance and Insurance	2,381	2,535	3,090	30%
Government Administration and Defence	2,489	3,330	5,202	109%
Health and Community Services	7,616	9,418	11,132	46%
Manufacturing	14,425	13,099	11,347	-21%
Mining	1,877	774	1,191	-37%
Non-classifiable economic units/ Not Stated	154	603	732	375%
Personal and Other Services	835	2,548	2,980	257%
Property & Business Services	4,056	7,418	8,143	101%
Retail Trade	9,735	11,430	9,314	-4%
Transport and Storage	5,093	5,559	5,775	13%
Wholesale Trade	3,168	3,034	2,396	-24%
TOTAL	71,446	80,873	86,385	

Source: ABS Census, JTW 1991, 2001, 2006 Data

Industries which have prospered in the Illawarra Region since 1991 have included hospitality, personal services, government administration and defence, and property and business services. These trends in declining and prospering industries have also been felt strongly in Wollongong and Kiama.

Whilst personal service jobs increased substantially in both Kiama and Wollongong since 1991, jobs in agriculture, manufacturing, mining and wholesale trade have all decreased reflecting the overall trend in the Illawarra Region.

Table 20 - Jobs in Shellharbour, Wollongong & Kiama by Industry 2006

Industry	Shellharbour		Wollongong		Kiama	
	2006	% change 1991-2006	2006	% change 1991-2006	2006	% change 1991-2006
Accommodation, Cafes and Restaurants	9.4%	136%	6.7%	46%	16.7%	105%
Agriculture, Forestry and Fishing	0.7%	-46%	0.2%	-68%	3.7%	-23%
Communication Services	0.8%	30%	1.5%	28%	1.0%	-2%
Construction	7.9%	32%	6.3%	9%	8.2%	-9%
Cultural and Recreational Services	1.8%	387%	1.3%	-1%	2.1%	30%
Education	12.8%	91%	10.3%	39%	8.9%	78%
Electricity, Gas and Water Supply	0.8%	82%	1.0%	-46%	0.2%	33%
Finance and Insurance	2.0%	37%	3.9%	29%	2.7%	27%
Government Administration and Defence	6.8%	185%	5.8%	98%	6.5%	102%
Health and Community Services	12.3%	57%	13.1%	45%	10.8%	29%
Manufacturing	4.7%	152%	15.2%	-24%	3.1%	-8%
Mining	0.9%	858%	1.5%	-42%	0.1%	-33%

Industry	Shellharbour		Wollongong		Kiama	
	2006	% change 1991-2006	2006	% change 1991-2006	2006	% change 1991-2006
Non-classifiable / Not Stated	0.7%	575%	0.9%	440%	0.9%	41%
Personal and Other Services	0.0%	-85%	4.0%	279%	4.1%	209%
Property & Business Services	4.7%	460%	10.1%	88%	11.1%	149%
Retail Trade	6.9%	171%	11.2%	-12%	14.0%	18%
Transport and Storage	21.4%	41%	4.2%	-5%	3.9%	43%
Wholesale Trade	3.3%	72%	2.7%	-32%	1.8%	-36%
TOTAL	100%		100%		100%	

Source: ABS Census, JTW 1991, 2001, 2006 Data

However, these are not trends that are necessarily felt in Shellharbour LGA. Since 1991, Shellharbour has experienced a growing number of jobs in hospitality, cultural and recreation services, mining, manufacturing, personal services, property and business services, and government administration. The only Shellharbour industry which experienced a negative change in job numbers since 1991 was agriculture, forestry and fishing, personal and other services.

Table 21 - Jobs in Shellharbour by Industry 1991 – 2006

Industry	1991	2001	2006	% change 1991-2006
Accommodation, Cafes and Restaurants	497	564	1,173	136%
Agriculture, Forestry and Fishing	162	78	88	-46%
Communication Services	79	91	103	30%
Construction	743	847	978	32%
Cultural and Recreational Services	47	175	229	387%
Education	835	1,269	1,595	91%
Electricity, Gas and Water Supply	55	55	100	82%
Finance and Insurance	179	230	245	37%
Government Administration and Defence	297	443	846	185%
Health and Community Services	977	1,354	1,535	57%
Manufacturing	231	523	582	152%
Mining	12	48	115	858%
Non-classifiable economic units	12	35	81	575%
Not stated	39	51	6	-85%
Personal and Other Services	104	498	582	460%
Property & Business Services	319	706	864	171%
Retail Trade	1,886	3,003	2,665	41%
Transport and Storage	239	354	411	72%
Wholesale Trade	163	362	243	49%
TOTAL	6,876	10,686	12,441	

Source: ABS Census, JTW 1991, 2001, 2006 Data

The above trends indicate a shift in industry between the LGAs. Whilst there has been a decline in manufacturing and mining since 1991, these industrial jobs previously provided in Wollongong and Kiama have shifted to Shellharbour. Hence trends in the Illawarra Region do not necessarily accurately reflect the experience of Shellharbour LGA during that time.

7. DEMAND FOR EMPLOYMENT LAND IN SHELLHARBOUR

7.1 Methodology

Demand for employment land is expected to increase in Shellharbour LGA due largely to a combination of growth in local population and base industries. Two methods were used to forecast demand and supply of jobs being:

- NSW Transport Data Centre (TDC) job forecasts; and
- Shellharbour Council's forecast.

The TDC forecasts are based on ABS journey to work data also forecasting where particular job types are located. However, rather than accept the TDC forecasts Council derived their own methodology based on achieving job sustainability. Council adopted both a target driving time of 20 minutes between home and work and a future job supply to avoid unemployment.

A large proportion of industrial and service related jobs are located in the southern half of the Wollongong LGA particularly in Port Kembla and Unanderra. These localities south of Spring Hill are within 20 minutes drive of Shellharbour. Hence any assessment of supply and demand for jobs in Shellharbour needs to have regard to the Southern Wollongong area.

Notwithstanding the two different methods the conclusions are similar – that is forecast supply of industrial land will be sufficient to meet demand for jobs in the sub-region to the year 2031.

7.2 Development outside Shellharbour

When analysing demand for employment land in Shellharbour LGA, consideration needs to be given to employment lands development outside of Shellharbour LGA.

Kembla Grange

Kembla Grange is part of the West Dapto release. Wollongong City Council advises that the land is already zoned for industrial and has limited services. It is understood Kembla Grange will need the surrounding residential development to pay for the amplification of the services required. More land is proposed to be zoned industrial as part of the West Dapto Draft LEP.

Wollongong Council has engaged the NSW Growth Centres Commission to review key aspects of the release area. This process is expected to take 3 months, after which Council will decide how to proceed. Gazettal is expected mid 2009.

Tallawarra

Wollongong City Council has resolved to prepare a Draft LEP for Tallawarra and it has been incorporated in to the Draft Wollongong LEP (2009). The Draft LEP is with DoP for certification prior to exhibition. It is anticipated that exhibition will commence September 2008, with gazettal mid 2009. After which, it will be up to TruEnergy to lodge development applications and major project applications for development.

There is approximately 130ha of employment land proposed for Tallawarra. This will consist a mix of heavy industry, light industry, business park and enterprise corridor land uses.

Port Kembla Expansion

Since the NSW Government's Ports Growth Plan (2003), Port Kembla has commenced expansion of the inner harbour. This project was planned to occur over three stages involving development of approximately 43ha of land, however due to demand the development has increased to 53ha meaning that land in the inner harbour is now fully leased²¹. Expansion of the port activities will generate 90 equivalent full-time jobs directly in port operations. A further 1,400 jobs will be generated from multiplier impacts.

BlueScope Steel Expansion

In May 2008, BlueScope Steel announced it will undertake the reline of its No. 5 Blast Furnace at Port Kembla, with the \$370m project scheduled to take around 3-4months²². The furnace is one of the company's key assets. The reline project will be a comprehensive overhaul of the facility and will restore the blast furnace to peak operating condition and secure the iron making capacity of the site into the future. The project is expected to commence during 2009. The furnace currently produces approximately 2.6m tonnes of hot metal (iron) per year. It was last relined in 1991.

7.3 TDC Forecast Method

The TDC is the premier source of transport data for NSW. Its role is to assist those involved in transport and land use planning to make informed decisions by providing information on current and future travel patterns and employment and population trends. This information is used by Government and the private sector for the evaluation of all major transport infrastructure developments, and strategic and service planning in NSW.

The DoP population projections are used as the basis for calculating workforce projections for the region as produced by TDC. This is done by applying the projected labour force participation and unemployment rates to the projected population. The resulting projections of the workforce (at five-yearly intervals, corresponding to Census years) are used as control totals for subsequent forecasts of employment at lower geographical levels.

Once projections of total employment are estimated, total region employment is then disaggregated using three forecast review modules by TDC. As a result, TDC forecast jobs in Shellharbour are shown in the following table.

²¹ Source: www.portkembla.com.au

²² www.bluescopesteel.com

Table 22 - TDC Forecast of Jobs in Shellharbour 2006 to 2031

Shellharbour LGA	2006	2011	2021	2031	2006-31
Agriculture, forestry, fishing	125	130	132	126	1
Mining	86	97	111	115	29
Manufacturing	696	764	855	919	223
Electricity, gas, water, waste services	104	132	163	185	81
Construction	1,142	1,224	1,273	1,242	99
Wholesale trade	402	465	573	635	233
Retail trade	4,322	5,027	6,047	6,790	2,467
Accommodation, food services	777	863	995	1,082	305
Transport, postal, warehousing	443	455	468	444	1
Information media, telecomm.	100	101	96	89	-12
Financial, insurance services	291	306	319	317	26
Property, business services	945	1,143	1,496	1,799	854
Public administration, safety	594	661	759	816	222
Education, training	1,737	1,967	2,285	2,410	673
Health care, social assistance	1,257	1,415	1,670	1,846	589
Arts, recreation services	205	224	259	285	80
Other services	1,339	1,613	1,953	2,024	685
Inadequately described/Not stated	196	181	169	170	-27
TOTAL	14,763	16,766	19,625	21,293	6,530

Source: NSW Transport Data Centre Forecast. * Note these numbers are different from Table 21 above. The numbers in Table 21 were sourced from ABS Census 2006 whereas Table 24 are Transport Data Centre forecasts prior to release of 2006 Census data. The forecasts based on 2006 Census data had not yet been released at the time of reporting.

The increase in jobs translates to an increase in demand for zoned and serviced land. Hill PDA calculated this by assigning floor space and FSR requirements to each additional job and apportioning the jobs between the commercial, industrial and special use zones. The calculations are shown below.

Table 23 - Demand for Employment Zoned Land

Industry	Increase in Jobs in LGA	Bldg GFA (sqm)	FSR	Required hectares*	Apportionment to Zone			Net Hectares*		
					Business	Industrial	Special Uses	Business	Industrial	Special Uses
Manufacturing	223	80	0.60 :1	3.8	0%	100%	0%	0.0	3.8	0.0
Electricity, gas, water, waste	81	80	0.60 :1	1.4	0%	0%	100%	0.0	0.0	1.4
Construction	99	80	0.60 :1	1.7	0%	100%	0%	0.0	1.7	0.0
Wholesale trade	233	100	0.60 :1	5.0	0%	100%	0%	0.0	5.0	0.0
Retail trade	2,467	40	0.45 :1	28.3	75%	25%	0%	21.2	7.1	0.0
Accommodation, food services	305	40	0.60 :1	2.6	80%	20%	0%	2.1	0.5	0.0
Transport, postal, warehouse	1	220	0.60 :1	0.0	0%	100%	0%	0.0	0.0	0.0
Information media, telecom.	-12	40	0.60 :1	-0.1	50%	50%	0%	0.0	0.0	0.0
Financial, insurance services	26	22	0.80 :1	0.1	100%	0%	0%	0.1	0.0	0.0
Property, business services	854	22	0.80 :1	3.0	100%	0%	0%	3.0	0.0	0.0
Public administration, safety	222	80	0.60 :1	3.8	20%	20%	60%	0.8	0.8	2.3
Education, training	673	80	0.60 :1	11.6	15%	20%	65%	1.7	2.3	7.5
Health care, social assist	589	80	0.60 :1	10.1	40%	0%	60%	4.1	0.0	6.1
Arts, recreation services	80	80	0.60 :1	1.4	50%	0%	50%	0.7	0.0	0.7
Other services	685	40	0.60 :1	5.9	60%	40%	0%	3.5	2.4	0.0
Inadequately or not stated	-27	50	0.60 :1	-0.3	30%	40%	30%	-0.1	-0.1	-0.1
TOTAL	6,530			78.4				37.1	23.5	17.9

* Assumes 22.5% of developable area required will be used for local roads, parks and other public uses.

The table suggests that Shellharbour will require a further 23.5 hectares of industrial zoned land and 18 hectares of special uses land to 2031.

Given that Shellharbour currently has almost 30 hectares of vacant employment land and given that a further 46 hectares will be provided at Illawarra Regional Business Park adjoining the Airport site, then there is no reason to rezone further land.

7.4 Shellharbour City Council Method

Demand for employment lands is expected to increase in the Shellharbour LGA due largely to a combination of growth in local population and base industries. The methodology used to forecast required growth in employment lands was based on achieving a sustainability target of both a 20 minute drive time between home and work and sufficient supply of employment lands to avoid unemployment.

A large proportion of industrial and service related jobs are located in the southern half of the Wollongong LGA particularly in Port Kembla and Unanderra. These localities south of Spring Hill are within 20 minutes drive of Shellharbour. **Total jobs within the Shellharbour and Southern Wollongong area (south of Allan's Creek in Spring Hill) are provided in the table below.**

Table 24 - Total Jobs in Shellharbour and Southern Wollongong Area (2006)

Industry	Shellharbour*	Southern Wollongong	Both
Agriculture, forestry & fishing	125	87	212
Mining	86	248	334
Manufacturing	696	6,679	7,375
Electricity, gas, water & waste services	104	340	444
Construction	1,142	1,985	3,127
Wholesale trade	402	606	1,008
Retail trade	4,322	3,106	7,428
Accommodation & food services	777	1,376	2,153
Transport, postal & warehousing	443	1,204	1,647
Information media & telecommunications	100	144	244
Financial & insurance services	291	323	614
Property and Business Services	945	1,931	2,876
Public administration & safety	594	546	1,140
Education & training	1,737	1,578	3,315
Health care & social assistance	1,257	2,484	3,741
Arts & recreation services	205	239	444
Other services	1,339	975	2,314
Inadequately described/Not stated	196	248	444
TOTAL	14,763	24,099	38,862

* Note these numbers are different from Table 21 above. The numbers in Table 21 were sourced from ABS Census 2006 whereas Table 24 are Transport Data Centre forecasts prior to release of 2006 Census data. The forecasts based on 2006 Census data had not yet been released at the time of reporting.

The area within 20 minutes driving time of the employment areas of Port Kembla and Unanderra include central Wollongong area and to the north as far as Bulli (the worker zone). **The number of working residents aged over 15 years within 20 minutes of these employment areas are provided in the following table.**

Table 25 - Number of Working Residents within 20 minutes of these Employment areas (2006)

Industry	Shellharbour	Southern W'gong	Central W'gong	TOTAL
Agriculture, forestry & fishing	105	166	79	350
Mining	488	604	831	1,923
Manufacturing	4,129	4,539	3,739	12,407
Electricity, gas, water & waste services	307	388	319	1,014
Construction	2,634	2,577	2,398	7,609
Wholesale trade	786	873	979	2,638
Retail trade	3,931	3,670	3,638	11,239
Accommodation & food services	1,828	1,964	2,551	6,343
Transport, postal & warehousing	1,529	1,584	1,563	4,676
Information media & telecommunications	288	460	643	1,391
Financial & insurance services	822	1,081	1,410	3,313
Property and Business Services	2,438	3,006	3,815	9,259
Public administration & safety	1,740	1,802	2,472	6,014
Education & training	1,848	2,619	4,166	8,633
Health care & social assistance	3,131	3,535	4,179	10,845
Arts & recreation services	361	323	576	1,260
Other services	1,180	1,354	1,254	3,788
Inadequately described/Not stated	602	762	737	2,101
TOTAL	28,151	31,303	35,349	94,803

Source: ABS Census 2006

Dividing the number of workers from Shellharbour into the total number of workers in the worker zone, provides a figure representing the percentage share of jobs in the job zone, reasonably expected to be occupied in each sector by workers from Shellharbour. **Accordingly it is assumed that workers from Shellharbour currently occupy 11,934 of the 38,862 jobs in the job zone as shown in the table below.**

Table 26 - No. of Jobs for Shellharbour Residents (2006)

Industry	Jobs in the Job Zone	Shellharbour Resident Jobs
Agriculture, forestry & fishing	212	64
Mining	334	85
Manufacturing	7,375	2,454
Electricity, gas, water & waste services	444	135
Construction	3,127	1,083
Wholesale trade	1,008	301
Retail trade	7,428	2,598
Accommodation & food services	2,153	620
Transport, postal & warehousing	1,647	539
Information media & telecommunications	244	51
Financial & insurance services	614	152
Property and Business Services	2,876	757
Public administration & safety	1,140	330
Education & training	3,315	710
Health care & social assistance	3,741	1,080
Arts & recreation services	444	127
Other services	2,314	721
Inadequately described/Not stated	444	127
TOTAL	38,862	11,934

The number of working residents from Shellharbour in 2031 is then estimated using TDC and ABS forecasts. **The difference between this number and the number of jobs workers from Shellharbour are currently assumed to occupy in the job zone is the estimated number of extra jobs required for eligible workers from Shellharbour by 2031.** This is shown in the table below

Table 27 - Estimated Additional Jobs for Eligible Workers from Shellharbour 2031

Industry Type	Shellharbour Resident Workforce in 2031 (includes unemployed)	No. of Jobs Shellharbour Residents could expect to have in 2006	Target no. of new jobs for Shellharbour residents from 2006-31
Agriculture, forestry & fishing	172	64	108
Mining	395	85	310
Manufacturing	3,313	2,454	859
Electricity, gas, water & waste services	230	135	95
Construction	2,565	1,083	1,482
Wholesale trade	1,054	301	753
Retail trade	5,855	2,598	3,256
Accommodation & food services	2,708	620	2,087
Transport, postal & warehousing	1,297	539	758
Information media & telecommunications	352	51	302
Financial & insurance services	1,007	152	855
Property and Business Services	4,414	757	3,657
Public administration & safety	2,269	330	1,939
Education & training	2,344	710	1,635
Health care & social assistance	4,779	1,080	3,698
Arts & recreation services	476	127	348
Other services	1,805	721	1,084
Inadequately described/Not stated	574	127	447
TOTAL	35,608	11,934	23,674

The 23,674 jobs translate to a need for the following approximate **additional jobs and land area by zone for Shellharbour residents as per the table below.**

Table 28 - No. of Jobs and Required Land Area by Land Use Zone in Shellharbour by 2031

	Business Zone	Industrial Zone Land	Special Uses Zone
Jobs	11,845	6,562	4,848
Land Area per Worker (sqm)	89.5	189.8	170.3
Required Land Area (ha)	106.1	124.5	82.5

Industrial Land Supply

The next step was to determine if existing and planned employment land will cater for this additional need for industrial land.

In broad numbers there are over 500 hectares of industrial land planned for in Shellharbour and Southern Wollongong LGA (within 20 minutes drive from Shellharbour) as per the following table.

Table 29 - Vacant and Planned Employment Land in the Job Zone

Locality	Area (ha)
Existing Vacant Industrial Land in Shellharbour	30
Illawarra Regional Business Park	46
Vacant land in Unanderra	29
Kembla Grange	95
West Dapto	175
Tallawarra Power Station	130
TOTAL	505

505 hectares is sufficient to accommodate 29,516 industrial jobs. These jobs will be distributed as per the following table.

Table 30 - Job Capacity by Vacant and Planned Sites in Job Zone

Locality	Area (ha)	No. of Jobs
Vacant land in Shellharbour	30	1,753
Illawarra Regional Business Park	46	2,689
Vacant land in Unanderra	29	1,695
Kembla Grange	95	5,552
West Dapto	175	10,229
Tallawarra	130	7,598
TOTAL	505	29,516

Forecast workers in the worker zone and from Shellharbour's proportion of the worker zone in 2031 is shown in the table below.

Table 31 - Shellharbour's Proportion of Workers in the Worker Zone

Industry Type	Worker Zone*	Shellharbour Workers	% of Worker Zone
Agriculture, forestry & fishing	641	172	27%
Mining	1,823	395	22%
Manufacturing	9,531	3,313	35%
Electricity, gas, water & waste services	858	230	27%
Construction	7,653	2,565	34%
Wholesale trade	3,739	1,054	28%
Retail trade	19,813	5,855	30%
Accommodation & food services	9,435	2,708	29%
Transport, postal & warehousing	4,301	1,297	30%
Information media & telecommunications	1,711	352	21%
Financial & insurance services	4,037	1,007	25%
Property and Business Services	17,457	4,414	25%
Public administration & safety	7,493	2,269	30%
Education & training	11,039	2,344	21%
Health care & social assistance	15,617	4,779	31%
Arts & recreation services	1,838	476	26%
Other services	7,648	1,805	24%
Inadequately described/Not stated	2,052	574	28%
TOTAL	126,686	35,608	28%

* Worker numbers increased by an assumed 10% to account for unemployment

The percentages in the far right column of the above table were applied to the number of 2031 jobs in the planned areas to estimate Shellharbour's share of the total jobs in the planned areas in 2031. The weighted average across all sectors in the industrial zones is 30%.

Applying the above percentage share rates to the job capacity of the planned areas derives the following:

Table 32 - Supply and Demand of Jobs in the Industrial Zones of Shellharbour in 2031

Shellharbour Share of Jobs from Worker Zone	No. of Jobs Capacity in Planned Areas	Shellharbour Workers Share of New Jobs (Col. 1 * Col. 2)	Shortage of industrial Jobs for Shellharbour Workers	Surplus Jobs (Col. 3 minus Col. 4)
30%	29,516	8,855	6,562	2,300

The above table shows that planned areas will cater for around 2,300 industrial zone jobs more than required by Shellharbour workers. This is not counting the spare capacity inherent in the redevelopment potential of existing industrial lands.

In total there is around 59 hectares (30 hectares in Shellharbour LGA and 29 hectares in Unanderra) of vacant yet serviced land within a 20 minute drive from Shellharbour residents. A further 446 hectares will come on stream to meet growth in demand over the next 25 years.

Based on Council's method of demand assessment the current and planned areas will provide 2,300 more jobs than required by Shellharbour workers in 2031 allowing for a job supply which aims to prevent unemployment. Accordingly there is no requirement to provide more land.

Currently all industrial precincts are performing satisfactorily and there are no employment lands recommended for rezoning to non-employment uses. It is recognised that existing demand for employment lands can be met through vacant lands at Albion Park Rail and surrounding Illawarra Regional Airport. Industrial lands at Kembla Grange, West Dapto, and Tallawarra will more than satisfy demand for employment lands over the next 25 years in the sub-regional area.

8. SPECIFIC LOCAL INNOVATION

As part of this study, Hill PDA was required to research and find case studies of regions and municipalities which have facilitated economic initiative/innovation to improve meaningful local job opportunities and general prosperity.

Below are various national and international examples where regions and councils have fostered new industry or ensured future job prospects through such initiatives as artistic and cultural incubators, ecological industrial estates, and airport business parks.

8.1 Boman Estate, Wagga Wagga

The 'Industrial Relocation Manual' as developed for the NSW Department of Planning and Wagga Wagga City Council in 1995, provided the procedures and issues considered when industrial and commercial developments are undertaken in non-metropolitan NSW.

The study noted the likely industries suitable for relocation to non-metropolitan areas and used Wagga Wagga as the primary case study.

The manual provided a guide to the process as well as a methodology for the analysis of an industry's suitability for relocation. The study considered the attraction criteria for industries to Wagga Wagga being access and transportation, infrastructure, and the critical mass of a regional centre to offer support services.

The manual fed directly into Councils WISDOM study. The Wagga Wagga Industrial Sustainable Development Opportunities Model (WISDOM) was a model aimed to achieve environmentally sustainable industrial developments at suitable locations in regional areas. Focusing on the local planning approval process, it was designed to assess the likely environmental impacts of industry and other development applications.

The Council objective was to increase local wealth and employment by attracting particular industries. The WISDOM approach helps to balance the environmental and employment needs of a particular locality or industrial zone.

WISDOM aims to:

- Ensure that industry location decisions are environmentally informed;
- Guide the local council's activity in relation to industry and locational needs, issues and opportunities;
- Inform industry about the local issues and the needs of the location;
- Supply a model to be used in any locality as a framework for the preparation of an environmental impact statements (EIS) for industry and the negotiation of ecologically sustainable development (ESD);
- Provide a framework so that the relevant issues for negotiation can be clearly identified;
- Determine the appropriate standards for each issue;

- Provide a full understanding of the acceptability and desirability of an industry proposal for all stakeholders; and
- Ensure that the requirements for the operation and location of the industry and its responsibility for environmental monitoring are clearly understood before consent is granted.

WISDOM allows Council to assess development applications on a common basis. It also enables proponents to anticipate and resolve development and operational issues prior to submitting a development application so that the resulting application is acceptable to all stakeholders.

The WISDOM process is based on five stages:

1. Environmental audit – to assemble the information;
2. Industry review – to gain a basic understanding of the types of industry which are seeking to locate in the selected area;
3. First analysis - using GISMO (generalised suitability map overlay) as an analytical tool;
4. The production of an overall plan of management; and
5. Second analysis – using SAAM (specific applicant assessment method), another analytical tool, to determine appropriate locations and management regimes for industries as they apply to locate in the area.

A series of checklists are used by the stakeholder group to make sure that all relevant issues are being taken into account.

The WISDOM model was first implemented by the Wagga Wagga City Council during the extension and development of the Bomen industrial site. The Council held several public meetings to decide whether or not the industrial area should be developed further. The majority of people agreed that the Bomen area was suitable for further development; however, there was concern as to the increasing impact this would have on their lifestyle. The main areas of concern were around air, water, noise, and visual pollution as well as potential loss of good agricultural land to industry.

The Bomen study area is located north east of the Wagga Wagga urban area, covering some 66sqkm. The site comprises an industrial estate containing rural and manufacturing industries as well as an assortment of large rural and residential holdings. The estate is bisected by the states northern rail line.

An environmental audit was carried out on the study area that focused on the locality, the natural environment, the man-made environment, and the social, economic and regulatory environment. Council took into consideration the range of environmental concerns identified, including:

- The desire to minimise any sterilisation of agriculture land;
- Consultation with stakeholders to inform the area's management of significant change;
- Effective environmental management and remedial treatment of existing development; and
- A comprehensive and integrated system of assessing and monitoring any new development.

The outcome of the Bomen environmental audit changed the site to include a mixed use area for agriculture, residential, industry and other services. Suitable use for a wide range of users, and absent of significant landform, heritage, flora and fauna. The audit conducted found solutions to minimise the contamination of the river and groundwater.

Bomen has developed with a number of local, national and multinational companies. This includes some major international food and fibre processors which are value adding to regional production, including:

- Cargill Foods Australia, a major export abattoir headquartered in Wagga Wagga;
- Chargeurs/Riverina Wool Combers, the largest wool top manufacturing facility in the Southern hemisphere; and
- Meat products exporter Heinz-Watties.

WISDOM was not designed to change the legal procedures contained in existing planning or the development approval process, but aimed to take a pro-active approach streamlining the process. Whilst the Relocation Manual considers a strategic planning model for non-metropolitan areas, WISDOM considers sustainable development with a focus on the Bomen Estate. As such, the main principles of site selection and industry criteria for both are similar.

Whilst the WISDOM project may have originally been designed for the Bomen Estate, the principles behind it and the Relocation Manual can be applied to further site selection throughout the region.

8.2 Wollongong Innovation Campus

Innovation Campus (iC), is located at Squires Way, Fairy Meadow, north of Wollongong City Centre, and east of Wollongong University. The iC Masterplan was approved by Wollongong City Council in 2004. The vision of iC is to:

...enhance the economic and cultural wealth of iC participants by providing the best environment in the Asia-Pacific region for people and organisations to exchange and develop ideas and deliver innovative outcomes. [iC is]... a 33ha campus environment providing opportunities for enterprising businesses to gain a commercial advantage.

iC is being developed through a joint venture partnership between the University of Wollongong and leading integrated service and construction group, Baulderstone Hornibrook. It is understood that 2 buildings are now complete. Developed in stages the campus will provide:

- 84,000sqm of research, innovation and office space;
- 5,000sqm of retail and services facilities;
- 8,000sqm for use for a hotel/conference centre; and
- 18,000sqm for residential accommodation.

Some 5,000 people will be part of iC's working community of business and research enterprises. Purpose built designs are available, with tailored workspaces from 250sqm – 10,000sqm.

8.3 Steel River, Newcastle

Steel River is developing a successful industrial ecology environment in Newcastle. The original land owner was BHP, who remediated the land between 1997 and 2000. The Steel River development has been planned to promote principles of industrial ecology. The site is currently zoned 4(c) Steel River Zone (Eco Industrial Zone), with an aim to facilitate employment generating industrial, research service or storage activities. The zone also allows commercial, retail or other development where it is ancillary to the primary employment objective.

A notable feature of this project is the unique Strategic Impact Assessment Study defining environmental entitlements, design guidelines and social objectives for the Estate. Steel River is covered by an environmental envelope, which defines allowable levels for air, water, traffic, noise, waste management and emissions. The environmental standards have already been apportioned to the sub-divided sites so that the sum of all businesses located on Steel River will comply with the environmental envelope. The whole Estate has a pre-approved environmental envelope for air, water, traffic and noise emissions, even if a proposed development is designated development. Individual lots receive a proportional entitlement so that the sum of all these entitlements complies with the total estate environmental envelope.

The environmental envelope consists of quantitative and qualitative standards and objectives to guide developments on the Estate and collectively these define the total impact that the Estate will have on the local environment. The environmental envelope includes:

- Environmental management
- Air quality
- Water quality
- Noise emissions
- Energy management
- Waste management
- Socioeconomic objectives
- Cultural objectives
- Development guidelines
- Hazards and risk management

The Estate has been subdivided using community title legislation, with the Community Association constituted within the registered community plan. All land owners in the Estate are members of the Community Association with voting rights which are in proportion to their land area. Environmental entitlements have been introduced to describe the level of air and noise emissions permitted from each lot. An Environmental Entitlements Certificate setting out these entitlements is issued to each lot owner on completion of their contract to purchase a lot.

The Community Association has had the responsibility for overseeing, monitoring and administering the environmental envelope which includes:

- An air monitoring station to monitor air emissions from the Estate; and
- Periodic noise monitoring to record noise generation and to validate modelling projections.

The Steel River LEP outlines flexible design criteria on all developments within the Estate. Specific requirements for individual lots are outlined in the table below.

Table 33 - Steel River LEP Design Criteria

Allotment size and configuration:	3,000 square metre minimum lot size
Lot layout:	Visual aspects (e.g. loading bays and external work areas) to be located at the rear of buildings
Lot coverage:	Total ground floor area not to exceed 70% of the lot area
FSR:	1.5:1 maximum
Set backs:	General minimum 10 metres at street front and no less than 5 metres at side and rear boundaries.
Building form:	To provide buildings that have a strong theme or design concept
Building height:	To create a harmonious streetscape and visual environment. Generally street frontages should be more than 6.5 metres in height up to 12 metres
Storage and work areas:	Out of sight
Building materials:	Innovative and contemporary, energy efficient and low maintenance
Building design;	Energy efficient building designs are encouraged
Landscape development;	Consistent overall landscape treatment
Flora and fauna protection:	Use of natives to improve habitat value, especially for birds

8.4 Honeysuckle, Newcastle

The Honeysuckle Development Corporation, a NSW State Government organisation is responsible for a large urban renewal project redeveloping 50ha of derelict land and buildings along Newcastle Harbour, adjacent to the CBD.

The project includes 7 precincts which include uses such as office centres, cafes, restaurants and hotels, public spaces, a promenade, residential areas, a marina and commercial/retail centres. Diverse development is linked by public open spaces that come together with the commercial ventures and residential areas of the precincts to activate the area. Of the 50ha site, 17ha is public open space²³.

The Hunter Valley Research Foundation estimates that since 1992, the project has created 4,425 jobs and generated \$1.1 billion in the regional economy. To further enhance the experience, the Corporation has joined with the Newcastle Alliance, Newcastle City Council and the Ministry for Arts in initiating Live Sites – a dynamic cultural events programme for public places in Newcastle’s city centre²⁴.

Additionally, the Precincts include²⁵:

- Honeysuckle Precinct - Harbour Square, Lee Wharf (shops, café’s and apartments linked by large areas of harbour front open space), Maritime Centre (a tourist and commercial boat dock will operate beside the centre), boardwalk (includes café’s, restaurants, offices and apartments), and railway workshops (restored building are popular for community events and will soon house gym facilities and a new cultural centre with museum), Crowne Plaza Hotel.
- Cottage Creek Precinct – New commercial centre, which currently includes the Sparke Helmore Building, PricewaterhouseCoopers Centre, Hunter Water Head Office, and proposed HQ commercial complex. The remaining land will be redeveloped over the next 5 years to include offices, shops and apartments all linked by public open space.

²³ <http://www.honeysuckle.net/pages/index.php>

²⁴ Honeysuckle Development Corporation, Corporate Flyer 2006

²⁵ <http://www.honeysuckle.net/pages/index.php>

- Carrington Precinct – Around 4ha of foreshore parkland, with homes in Honeysuckle Grove.
- Wickham Precinct – Includes Tree of Knowledge Park and the restored Wickham School.
- Marina Precinct – Features berth facilities, a ship chandler, yacht broker, kayak hire, fish co-op, restaurants, a takeaway, and retail outlets. In construction is the marina clubhouse with restaurant, bar and offices.
- Linwood Precinct – a new community of homes which join with the foreshore parkland, playgroup and café.
- Hunter Street Precinct – Includes IBIS Hotel and Cove Apartments, along with the construction of a new community health centre.

8.5 TradeCoast Central, Brisbane

TradeCoast Central is located adjacent to the Gateway Arterial Road on Brisbane's north side of the river and near the domestic and international airports. The project is a joint venture between Brisbane City Council and Prime Development Corporation and comprises an integrated masterplanned industrial estate that includes a variety of uses including community facilities, open space, pedestrian and cycle paths and transport routes. The project forms part of the broader industrial and employment estate, 'TradeCoast', and will provide an integral link to surrounding employment lands by providing an innovative and diversified approach.

The Masterplan will develop an environment that will contribute to the diversity of industry and it is expected that the total investment in land and buildings, including infrastructure, will exceed \$500m. This is a substantial injection into the local economy and will serve to provide employment, services and facilities to a catchment area beyond its immediate surrounds.

TradeCoast Central aims to accommodate a range of environmental initiatives, capitalising on innovative technologies consistent with the principles of ecologically sustainable development. Brisbane City Council saw TradeCoast as a method of enhancing the image of Brisbane, meeting the eight strategic directions of Brisbane Council's Living in Brisbane 2010.

The project has been promoted as a benchmark for ecologically sustainable development given the environmental initiatives that would be incorporated into the design process. Development principles for the site will incorporate many of the accepted principles of ecologically sustainable development including:

- | | |
|-------------------------------------|-------------------------------------|
| ▪ Site landscaping and revegetation | ▪ Waste recycling |
| ▪ Water recycling | ▪ Eco-efficient siting of buildings |
| ▪ Eco-industry design | ▪ Connectivity around the site |
| ▪ Energy efficiency | ▪ Water sensitive urban design |

Particular uses for the site, highlighted in the Masterplan, include:

- | | |
|--|---|
| ▪ Distribution and logistics | ▪ Warehouse and light manufacturing |
| ▪ Information technology and bio-tech industries | ▪ Commercial, retail and business activity centre |

- Transport and logistics
- Food processing
- Heritage park
- Railway station

TradeCoast Central incorporates an environmental model that encourages integration of industrial and employment land uses with alternative uses that will service the enterprise zone including open spaces, recreation facilities and commercial uses. Integral to this approach however, is the preparation of a Masterplan that will detail the layout, planning objectives and approach to the site and may identify a release strategy for the site.

8.6 Airport Business Parks

Brindabella Business Park (Canberra)

Brindabella Business Park in Canberra is located on a 28ha site adjacent to Canberra Airport. The Park includes a school for early learning, sport and recreation fields, financial and retail services, café's and restaurants and car parking. The Park also includes a bulky goods component.

There are currently 32 tenants of the Park which includes various government departments, the British High Commission, Accenture, Cisco, KPMG, and NEC.

Preleasing for additional stages of the Park are currently underway with Brindabella Circuit due for completion in 2008 and Molonglo Drive (33,000sqm) to be completed in June 2009.

Melbourne Airport Business Park

Melbourne Airport is preparing for more than \$500m of non-aviation commercial property development, on around 350ha of land.

A 5 year Masterplan for development of the airport highlights three individual projects for the precinct being a business park, a retail mixed-use zone, and a fourth hotel near the entrance of the terminals. Investa has taken up an option over an adjoining allotment of about 11ha for 17,000sqm campus-style office development (yet to receive major development plan approval). Additionally, there is to be a \$330m expansion of the international terminal, which will add and extra 25,000sqm of new space.

About 68ha of new development has been completed since the airport was privatised in 1997. Tenants and owner-occupiers in Melbourne Airport Business Park include Star Track Express, Laminex Industries, Caterpillar Logistics, Reject Shop and Kathmandu.

Launceston Airport Business Park

Airport City Business Park is a small development adjacent to Launceston Airport. The development includes showroom/office/warehouse units. Key attributes of the park include:

- Immediate access to Launceston Airport and major transport routes;
- 10 minutes from Launceston CBD;

- Only integrated business park offering a combination of commercial, industrial and retail/showroom facilities;
- Purpose built transport and logistic facilities designed to specific requirements;
- Convenience Centre, Retail/Food, and Service Station facilities; and
- Prime opportunity - ride the success of the Launceston Transport Corridor.

Stockley Business Park, Heathrow UK

Established in the early 1980s on a former quarry and refuse tip covering some 180 hectares, the built area of Stockley Park occupies approximately 41ha and comprises some 230,000sqm of floorspace located adjacent to Heathrow International Airport.

Initially the development had been planned for light industry, but was soon occupied by organisations more associated with high technology. The buildings were rarely over two storeys, separated by large areas of lawn and hedging areas to provide a sense of identity and (sophisticated) isolation.

However, the demands of occupiers have changed, and are increasingly focussed on achieving greater integration between departments. The buildings have become pure offices, grown in height to three to four storeys, and incorporate floor plans which have a high level of flexibility.

Development densities have gradually increased, with gross floor areas/site ratios rising from 0.5:1 to 0.7:1, in response to a belief the “clustering organisations within a more dense environment...will provide a new, highly innovative way of working”.

The design objective is to create a built environment with buildings that can be integrated as needs arise and “hard urban squares” where workers can mix informally. Some 30 organisations including British Telecom, Cisco Systems, Glaxo, Canon Europe and Marks and Spencer, are now accommodated in the park, and these employ a total of almost 6,500 people.

Today, the Park commands widespread recognition as the pre-eminent business park in Europe. This has been generally attributed to a comprehensive Masterplan prepared, and subsequently implemented, by one of the largest property development organisations in Europe, Stanhope Properties. It is widely considered to have a high planning and design quality – in both the built environment and extensive areas of lakes and landscaped open space.

It has been effectively developed and marketed as a focus of investment by several large institutions. With a location adjacent to the M4 and M25 Motorways and rail system, it is seen to offer convenient access to Central London and its hinterland as well as Heathrow Airport. It offers a diverse range of recreational facilities (“Virgin Active” gym club, 18-hole golf course, walking and horse riding trails) which form an integral part of an extensive area of parkland. It also includes a range of community amenities centred in “The Arena” - a shopping complex, health care centre, restaurants, day care centres, cinema), and conference facilities.

Birmingham Business Park (UK)

Located south east of Birmingham city centre, and adjacent to the Birmingham International Airport, the Park constitutes a 60ha Greenfield site. The Park provides accommodation for high technology manufacturing, research and development, and office uses.

The Park comprises 70 companies including Fujitsu Telecommunications, Hewlett Packard, Isuzu Motors, Sema Group, PartCo, Ingersoll Rand, Severn Trent Systems and Panalpina, Alcatel, Bank of Wales, Compaq, Honeywell Control Systems, Orange, Beneficial Bank, Softlab, Spring IT Personnel, Transtec, OCE Copiers Ltd, and UGS Solutions

The site incorporates the Waterside Centre, a 54,000sqft central service complex including a wine bar, shops and bank together with small office units and serviced office accommodation operated by Regis UK.

8.7 Business Incubators

Hunter Business Centre – Business Incubator and Training Facility²⁶

The Hunter Business Centre operates a small business incubator providing flexible and competitively priced office space. The incubator is provided to assist new and existing small businesses to grow and attain long-term commercial viability.

Located in Newcastle CBD, the serviced offices and training facilities within the Business Incubator allow the establishment of short or long term offices. Facilities include a selection of offices, a training room, board room and an interview room.

Additionally, the incubator provides a supportive environment with business management assistance, shared resources along with full IT capabilities for each tenant. The offices are leased on a monthly basis (from around \$600 a month), there are no long-term obligations, with simple licence arrangements and no legal fees.

The facilities include:

- A professional reception area to meet and greet clients;
- Month by month tenancy agreement which includes the provision of office furniture;
- Unlimited broadband access at maximum download speed;
- Wireless capability throughout the centre - fully secured;
- Phone and data access;
- Security and antivirus; and
- Colour laser printer, scanner, digital projector, digital camera.

²⁶ Source: <http://www.businesscentre.com.au/site/index.cfm>

Macquarie Technology Business Incubator²⁷

Launched in 2007, the Macquarie Technology Business Incubator (MTBI) is located on the edge of the Macquarie University's campus in Sydney, and is run by the university's commercialisation arm.

The incubator offers state of the art office facilities and meeting rooms, plus access to chemistry, biotechnology and electronics laboratories. Companies within the incubator can take advantage of cost effective access to professional services such as accounting, legal, human resources, marketing and commercialisation advice.

Incubator companies can also access the University's internship program that takes the top 10% of business students studying for MBAs and masters degrees from the Macquarie Graduate School of Management and Macquarie International. The program provides businesses with access to one of these students free of charge to work on specific projects over a semester. Six university spin-off businesses are already located in the MTBI and there is space for a further 10 tenant businesses.

Business incubators had proven effective in greatly reducing the proportion of new ventures that failed in their first few years. A study by the US National Business Incubation Association had shown that while overall the majority of new businesses failed within two years the success rate of those coming out of business incubators was 87%.

University business incubators also had a strong record in taking research that might otherwise have gone no further than academic study and using it to provide benefits to the community that had paid for the research in the first place.

The process of combining academic innovation with business acumen had very real benefits for the national economy and business incubators could be a starting point for this process. University-based incubators could promote commercial research and development in adjacent areas developing technology corridors to the mutual benefit of universities and businesses.

8.8 Art and Cultural Incubators

Metro Arts, Brisbane²⁸

Metro Arts in Brisbane received Federal Government funding over a 3 year period, to establish an arts-based small business incubator. Metro Arts has supported and promoted the work of emerging artists for over 30 years takes this a step further by incorporating an arts/business incubator. The incubator program helps artists to find avenues to make their skills financially viable and sustainable – to participate fully in Queensland's creative industries.

Incubator clients gain access to equipped workstations and meeting spaces at Metro Arts, as well as business mentoring and coaching programs.

²⁷ Source: <http://www.mtbi.com.au/>

²⁸ Source: <http://www.metroarts.com.au/>

Business skilling is provided by Metro Arts' business development program, Biz Arts Makers, to support the development of creative practices as sustainable businesses.

The Facilities Program provides artists, arts organisations and creative businesses with affordable tenancies in Metro Arts' heritage-listed building in the centre of the city. Metro Arts currently provides 34 tenancies to creative businesses, individual artist studios and retail outlets.

The two gallery spaces fill an important gap in the visual arts sector by providing professional gallery space that offers the affordability and accessibility of an artist-run space with the support and reputation of an institutional gallery. The two performances spaces, the Sue Benner Theatre and the Studio, provide performing artists with a professional, low cost, intimate venue appropriate for new work and work in development.

Metro Arts' holistic framework of professional development promotes innovation, artistic diversity and economic viability.

Creative Industries Precinct, Brisbane²⁹

The Creative Industries Precinct on the disused army barracks land at Kelvin Grove in Brisbane is a \$60m joint venture between the State Government and Queensland University of Technology. The precinct is a planned redevelopment of the disused army barracks land and will featuring residential, commercial and research components.

Located on the western fringe of Brisbane's Central Business District, the Precinct is the lead site of a 16ha Kelvin Grove Urban Village. Over the next five years, Queensland University of Technology and the Queensland Department of Housing will develop the site as a multi-user residential and retail village. More than 800 units from low-cost student to affordable accommodation and penthouses with city views will be developed alongside a range of retail outlets including a supermarket, restaurants and cafes.

The Creative Industries Precinct is a destination for local, national and international productions, exhibitions and events which ideally showcases emerging digital and new media work. Clustered around the Precinct's cafe hub, interactive exhibition spaces, an experimental black-box theatre, a parade ground and outdoor terraces for multi-media performance, will present an expansive program of exhibitions, live performance, screenings, festivals and seminars.

Other facilities include the Enterprise Centre, computing studios for animation, virtual reality, visual arts and design technology; media labs for music and sound; newsrooms for radio, television, on-line and print production; design studios for drawing, CAD scenic/lighting design, 3-D modelling and fashion and textile design; film and television studios and post-production facilities including Queensland University of Technologies professional television unit; and production workshops for set construction, 2-D and 3-D production and props making.

The Enterprise Centre provides flexible workspaces and access to expertise, services and Precinct facilities for small and emerging creative industries businesses. There are also opportunities for established creative

²⁹ Source: www.creativeindustries.qut.edu.au

industry businesses to co-locate and be a part of the collaborative Precinct environment. The Precinct works to grow the sector, creating, supporting and sustaining new jobs in Queensland.

Central Victorian Live Arts Incubator³⁰

The Central Victorian live arts incubator is coordinated by live arts organisation, Punctum Inc. It provides artists and producers with access to regionally based arts professionals, presentation spaces, and opportunities for the investigation, development, and presentation of live arts.

It provides assistance in the funding, research and development, promotion and exposure of live arts practitioners' work. A full program of capabilities includes:

- 6 live arts seedpod sponsorships;
- Professionally equipped spaces for the research, development, and presentation of artistically ambitious works'
- Access to technical, administration, financing, marketing, suppliers, and creative crew consultancy and on line advisory resources;
- Marketing, ticketing, and box office;
- Exposure opportunities at the incubator spaces linked to the network.
- Workshops, forums, and classes; and
- Peer review and mentoring.

The incubator is committed to providing artists across live arts disciplines with the opportunity and resources to experiment, develop, and present new work in an accessible, vibrant, professional environment. This enables artists to engage meaningfully with the environment, communities, culture, and audiences in which the incubator spaces are situated. The incubator environment furthers dialogue about the role of art in local through to global contexts by developing opportunities for innovative exchange with a broad cultural cross section of arts practitioners, audience members and communities.

The live arts incubator program is designed to expand and deepen the potential for artists and the community to participate regionally in the evolution of a substantial long term engagement with live arts practice.

Punctum Inc manages and curates work within the incubator. The incubator is available to live arts practitioners at all stages of their career and emphasises strength and diversity of artistic input, community access, and professional production values in the process and presentation of live arts.

The live arts incubator focuses on providing opportunity in four interlinked and fundamental areas:

- Artform development;
- Community and public ownership initiatives;
- Innovative education initiatives and models; and
- Creative partnerships.

³⁰ Source: <http://www.punctum.com.au/testground/liveArtsIncubatorConditions.htm>

The Media Centre, Huddersfield UK³¹

The Media Centre in Huddersfield was founded in 1995, and has since grown to accommodate 80 creative enterprises in 10,000sqm of managed workspace and live/work space. It also has a digital research unit, gallery and creative program and commissions artistic residencies. It provides a virtual office service to non-resident companies. Tenants range from wholly commercial, through semi-commercial, public sector, charities, education and individual artists. Combined turnover of the tenants is £15 million (employing 270 people) whilst the Centre management itself turns over £1.2 million. Apart from office rental, the Centre makes significant income from selling telecom and internet services to tenants. It only receives public subsidy for its artistic program.

The secret of success has been to provide maximum flexibility of space, service and leasehold terms to enable tenants to grow both slowly and rapidly, and even to contract, dependent on the business climate. One thing it has failed to do, however, is create a viable café/restaurant, which will act as a source of revenue. It has recently won the contract to run a new facility, the Round Foundry in Leeds and is now being approached by major property developers and pension funds with a view to applying its business model to projects in many of the UK's larger cities.

The Custard Factory, Birmingham UK³²

The Custard Factory is already home to a dynamic bohemian community of 500 artists and small creative enterprises. The affordable studio workshops are complemented by a theatre, café, antique shops, meeting rooms, dance studios, art galleries. Now the second phase, the £6million Gibb Square development includes 100 studio/offices with a ring of lakeside shops, galleries and restaurants plus the Green Man, a towering 40 ft sculpture made of earth, fire and water. Planned are a small luxury hotel, live/work apartments, a riverside walk, a new bridge, a perfumed garden for the blind and a 40,000sqft international design/exhibition centre.

Bay Area Video Coalition (BAVC), San Francisco USA³³

BAVC is America's largest non-commercial media arts centre dedicated to providing public access to media, education, and technology. Founded in 1975, BAVC's mission is to offer broadcast-quality video services to independent producers, artists, and non-profit organisations. It is a production facility, affordable training centre, pioneer in technology-based workforce development and a critical resource for independent media-makers.

BAVC offers over 500 classes a year in video production, post-production, streaming media and new media design. Additionally it provides a program called JobLink, which trains and places unemployed and underemployed adults and young people in the digital media industry. All participants have access to full professional equipment and instructors.

With the help of public and private funding sources, BAVC provides subsidised rental of its facilities and equipment for students, independent producers, artists and media-makers creating non-commercial projects.

³¹ Source: www.the-media-centre.co.uk

³² Source: www.custardfactory.co.uk

³³ Source: www.bavc.org

This includes video production equipment and editing suites rental, expert video preservation, open and closed captioning, tape duplication services, and executive productions. Media services include compression for the web, CD burning, image scanning, transferring QuickTime movies to tape and pulling stills.

8.9 Implications for Shellharbour LGA

Shellharbour can apply lessons learnt from these case studies to Shell Cove, Illawarra Regional Airport, and other industrial precincts in the LGA. Trends to note include:

- Industrial zones tend to display an agglomeration of land uses that are diverse in their characteristics, and which have established for a diversity of reasons. Cumulative experience with individual firms demonstrates that locational decisions range between the logical (access to labour/market) and the highly personal and original. The land requirements of different firms can vary including needs for different land size, tenure (leasehold versus freehold), particular requirements for large lots, space for expansion, and operational constraints (e.g. sensitivity to electromagnetic radiation or vibration etc).
- Some sectors will tend to be more predictable (e.g. bulky goods retail, local service industries such as car servicing and home improvements); however, the general run of development is highly variable in its demand characteristics.
- Technology and research industries should be encouraged, which will also provide a diversification in base industries in the region. Successful clustering can occur via research and development functions. There may be some scope for research facilities with affiliations with universities or aviation to occur.
- Future activity and land use controls around Illawarra Regional Airport should be appropriately flexible, enabling a variety of uses to be accommodated within over arching objectives that promote industrial, airport related, and employment uses.
- There is a role for State and local government in funding of infrastructure and the coordination of land development.
- Council might consider acting as a developer that services the land and offers lease build packages for industry to purchase.
- Shellharbour is at an advantage to other surrounding local government areas, due to the availability of large single owned blocks of vacant land. Albion Park Rail and land surrounding the Airport provides large parcels of vacant land most likely already serviced and ripe for redevelopment in various ways. For example: one large warehouse for distribution, or alternatively the land can be subdivided, with an internal road and smaller industrial units.

The Clustering Model

Industry cluster promotion is considered an excellent model of best practice and should be continued to foster the growth of other industry sectors over and above the Light Aviation Industry Cluster at Illawarra Regional Airport. An example would be a creative or arts industry cluster, and Shell Cove would have the best potential for securing such a development.

Shell Cove can be actively promoted with a combination of ready to access serviced land. The proximity of Sydney and Canberra and their populations should be viewed as an advantage rather than a disadvantage as Shellharbour can offer cheaper flexible land and building packages to draw in work.

There is a tendency for industries to agglomerate close to the suppliers, infrastructure transport systems and labour that meet their functional requirements. Shell Cove is anticipated to have a higher income resident profile than other areas in Shellharbour LGA, which should aid in entrepreneurial activity.

Grouping industries in this way allows for greater flexibility. Small pockets of employment land can also be allocated to compatible enterprises therefore catering or being responsive to individual needs as they arise. This can occur where there may be one or two pockets of employment land remaining, for example grouping creative industries adjacent to a Business Incubator or Skilling Centre.

Business Incubator/Skilling Centre

A business incubator/skilling centre is a purpose built facility strategically located to facilitate new business development in surrounding areas. Shellharbour should consider a business incubator and/or skilling centre to provide effective, targeted business development services and improve the growth potential of small businesses by maximising strategic partnerships with Shellharbour City Council, government bodies and local businesses. A Business Incubator/Skilling Centre would be appropriately located at either Illawarra Regional Airport, Shellharbour City Centre or in Shell Cove.

The aim of the Business Incubator is to provide office space and services to help grow home-based and small to medium businesses into commercially viable enterprises. As starting up costs for small businesses can be fairly high, the incubator can assist with minimising these costs. Business incubators are known to reduce the failure rate of new start up businesses and in doing so they create jobs and assist local economic development.

Services and facilities provided could include:

- Furnished office suites, meeting rooms, kitchen facilities and reception services;
- Resources room with business equipment (photocopier, fax machine, binding, and laminating);
- Monthly licence fees which are more flexible than long term rental agreements;
- Opportunities to network with peers and small business professionals;
- Networking opportunities; and
- Access to training, seminars, learning lunches and workshops specific to small business and small business skills.

A business incubator compliments existing initiatives by Shellharbour City Council including the 'Economic Gardening – Building Entrepreneurship in the Illawarra' program and the Light Aeronautics Industry Cluster at Illawarra Regional Airport. The Economic Gardening program assists business owners across Shellharbour and Kiama LGA's to be involved in a broad range of business improvements and entrepreneurship activities. The program includes workshops, one-to-one visits, and mentoring support by experienced and successful business people.

9. GUIDING LAND PRINCIPLES AND RECOMMENDATIONS

9.1 Employment Lands Demand

In relation to the existing and proposed supply of industrial/employment lands in the precincts examined across Shellharbour LGA, it may be concluded that:

- There is an existing supply of approximately 151.3ha of industrial zoned land;
- Currently 343.1ha of land within Shellharbour Employment precincts;
- The difference between the amount of land used for industrial activities and the amount of land zoned industrial is mostly due to the Illawarra Regional Airport precinct. The Airport Precinct includes land zoned for special uses, a large proportion of rural land used for industrial activities, as well as the proposed Illawarra Regional Business Park.
- Currently all industrial precincts are performing satisfactorily and there are no employment lands recommended for rezoning to non-employment uses;
- It is recognised that existing demand for employment lands can be met through vacant lands at Albion Park Rail and surrounding Illawarra Regional Airport; and
- Industrial lands at Kembla Grange, West Dapto, and Tallawarra will more than satisfy demand for employment lands over the next 25 years in the sub-regional area.

9.2 Schedule of Industrial Lands

The assessment of the existing industrial precincts across the Shellharbour LGA is summarised in the table below which identifies total lot numbers, land area (ha), estimated workers, proposed future zone (in line with the LEP Template) and area (hectares) of industrial precincts.

Table 34 - Shellharbour Schedule of Employment Lands

	Precinct	Total Precinct Area (ha)	Estimated Vacant (ha)	Lots	Est. Workers	Est. Businesses	Employment Land Assessment Score	Current Employment Zones	Proposed Employment Zones
1	Albion Park Rail	37.1	16.0	77	395	68	41/50	4(a) Light Industrial 4(a3) Airport Light Industrial	B6 Enterprise Corridor B6 Enterprise Corridor
2	Illawarra Regional Airport	245.8*	45.7	138	352	25	30/50	5(a) Special Use 4(a3) Airport Light Industrial 78 Tongarra Road – IN2 Light Industrial under Major Projects SEPP	SP1 Special Activities B6 Enterprise Corridor IN2 Light Industrial
3	Oak Flats	28.1	3.6	121	451	143	31/50	4(a) Light Industrial 4(a) Light Industrial 5(a) Special Use	IN2 Light Industrial IN2 Light Industrial IN2 Light Industrial
4	Central Business Park, Albion Pk Rail	14.8	7.6	81	272	66	39/50	4(a) Light Industrial 9(b) Arterial Road Reservation	B6 Enterprise Corridor SP2 Infrastructure

5	Warilla	8.1*	1.5	57	400	45	43/50	4(a) Light Industrial	IN2 Light Industrial
								2(e) Mixed Use Residential	B4 Mixed Use
								9(b) Arterial Road Reservation	SP2 Infrastructure
								2(b2) Residential	B6 Enterprise Corridor
6	Barrack Heights	9.2	3.2	57	236	56	43/50	Princes Highway 4(a) Light Industrial	B6 Enterprise Corridor
								4(a) Light Industrial	IN2 Light Industrial
								Princes Highway 4(a) Light Industrial	B6 Enterprise Corridor
TOTAL		343.1	77.6	531	2,106	403			

* Area includes land not currently zoned for employment uses. See Chapter 5 Assessment of Industrial Precincts.

The Oak Flats precinct appears to be the most constrained due to relatively small average lot sizes, poor access, and conflicting surrounding land uses. Such small sized lots do not have a good capacity to accommodate a broad range of employment generating uses, limited to only providing small scale service industry. This also applies to parts of the Warilla precinct.

It should be recognised that employment land supply is subject to a range of additional constraints other than the presence of fragmented/small lot sizes. These additional constraints include: slope and topography, groundwater, drainage and flooding, land ownership and tenure, trunk infrastructure location and capacity, utilities and services provision, vehicular and rail access, major road network capacity, agricultural land suitability/capability, cultural heritage and archaeology, market preferences, location of labour supplies, or character of the location.

The adequacy of buffer zones between industry and residential land uses is an important issue for industrial land uses. Increasing awareness of environmental impact of noise and gas emissions is making the placement of industry increasingly difficult. Long term planning needs to identify suitable locations, well removed by sight, prevailing winds and noise impact from other uses.

These locations also need to ensure direct access to major infrastructure such as roads, rail and air and not through existing residential areas. Oak Flats falls short of this principal. Council should give consideration to options for addressing the access issues of Oak Flats (for example 3 tonne limit in the residential area to the west).

Existing industrial land may need government assistance to maintain and enhance the existing buffer zones. Careful consideration needs to be given as to what uses are appropriate in these buffer zones to ensure conflicts of future use do not arise.

9.3 Recommended Zoning Categories

Industrial zones for the Shellharbour LGA should be consistent with the LEP Template and include the following zoning categories:

- IN2 Light Industrial Zone: permitted with consent - Depots; Light industries; Neighbourhood shops; Warehouse or distribution centres.
- B6 Enterprise Corridor: permitted with consent - Business premises; Community facilities; Hotel or motel accommodation; Landscape and garden supplies; Light industries; Passenger transport facilities; Timber and building supplies; Warehouse or distribution centres.

- SP1 Special Activities: permitted with consent - The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose.

9.4 Guiding Principles for Industrial/Employment Lands

This section identifies a set of guiding principles for industrial/employment lands to be considered by Shellharbour City Council in addition to the guiding principles identified by DoP's Employment Lands Guidelines for the Illawarra (2008).

General Guiding Principles – Industrial Lands

- Council adopt the recommended zones of the specific industrial precincts (based on the underlying land uses and economic and strategic planning factors) in a holistic manner and with the objectives of the end zones clearly identified.
- Encourage the use of light industrial land to provide residential support services (including car and house repairs).
- Provide a range of lot sizes to accommodate a variety of industry types.
- Preserve zoned land that can accommodate relatively large floor plates (larger sized lots) and that are well serviced or connected to main road networks.
- Develop buffer areas of low impact industrial uses (e.g. storage, parking, and landscaped areas) around land zoned industrial to minimise its impact with residential uses.
- Encourage the clustering of industries.
- Maintain high standards of environmental quality for industrial development which enhance the streetscape and amenity of industrial areas.
- Do not permit bulky goods retailing in industrial zones. Allow retailing in industrial areas only where it is ancillary to industrial uses.

Light Industrial

- Preserve large parcels and clusters of light industrial land of different sizes. For example clusters like those that exist in Albion Park Rail, Oak Flats and Barrack Heights.
- Attempt to preserve light industrial land adjacent to major/arterial roads, rail and or port.
- Create and/or improve buffer areas around land zoned light industrial to reduce environmental impact and land use conflict.
- To be consistent with the DoP LEP Planning Template the following key uses should be permitted within this zone: depots; light industries; neighbourhood shops; warehouse or distribution centres.
- A minimum site area of 1,500 square metres for light industrial subdivisions and a frontage of not less than 20 metres should be required.

Enterprise Corridor

- Enterprise corridors should be located only on major transport routes and should accommodate businesses that require main road frontage and high visibility.
- Retailing should be permitted where it meets the DoP's definition of "bulky goods retailing".
- Residential should not be permitted in the enterprise corridor.
- A minimum site area of 1,500 square metres for light industrial uses and a frontage of not less than 20 metres should be required.

9.5 Retailing and Commercial in Industrial Zones

It is recommended that bulky goods retailing not be permitted in the General Industrial ('IN1') and Light Industrial ('IN2') Zones. Retailing in industrial areas should only be allowed where it is ancillary to industrial uses. In some cases the location of bulky goods may be considered outside commercial centres such as an existing large bulky goods cluster with good highway/main road frontage. However, it is important that bulky goods do not displace genuine industrial activities.

Bulky goods retailing should be permitted in the enterprise corridor provided that it meets the definition of bulky goods under the LEP template.

It is important that when identifying which uses are appropriate for specific industrial areas, that consideration be given to restricting the commercial/retail development that is permitted. For instance food retailing should be permitted provided that it is of a type and scale that only services the industrial precinct. Commercial premises that have a maximum office space component of 40% of the total floor space should be permitted in the industrial zones. A higher proportion would be deemed appropriate only in the business centres, enterprise corridors or defined business parks.

9.6 Business Parks/Hi-Technology Parks

Council has indicated interest in instigating a business park in the quarry buffer zone at Shell Cove; however no occupants have yet been committed. In such a case the following are key requirements for business parks that Council should consider:

- Require new business parks to be located in areas that will support the existing network of commercial centres and can be accessed;
- Business parks should only permit businesses that require large floor plates (more than 1,000sqm), and are linked with research and technology or require storage/warehousing component. Those businesses that are purely office related (i.e. accountants, solicitors, etc) should not be permitted within business parks but encouraged in commercial/retail centres to help support their viability;
- A maximum office space component of 60% should be required for each development/business, and development standards should be set for FSRs and car parking provisions;

- An Economic Impact Assessment should be undertaken at the rezoning or development application stage, which needs to justify their location. It also should include an impact statement with regards to the established centre hierarchy, and its use of existing and proposed infrastructure; and
- Future business parks must demonstrate a contribution to subregional economic and job growth and provide for e.g. recreational, cultural and/or learning facilities.

However, the proposed zoning of this land is to be determined upon further assessment of land uses in this area.

9.7 Home Based Business

The capacity to increase the proportion of home based businesses relates to the ability to implement various strategic initiatives. We have identified the following principles relevant to the promotion of home based businesses:

1. Target the groups known to choose home business

Only a minority of people choose their housing with a view to its suitability for home based employment. Indeed, few people take up home employment (especially if they do so as a result of the loss of a job) at the same time as they move house. It will therefore be important to make the development attractive to those groups that are most likely to choose to take up home based employment. It is also important to recognise that for many of these people, working from home may be a future option rather than as an immediate choice. Many will initially wish to treat their home based work as a hobby or part time activity. Flexibility is therefore important.

Available evidence suggests that a choice to work from home is most often made by people setting up their own businesses (rather than by outworkers). This is the section of the population that should be targeted by Shellharbour. We anticipate that the key fields for home based business include:

- Creative industry – painting, glass blowing, glass staining, dress making, pottery, fashion design, writing, architecture, etc;
- Professionals – including accountants, IT consultants, web designers, legal services, etc;
- Retail – including crafts, assembled computers, etc;
- Professional suites – including general practitioner, dentist, acupuncturist, etc; and
- Teleworking – or virtual offices as part of a larger corporation.

There may be particular promise in appealing to:

- Entrepreneurial young adults, who may appreciate proximity to a university or technical college (TAFE) and to transport, and the availability of rental housing; and
- People with existing home business (which may be in unsuitable premises in surrounding areas).

2. Provide premises suitable as home or home/business

It is important that any accommodation designed to appeal to home based workers should be equally suitable as residential accommodation, for the following reasons:

- People will move to the area primarily because it offers well located, suitable residential accommodation rather than simply because it offers particular scope for home employment; and
- Many people will move to accommodation which offers the option of home based employment in future, utilising space which can be readily put to residential use in the meantime.

3. Minimise obstacles

The most significant obstacles to home based employment quoted by Business Support Centres and by research are regulatory barriers, particularly those imposed by Councils (if any).

Whilst the market will determine the number of home based businesses in Shellharbour LGA, planning controls should accommodate such a land use. Home businesses should be permitted in residential zones however it should be ensured that:

- The use is located within a defined area of the property;
- The use does not create disruptive levels of noise, smells or fumes to surrounding uses;
- There are a defined number of employees that work on the premises (i.e. no more than 3);
- The use does not result in a significant level of traffic or pedestrian movement that may disrupt the function of surrounding uses; and
- There are adequate servicing and parking facilities.

4. Mixed Use Zones

Immediately surrounding Commercial Centres such as Shell Cove, Warilla, Shellharbour City Centre, mixed use zones should be encouraged to allow home based businesses, creative industries and the like. This permits active ground floor uses and residential above. Areas should be defined for this type of development.

9.8 The “Aerotropolis”

An ‘aerotropolis’ is an airport city or economic hub that extends out from an airport. This may be considered an appropriate concept to apply to parts of Illawarra Regional Airport, especially given the adjacent proposed Enterprise Corridor along Princes Highway in Albion Park Rail.

This concept has arisen largely from the transformation of business from ground transport to air transport. What is more, airports are becoming a central ingredient in economies that are increasingly based on speed, agility and long term distance connectivity. Airports have become ‘vital centres of growth and development’ and as such in many cases, they have become as important to a region as a city’s central business district.

Through the advent of affordable air travel, high value to weight products, and the need for time based competition the dependence on air travel and freight is steadily increasing. Accordingly the Sydney Airport Corporation estimates that Sydney Airport will continue to grow so that it has over 68.3million passengers and 412,000 aircraft movements by 2023/24.

The 'aerotropolis' concept is not limited to terminal buildings or airline services. It extends to any number of uses that may be related in some way to the airline industry, air freight, the need for travel or people who work in and/or use airports. The range of industries potentially located within or in close proximity to airports is therefore extensive and may include:

- Business parks or aeroparks – for companies that make intensive use of airports such as information and communications technology and distribution or financial and consulting companies that support the function of airport related uses and businesses;
- Hotels and conference facilities;
- Industrial uses - for corporations that rely on time sensitive manufacturing and/or high value produce;
- Transport industries i.e. bus, train, car rental, freight;
- Retail and entertainment – including shopping, dining, cultural attractions i.e. museums, galleries; and increasingly
- Leisure and fitness.

Guiding principles for Illawarra Regional Airport in Albion Park Rail include:

- Plan for the growing prominence of the Illawarra Regional Airport as an “Aerotropolis” and the opportunities arising from aviation-oriented and related commercial development;
- Identify employment lands suitable for trade and business parks which permit collocation of office and warehousing in a master planned environment;
- Do not fragment redundant parcels of industrial zoned land (e.g. manufacturing plant or a main roads depot) unless it has poor utility for industrial use;
- Where sites are located in areas suitable for business parks consider site bonuses to encourage the amalgamation of smaller industrial lands. Bonuses might be in the form of higher FSRs for sites above a minimum size (e.g. 3,000 sqm); and
- The “Aerotropolis” concept is not limited to business parks. Other uses include demand for transport and storage as well as office space, retail and entertainment to be located in commercial centres.

It may be appropriate to rezone any land at Illawarra Regional Airport for any uses described within the “Aerotropolis” concept similar to that of business parks, being Zone B7 (Business Park). Mandatory uses under this zone include - light industries, neighbourhood shops; office premises; passenger transport facilities; warehouse or distribution centres.

**APPENDIX 1 - DEPT. OF PLANNING, EMPLOYMENT LANDS
GUIDELINES FOR THE ILLAWARRA (2008)**

APPENDIX 2 - SPECIAL USE ZONED LANDS

As referenced in Section 5.4 of this report (Supply of Employment Lands)

Oak Flats

Shellharbour Hospital
Illawarra Institute of Technology Shellharbour Campus
Oak Flats High School
Balarang Primary School
Oak Flats Primary School
Community Hall
Places of Worship
Oak Flats Library
Parks
Rural Fire Service
Shellharbour Council Depot
Public Carpark

Shellharbour City Centre

Lakeview Retirement Village
Place of Worship

Blackbutt

Reservoir
Amphitheatre

Shellharbour Village

Sule College
Shellharbour Workers Club
Cemetery
Place of Worship
Library
Public Car parking
Sports Club
Shellharbour Primary School
Public Carpark

Barrack Heights

Warilla High School
Barrack Heights Primary School

Flinders

Flinders Primary School
Flinders High School (Proposed)

Shell Cove

Integral Energy - Utilities

Dunmore

Dunmore Train Station (proposed)

Lake Illawarra

DOH
Lake Illawarra South Primary School
Place of Worship
Lake Illawarra High
Public Carpark

Mt Warrigal

Reservoir
Utility site
Primary School

Albion Park

St Josephs Catholic School
Albion Park High
Substation
Reservoir
Mt Terry Primary School
Place of Worship
Cemetery
Albion Park Primary School
Rural Fire Service
Court House
Fire Control Centre
Public Toilets
Illawarra Christian School

Albion Park Rail

Cemetery
Mackander Retirement Village & Nursing Home
NOTE nurse home is 2(e) mixed use Residential zone
Primary School
Shops and Carpark
Petrol Station
Public Carpark
Airport
Park

Warilla

Primary School
Library
Public Carpark
Peterborough School
Warilla Primary
Lake Windemere Caravan Park
Mount Warrigal Nursing Home
NOTE nurse home Special Uses and 2(e) mixed use Residential zone
Neighbourhood Centre

APPENDIX 3 - SHELLHARBOUR LGA, ABS CENSUS (2006)

	Shellharbour LGA 2006	Sydney SD 2006	NSW 2006	Non-Metro NSW 2006
Population and Dwellings				
Total Population	60,337	4,119,190	6,549,177	2,429,987
Total Dwellings	22,923	1,643,675	2,728,719	1,085,044
Occupied Private Dwellings	21,555	1,521,465	2,470,451	948,986
Occupied Private Dwellings (%)	94.0%	92.6%	90.5%	87.5%
Average Household Size	2.8	2.7	2.6	2.6
Age Distribution				
0-14	7.0%	19.5%	19.8%	19.7%
15-29	16.0%	21.2%	19.8%	20.3%
30-44	13.3%	23.2%	21.8%	22.3%
45-59	40.8%	19.3%	19.9%	19.7%
60-74	10.6%	10.6%	12.0%	11.4%
75+	12.4%	6.1%	6.7%	6.5%
Total	100.0%	100.0%	100.0%	100.0%
Median Age	35	35	37	36
Place of Birth				
Australia & Oceania	76%	63.1%	71.2%	68.1%
Europe	13%	8.9%	7.8%	8.2%
North Africa and Middle East	0%	2.5%	1.6%	2.0%
Asia	1%	10.6%	7.1%	8.4%
Americas	0%	0.6%	0.5%	0.5%
Sub-Saharan Africa	0%	0.7%	0.5%	0.6%
Other	9%	13.7%	11.4%	12.3%
Total	100%	100.0%	100.0%	100.0%
Home Ownership				
Owned or Being Purchased	71%	65.0%	66.7%	66.1%
Rented	26%	31.3%	29.5%	30.2%
Other/Not Stated	3%	3.7%	3.8%	3.7%
Total	100%	100.0%	100.0%	100.0%
Household Structure				
Family Households	79.2%	72.7%	72.1%	72.3%
Lone Person Households	19.2%	23.1%	24.2%	23.7%
Group Households	1.7%	4.2%	3.7%	3.9%
Total	100.0%	100.0%	100.0%	100.0%
Family Type				
Couple family w. children	48.0%	49.3%	46.2%	47.4%
Couple family w/o children	33.2%	33.2%	36.0%	34.9%
One parent family	17.8%	15.6%	16.1%	15.9%
Other family	1.1%	1.9%	1.7%	1.8%
Total	100.0%	100.0%	100.0%	100.0%
Dwelling Type				
Separate house	82.9%	63.6%	71.4%	68.4%
Townhouse	10.2%	11.8%	9.7%	10.5%
Flat-Unit-Apartment	5.4%	23.9%	17.7%	20.1%
Other dwelling	1.4%	0.6%	1.1%	0.9%
Not stated	0.1%	0.1%	0.1%	0.1%
Total	100.0%	100.0%	100.0%	100.0%

	Shellharbour LGA 2006	Sydney SD 2006	NSW 2006	Non-Metro NSW 2006
Labour Force				
Managers	8%	12.5%	12.8%	12.7%
Professionals	12%	22.5%	19.9%	20.9%
Community & Personal Services Workers	10%	7.6%	8.1%	7.9%
Clerical and Administrative Workers	13%	15.8%	14.5%	15.0%
Sales Workers	11%	9.0%	9.1%	9.1%
Technicians & Trade Workers	17%	12.0%	12.8%	12.5%
Machinery Operators & Drivers	10%	5.7%	6.1%	5.9%
Labourers & Related Workers	11%	7.6%	9.0%	8.5%
Inadequately described or N.S.	2%	2.0%	1.8%	1.9%
Unemployed	7%	5.3%	5.9%	5.7%
Total	100%	100.0%	100.0%	100.0%
Weekly Household Income				
\$0-\$349	14.7%	12.8%	14.9%	14.1%
\$400-\$799	24.0%	17.9%	21.2%	19.9%
\$800-\$1,399	22.5%	20.8%	21.5%	21.3%
\$1,400-\$2,499	21.4%	21.2%	19.1%	19.9%
\$2,500+	6.9%	16.0%	12.0%	13.6%
Partial income stated	7.7%	8.6%	8.3%	8.4%
All incomes not stated	2.9%	2.7%	2.9%	2.8%
Total	100.0%	100.0%	100.0%	100.0%

Source: Australian Bureau of Statistics, Census 2006 Data based on place of enumeration.