

St Leonards and Crows Nest Strategic Employment Review



Final report

Department of Planning and Environment
May 2017

1991–2016
25 years of Independent
insight.



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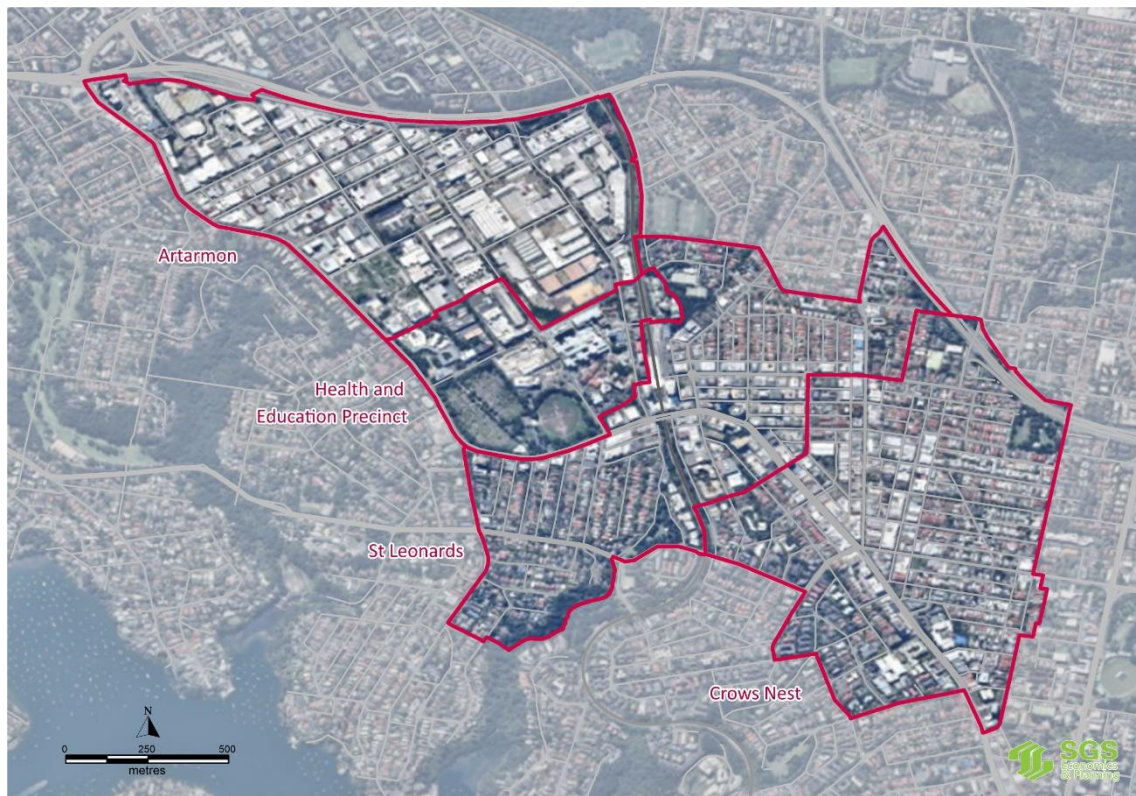
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EXECUTIVE SUMMARY

The St Leonards-Crows Nest-Artarmon Precinct is already a major employment location in the North District, with 44,000 jobs in a diverse range of industries and occupations. A unique set of pressures and opportunities are emerging in this part of Inner Northern Sydney. Amongst the catalysts for additional development is a new station proposed at Crows Nest, on the Sydney Metro rail line running from north western Sydney under the harbour to the CBD and Bankstown. There is a need to ensure that sufficient and appropriate development capacity is planned to meet future employment growth.

SGS Economics and Planning (SGS) was engaged by the Department of Planning and Environment to provide a Strategic Employment Review for the St Leonards, Crows Nest and Artarmon precinct, the extent of which is shown in the figure below. The core focus of the review is to assess the extent to which the employment floorspace in the area sufficiently meets the projected and changing demand out to 2036.

PRECINCT AND SUB-PRECINCTS



The work has regard to a range of economic trends, policy initiatives and infrastructure investments which will drive demand for land use in the area. As such, the analysis in this report is focused on (a) ensuring a clear understanding of how these factors will influence development and (b) the planning vision and strategic policy interventions that are required to successfully manage growth.

Methodology

In undertaking the assignment, SGS has considered the existing state and local policy and planning framework as relevant to the Precinct's employment lands. Objectives and directions which directly address key nodes, assets and infrastructure in the region are a particular focus. A review of the regional economic context is included to demonstrate an understanding of the broader forces which will shape key industry sectors over the coming decades.

A detailed **supply assessment** was undertaken involving analysis of sub-precincts, land uses, vacancies, a land audit, site visits and consultation. A detailed description of the existing floorspace by type and sub-precinct and a summary review of the Strengths, Weaknesses, Opportunities and Threats across the Precinct as a whole is included.

The **demand assessment** factored in employment growth trends, infrastructure investment and emerging policy initiatives. Employment floorspace forecasts are produced at the sub-precinct level, highlighting key growth sectors.

The **alignment of demand and supply (gap analysis)** informed the identification of the floorspace to be accommodated in future in the Precinct. This is followed by analysis that distils the planning vision for the area.

Supply analysis

The Precinct contains a strong mix of economic activities which cover a broad spectrum of land uses. Each sub-precinct has its own strengths based on its built form, access to infrastructure and the historical advantages of the sub-precinct. The sub-precincts include:

- Artarmon
- Health and Education precinct
- St Leonards
- Crows Nest

The greatest concentration of industrial activities remains in Artarmon, whilst the more knowledge intensive firms are found primarily in St Leonards. There are exceptions however. For example, there is an increasingly strong presence of firms in IT, media and advertising in the Herbert Street section of Artarmon.

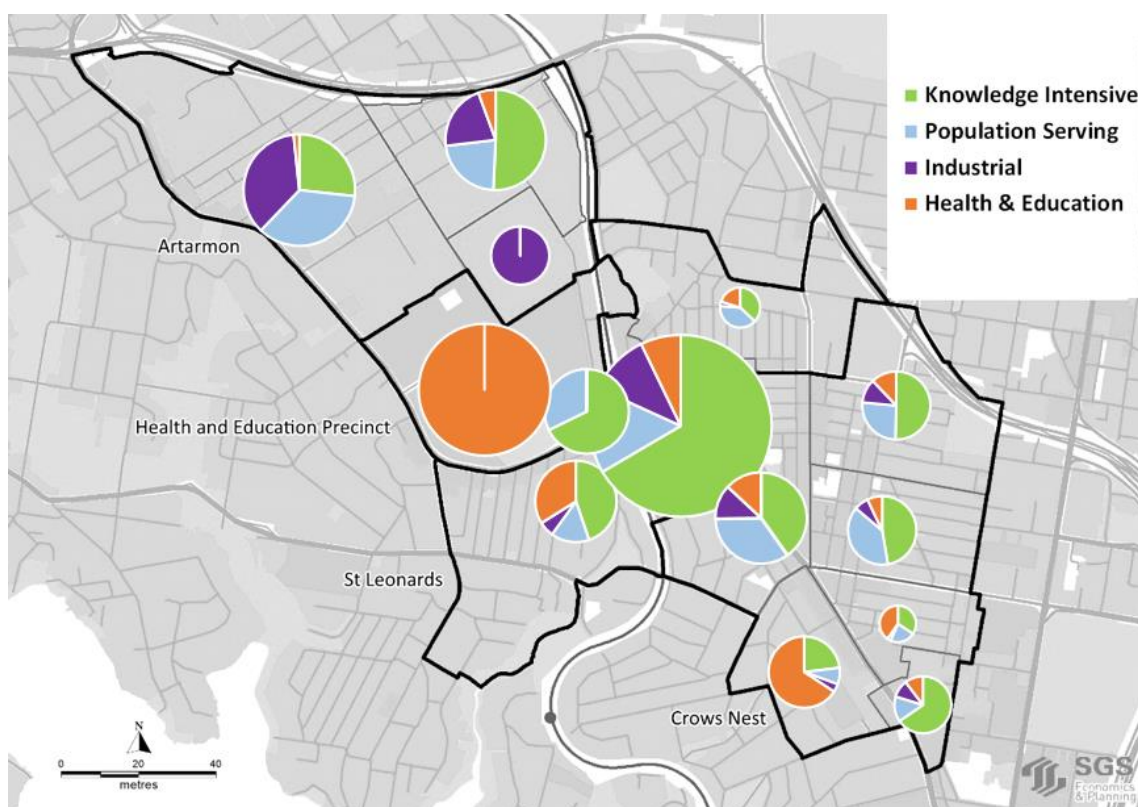
The vacancy rates here show the extent to which employment floorspace is occupied by employment uses. The average commercial vacancy rate in Australia is 9.6% in suburban employment centres. A vacancy rate of 5% to 10% is healthy equilibrium in an employment precinct/centre as it facilitates the constant entry of new businesses without the need for significant redevelopment.

EXISTING EMPLOYMENT FLOORSPACE SUPPLY (SQM)

Floorspace (sqm)	Artarmon	St Leonards	Health & Education Precinct	Crows Nest	Total
Knowledge Intensive	165,000	313,000	-	91,000	569,000
Population Serving	128,000	39,000	-	76,000	243,000
Health & Education	8,000	67,000	452,000	101,000	627,000
Industrial	248,000	-	-	29,000	277,000
Total Occupied	549,000	419,000	452,000	297,000	1,716,000
Vacant	21,000	41,000	-	34,000	97,000
Construction/Demolition	8,000	2,000	-	4,000	14,000
Total Supply	578,000	462,000	452,000	335,000	1,826,000
Vacancy %	3.7%	9.0%	0.0%	10.2%	5.3%

Source: SGS Land Use Audit

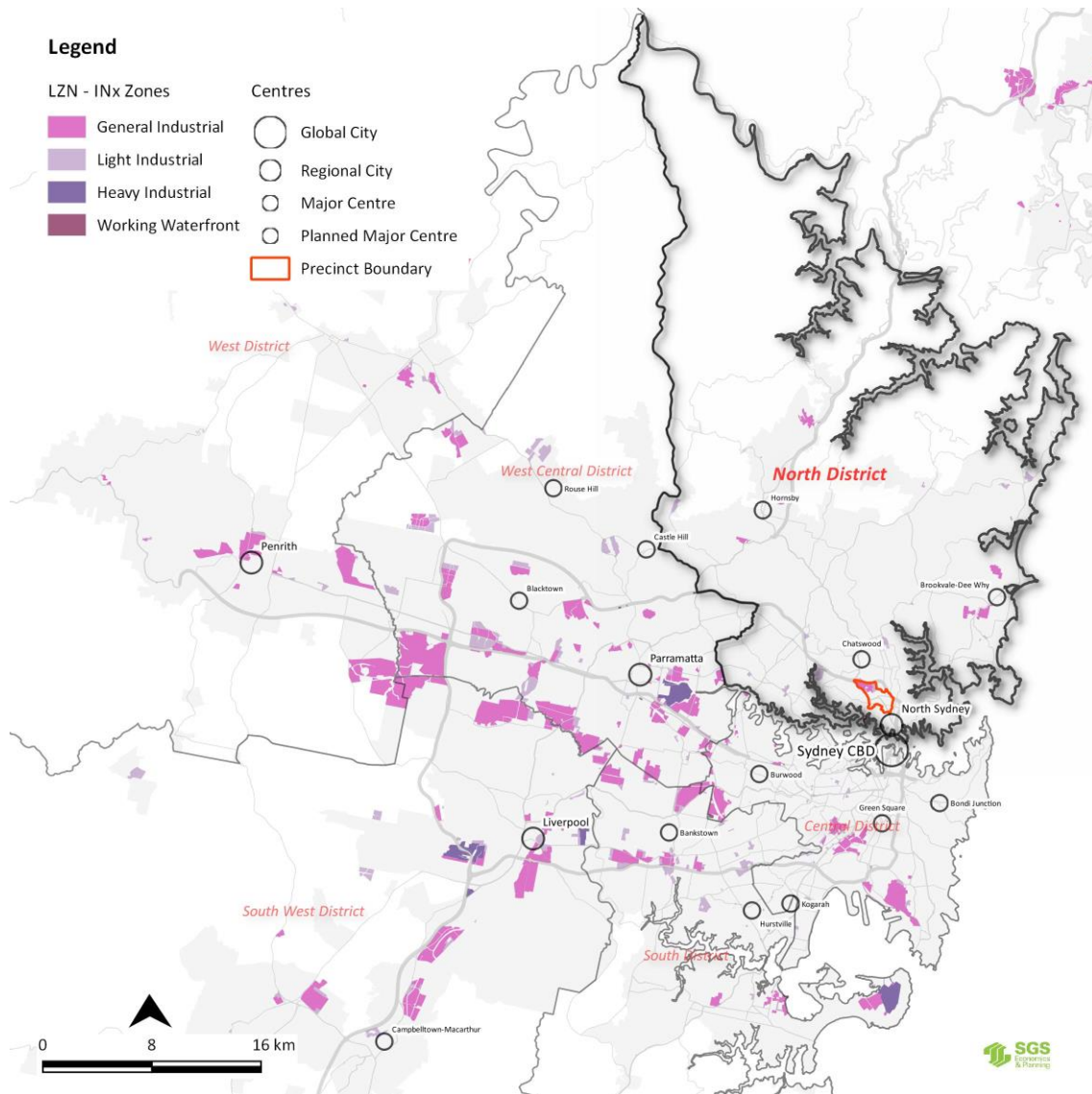
DISTRIBUTION OF EMPLOYMENT USES ACROSS THE PRECINCT



Classification of industries into the above categories can be found in Table 6 on page 50.

Collectively, these employment sub-precincts are an important source of employment opportunities within the broader North district. The service industry and maintenance cluster in the Artarmon sub-precinct in particular, is significant for the North district, given the lack of industrial land available for businesses specialising in auto repairs, construction and other service industries. The closest equivalent centre is located in Brookvale nearly 15 kilometres away. This scarcity and its relatively central and highly accessible location partly explains why industrial rents in Artarmon are the highest in Metropolitan Sydney.

INDUSTRIAL ZONED LAND IN METROPOLITAN SYDNEY HIGHLIGHTING THE NORTH DISTRICT



Summary: SWOT analysis

This review of the research, data analysis and consultation distils and analyses the key strengths, weaknesses, opportunities and threats of the Precinct, particularly in relation to its role as an employment location in the future.

Strengths

A highly qualified local skills base The North Shore possesses one of the most highly qualified workforces in the NSW and Australian economy. Combined with an increasing attractiveness as a residential location, businesses that elect to locate in this area are well positioned to draw upon and attract the most talented and skilled employees in the economy. Indeed, the establishment location of new enterprises in Australia are favourably linked to higher quality suburbs of residence.

Existing locational advantage - Proximity to the Gore Hill, M1 freeways and Pacific Highway provides rapid access to the lower north shore, central and eastern Sydney for the labour force, for businesses and distribution activities. St Leonards station and Pacific Highway buses provide excellent public transport access.

Diverse development opportunities and existing economic anchors – The Precinct possesses a variety of lot sizes and building/floorspace types. Different parts of the Precinct also possess different types of employment anchors, institutions and infrastructure – from SBS and Fox Sports in Artarmon, to the Royal North Shore and Mater Hospital, to the St Leonards Railways Station.

Weaknesses

B and C grade office space – A significant weakness in the St Leonards and Crows Nest centres in particular, the quality of floorspace stock does not match up to the quality of infrastructure (present and future) and anchor institutions which are in this sub-precinct. Many of the buildings are strata-titled with offices or suites held by different owners in the same building. This mitigates against coordinated redevelopment. This has the potential to prevent the sub-precinct from renewing and fully capitalising on its proximity to key pieces of urban infrastructure.

Limited vacancies and new development opportunities in Artarmon – Artarmon has a low vacancy rate, reflecting its strategic location and multiple economic roles for service industry through to high tech businesses. A high share of the lots in this area are small meaning scope for expansion for businesses is limited. These factors highlight how important it is to preserve the area for employment and identify meaningful opportunities for floorspace growth.

Limited open space – Currently, the Precinct has only a limited amount of public open space, to be supplemented by the proposed Lane Cove Plaza.

Opportunities

Diverse mix of uses – The Precinct as a whole, contains a multitude of industry specialisations with different characteristics that employ people with different skill sets. The contemporary focus on employment clusters sometimes ignores the value that diverse skills and knowledge can bring in stimulating innovation. With the continued influx and establishment of digital/IT businesses over the past five years, this benefit is only likely to increase. The different sub-precincts contribute to a virtually complete urban economic ‘ecosystem’ increasing its attraction as a location for new business start-ups.

Sydney Metro Station development - The introduction of the Sydney Metro station at Crows Nest has the potential to increase the accessibility of this location from across metropolitan Sydney, bringing in

additional workers, shoppers and visitors. Furthermore, the location will be much more accessible to the businesses and labour in the Sydney CBD and elsewhere in the Global Economic Corridor. The new station provides an opportunity to spur on additional development and activity across the entire Precinct, with the most significant impacts likely to be felt within an 800 metre walking radius around Crows Nest Station, and in the corridor between the new station and the existing one at St Leonards.

Threats

Competing demand for land – The Precinct is a viable location for a full range of urban uses including office, retail, institutional, industrial and residential. With the upcoming Sydney Metro Rail development, most of these uses are likely to be in even higher demand. There is a risk that some uses may outbid other uses, generating a ‘crowding-out’ effect which could result in the displacement of some of the most economically productive businesses on the North Shore. As such, there is a need to restrict residential development in the commercial core, or at least plan for it carefully while ensuring an employment floorspace outcome.

St Leonards Centre faces a challenge in ensuring that strategic sites which have the capacity to provide long term employment opportunities in office formats are not turned over wholly to residential uses. Artarmon industrial area is a particularly precious employment sub-precinct; one of a kind on the lower North Shore, providing industrial and mixed business opportunities unhindered by any proximate residential activity and benefitting from proximity to the Gore Hill Freeway and M1, St Leonards railway station and Pacific Highway.

Demand analysis

Three scenarios are utilised to model increased demand within the precinct, being:

- A ‘base case’ scenario, which represents an increase in employment in line with current trends,
- A second scenario which factors in the impact of the new Sydney Metro line upon the area, and
- A third scenario which factors in both the impact of the Greater Sydney Commission’s emphasis on health and education growth around existing nodes, as well as the impact of the new metro line.

Under a ‘base case’ scenario, it is expected that over the next 20 years, employment uses will grow most strongly in sectors where the Precinct has existing competitive strengths – namely, Professional Services and Health Care.

Adjustments to the base case are however required to factor into floorspace planning. These take into account the impact of the new Sydney Metro and the increasing emphasis on growing the health and education sector around existing nodes, as advocated by the Greater Sydney Commission (GSC), who defined the Precinct as a ‘Health and Education Super Precinct’. The draft North District Plan recognises these impacts and includes an ‘upper range’ employment target of 63,500 to 2036.

The Sydney Metro will significantly reduce the travel time from Crows Nest to a number of other centres and suburbs around the metropolitan area making the area more attractive as a jobs location.

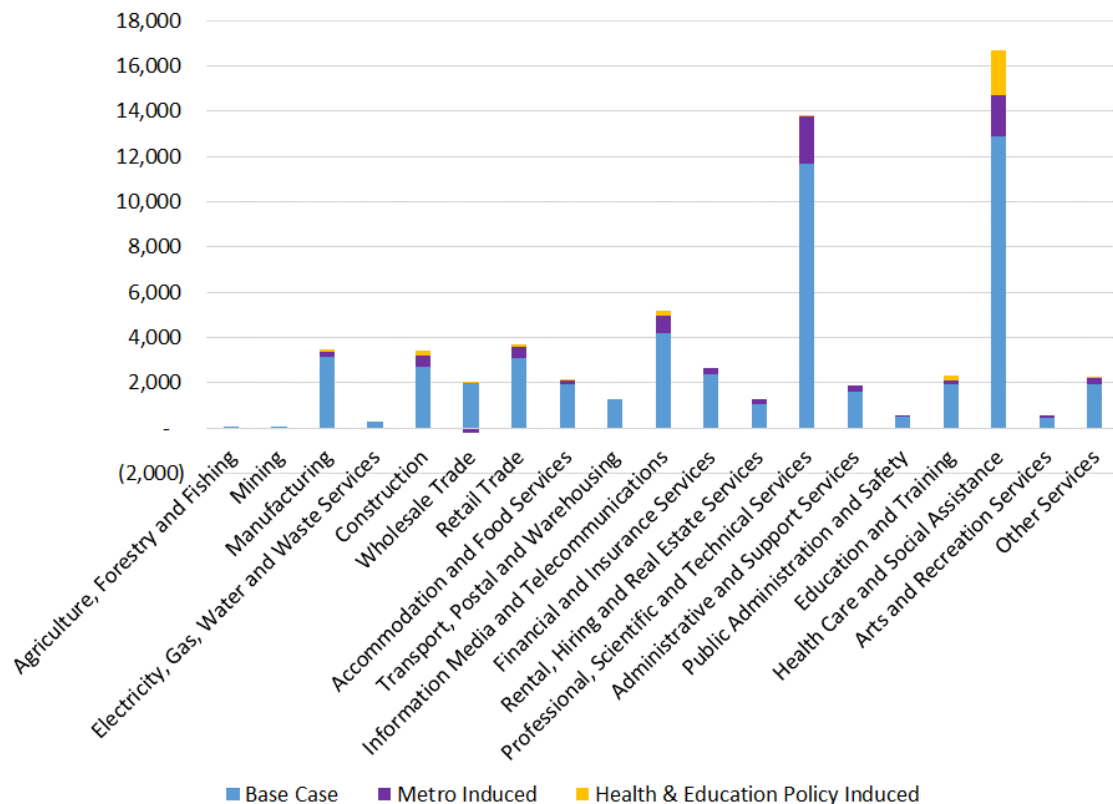
If the right partnerships could be struck with health researchers, institutes and other allied health organisations, there are opportunities for highly skilled jobs associated with health and education to grow in the Artarmon-St Leonards-Crows Nest Precinct. These jobs are already located across the Precinct and there are significant assets in the form of the Royal North Shore Hospital (including the Private Hospital), Mater Hospital and the Northern Sydney Institute of TAFE with which to anchor future growth opportunities.

It is important to acknowledge that this initiative will not just generate health or education jobs; it should help to create a variety of support services and businesses that can leverage off the increased presence of health and education services. This includes retailers, health product manufacturers, IT

suppliers and wholesalers – many of whom already have a presence in Artarmon, St Leonards or Crows Nest.

The chart below shows how these factors (the Sydney Metro and actions from the GSC Health & Education Policy) are likely to induce greater employment growth than what is forecast under the base case, consistent with the upper end target included in the draft North District Plan.

EMPLOYMENT SCENARIOS (2036) COMPARED – BASE CASE VS METRO VS EXPANDED
H&E SUB-PRECINCT



Supply-demand alignment (Gap analysis)

The table below then shows the extent of oversupply (black) and undersupply (red) in the Precinct once the demand is aligned with existing levels of supply (or existing occupied floorspace). This is determined by comparing the current amount of floorspace utilised by each of these industry types with the amount of floorspace required to accommodate the growth in jobs. An undersupply, or 'gap', indicates that development of more of this type of floorspace should be allowed in order to accommodate this growth in jobs.

There is a shortage of knowledge intensive and population serving floorspace. In Artarmon, this can partly be resolved through the conversion of industrial floorspace/lands, whilst the challenge to encourage the market to develop new commercial floorspace in St Leonards will be more difficult to overcome.

2036 DEMAND SUPPLY EQUATION BY SUB-PRECINCT AND BROAD LAND USE (METRO + H&E SCENARIO) – HIGH RANGE (SQM)

Sub-Precinct	Knowledge Intensive	Population Serving	Institutional	Industrial	Total Alignment
Artarmon	-26,921	-61,205	-6,064	18,498	-75,691
St Leonards	-41,902	-19,654	-47,004	0	-108,560
Health & Education	0	0	0	0	0
Crows Nest	16,045	-35,449	-76,829	-3,544	-99,777
Total Alignment	-52,777	-116,308	-129,897	14,954	-284,027

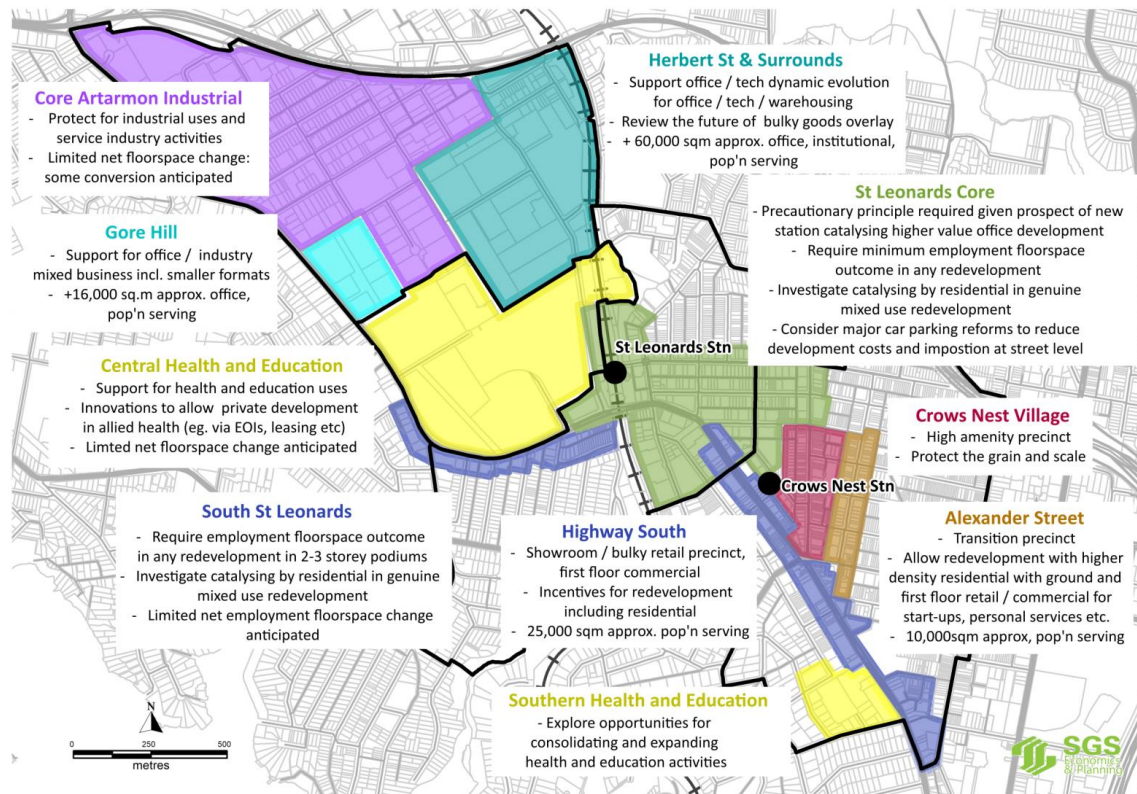
(Preliminary) Strategies and directions

Given the findings from the supply and demand analysis the focus therefore shifts to how state and local Government can make the most of limited capacity available in each sub-precinct to ensure that the present and future business community can generate the greatest levels of economic benefit to the region and State. Four overarching strategies have been identified.

- Further develop the emerging economic ‘eco-system’ by rationalising the planning controls and providing complementary public domain and infrastructure investment to integrate the different sub-precincts
- Provide varied opportunities for commercial office investment including for IT uses ancillary to warehousing and industrial activities in Herbert Street, and a diverse mix of businesses in St Leonards and Crows Nest, with a focus on commercial uses
- Harness a rapidly growing health sector, including accommodating more Allied Health beyond the core hospital facilities
- Protect the industrial lands in Artarmon for service and hi-tech industry and other industrial uses.

The figure below provides a (preliminary) employment planning map, including planning directions and suggestions to accommodate future growth.

DRAFT ECONOMIC STRUCTURE PLAN



1 INTRODUCTION

This chapter outlines the context and scope of the project, and the structure around which SGS' analysis is organised.

1.1 Project scope

The St Leonards-Crows Nest-Artarmon Precinct is already a major employment location in Sydney, with 44,000 jobs (in 2016) in a diverse range of industries and occupations.

The Precinct is well positioned given proposed new Sydney Metro rail investment and within a metropolitan economy which is undergoing continual transition. The Precinct is divided between three local government areas (Willoughby, North Sydney and Lane Cove Council), shown in Figure 1. A unique set of pressures and opportunities is emerging in this part of the lower north shore.

The Department of Planning and Environment has issued a brief for the preparation of the St Leonards-Crows Nest Employment Review, which follows the identification of this area as a priority in A Plan for Growing Sydney. The Precinct encompasses the Artarmon industrial area, St Leonards centre and Crows Nest centre which is to be the site for a new Sydney Metro rail station serving a second rail line crossing of the harbour. As articulated in the project brief, the study is to focus on the following three key areas of employment:

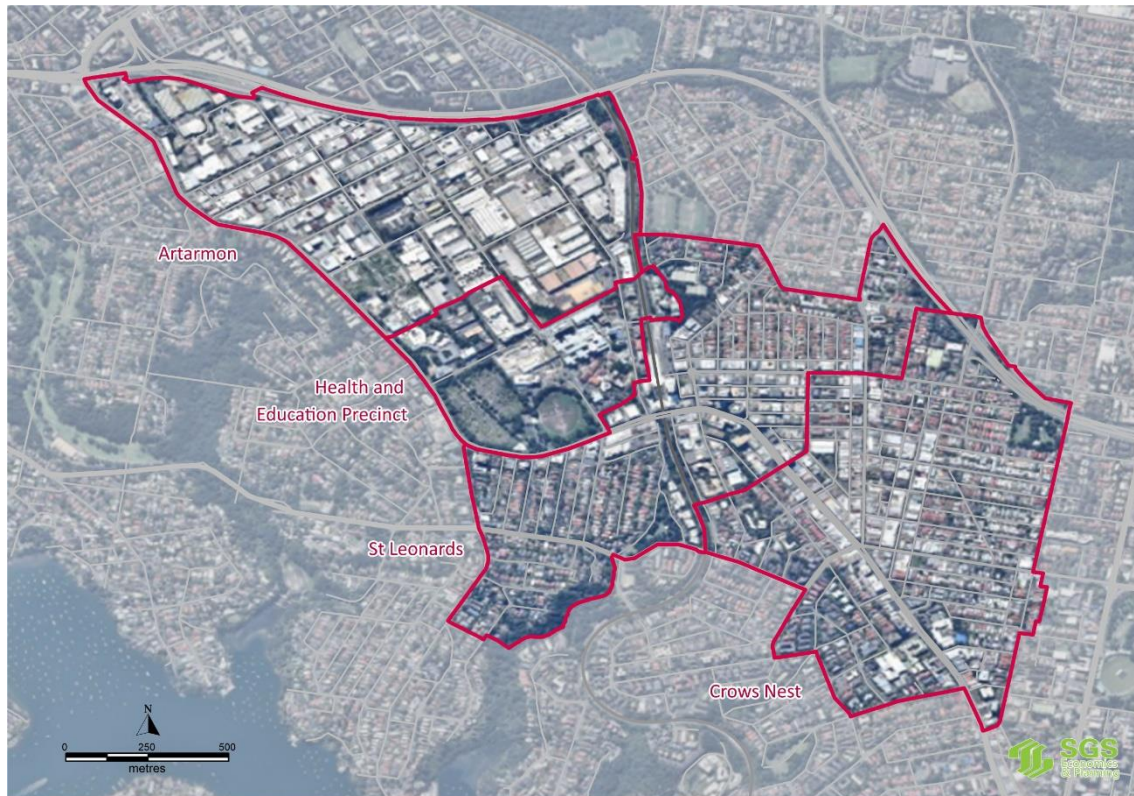
1. *“Office and Retail Analysis – focusing on the existing commercial core, mixed use areas, Royal North Shore Hospital site and Crows Nest centre;*
2. *Industrial Analysis – focusing on the Artarmon industrial area and the transitioning of parts of this area into other service sector employment; and*
3. *Service Sector Employment Analysis – investigate opportunities which can benefit from existing and proposed infrastructure in the Precinct.”*

- Project Brief

The St Leonards-Crows Nest Employment Review will ultimately provide a vision for the future of land use in the St Leonards Centre, Crows Nest Centre and Artarmon Employment Area. It will help guide future investment, development, programs and planning/re-zoning applications.

The Precinct has been divided into four sub-precincts as shown in Figure 1 below. Two can be classified as Centres (St Leonards with rail station, retail and significant office and surrounding residential development and Crows Nest with local retail, lower scale office and residential), one as a health and education sub-precinct (focussed on the Royal North Shore Hospital), and one an industrial area (Artarmon) albeit that it is gradually evolving into an industrial mixed business and enterprise sub-precinct.

FIGURE 1 PRECINCT AND SUB-PRECINCTS



This report informs the first stage of a two stage process:

- Stage 1 – Strategic Employment Review
- Stage 2 – Land Use & Infrastructure Strategy

This stage 1 report has analysed, synthesised and evaluated economic research to identify broad strategic directions for the precinct with some preliminary strategy and planning ideas. Subject to the Department progressing with the next stage of the project, it is proposed that stage 2 of this work will include further development of the stage 1 directions and an economic feasibility analysis to inform development of a proposed Land Use & Infrastructure Strategy.

1.2 Report structure

The remainder of this report is organised as follows;

- **Section 2 – Existing policy and planning context** provides a summary of the recent relevant state and local policies impacting on the sub-precincts and centres across the Precinct.
- **Section 3 – Economic context** introduces some relevant economic trends effecting the broader metropolitan economy which will (and have) played a significant role in the growth and spatial distribution of employment and economic activity across the Precinct.
- **Section 4 – Profiling the Precinct** draws on a range of data sources to describe the employment, floorspace and characteristics of the Precinct overall and the individual sub-precincts; it concludes with a summary SWOT analysis.
- **Section 5 – Capacity, demand and scenarios** identifies floorspace demand projections for the Precinct and sub-precincts, and compares this to the existing floorspace supply to identify future requirements by broad floorspace type.
- **Section 7 – Strategies and directions** brings together the findings in four high level strategies and identifies high level planning, land use and infrastructure directions for the different sub-precincts.

2 EXISTING POLICY AND PLANNING FRAMEWORK

This chapter outlines the existing planning policy framework at the state and local level relevant to the development of a planning vision and strategies for the Precinct.

2.1 Regional policy

A Plan for Growing Sydney

The Precinct is located in a strategic position in the context of the Sydney metropolitan area, falling within the Global Economic Corridor containing the strategic centre of St Leonards.

The Global Economic Corridor is identified by the Department of Planning and Environment (DP&E) as the powerhouse of Australia's economy. The corridor contains a concentration of jobs and activities in strategic centres, transport gateways and industrial lands extending from Port Botany and Sydney Airport, through Global Sydney, Chatswood to Parramatta and Norwest.

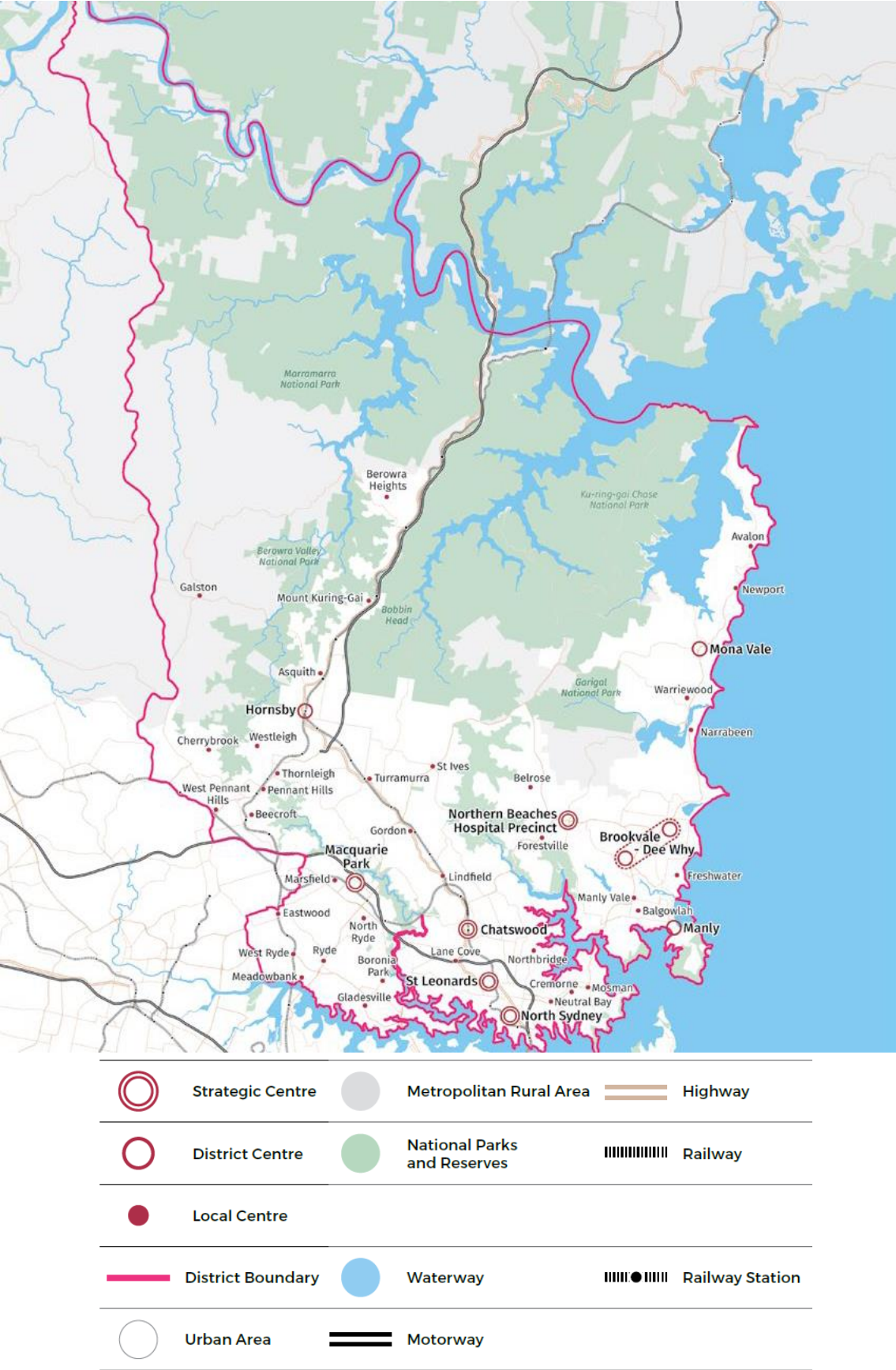
The Plan identifies St Leonards as a strategic centre. Strategic centres are locations that currently or are planned to have at least 10,000 jobs. These are considered to be the priority locations for employment, retail, housing, services and mixed-uses. St Leonards is split between the North Sydney, Willoughby and Lane Cove LGAs.

The directions for the St Leonards strategic centre are:

- Work with council to retain a commercial core in St Leonards for long-term employment growth.
- Work with council to provide capacity for additional mixed-use development in St Leonards including offices, health, retail, services and housing.
- Support health-related land uses and infrastructure around Royal North Shore Hospital.
- Work with council to investigate potential future employment and housing opportunities associated with a Sydney Metro train station at Crows Nest.

The precinct is located in the North District. The North District also includes a number of strategic centres; including Chatswood, Macquarie Park, Northern Beaches Hospital Precinct, Brookvale-Dee Why and Hornsby (refer to Figure 2).

FIGURE 2 NORTH DISTRICT



Source: Greater Sydney Commission 2016

Challenges and opportunities:

- Retaining the commercial core in St Leonards for long-term office employment growth
- Ensuring that health related employment land and infrastructure around Royal North Shore Hospital are protected and encouraged to develop.
- Unlocking potential future employment and housing opportunities associated with a Sydney Metro station at Crows Nest.

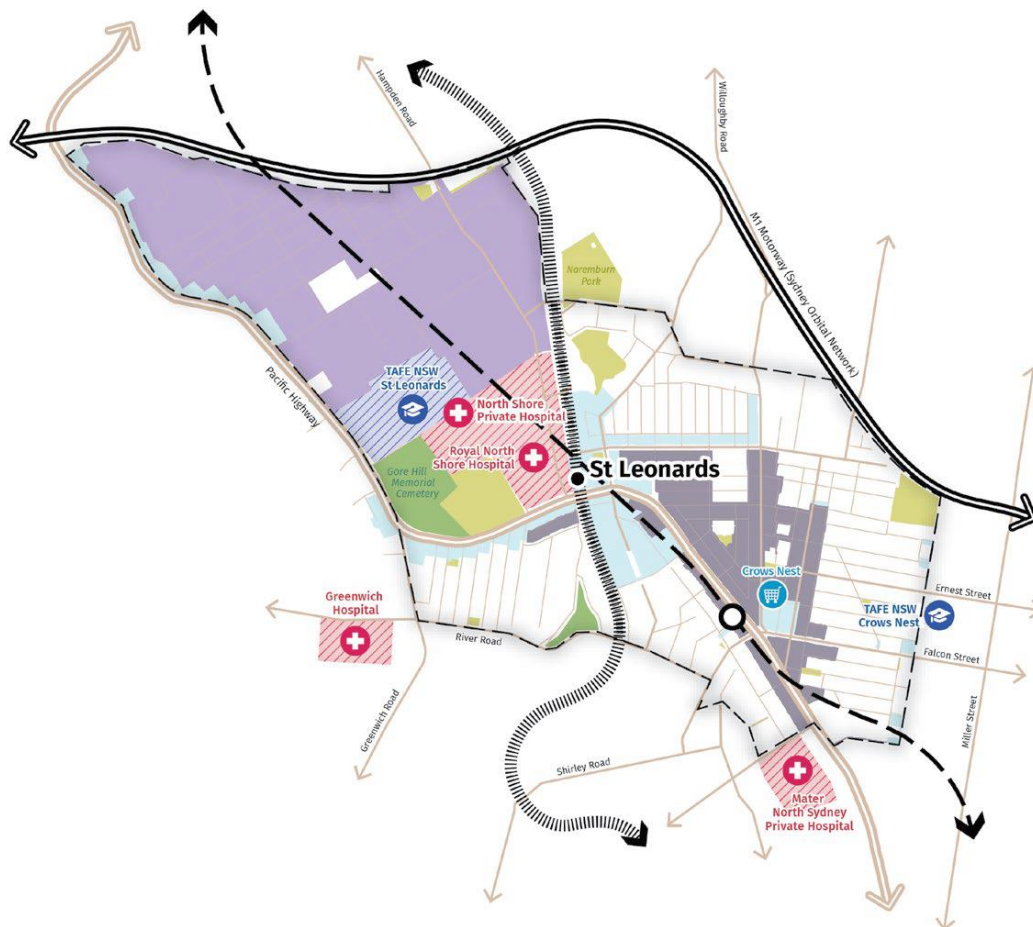
Draft North District Plan, 2016

The draft District Plan identifies priorities and actions to realise the vision for the District. It includes the overarching priorities that will inform strategic planning for the centres and precincts in the area. The priorities include productivity, liveability and sustainability themes, which provide a structure for the key actions and outcomes which are expected to be delivered. Priority projects are also nominated.

The Draft Plan specifically identifies the Sydney Metro as key infrastructure item which needs to be leveraged, as a means of creating new 'smart jobs'.

The Draft Plan also identifies the need to plan for the growth of health and education super precincts, which includes St Leonards. The Draft Plan references this study, and articulates the need for significant collaboration.

FIGURE 3 ST LEONARDS CENTRE IN THE DRAFT NORTH DISTRICT PLAN



Source: Greater Sydney Commission 2016

Sydney. The focus is on employment opportunities, however a diverse mix of housing options and a high quality public domain are also key elements of the strategy's vision for St Leonards.

A number of issues with the growth and development of St Leonards are put forward in this strategy:

- The divisive effect of the Pacific Highway and rail line
- The segregation of the hospital and TAFE from the heart of the centre
- The ageing building stock in some areas
- The poor condition of the public domain in some areas

Residential encroachment on commercial areas of St Leonards is a significant issue raised in the St Leonards Strategy. The strategy recommends that commercial development and jobs growth are given preference over residential growth in St Leonards. The transport connectivity and presence of regional health and education facilities are key supporters and facilitators of economic development to be capitalised on. A 'strategic growth' scenario is recommended in St Leonards, with an additional 8,000 jobs in the centre by 2031. Zoning land for commercial rather than mixed uses purposes is recommended to achieve this target.

The strategy notes that St Leonards requires additional support services, including convenience retailing options, food services for workers, and recreation options. Limiting retail offering is recommended in the strategy to prevent large scale retail encroaching on commercial uses and adversely impacting nearby retail centres.

Improvements to the public domain are considered paramount in the strategy to improve the amenity and functioning of St Leonards. Additional pedestrian connections are recommended throughout the centre and improved public domain elements, such as planting, are put forward to establish a character of 'one St Leonards'

North Sydney Council

Vision for the precinct

North Sydney Council has conducted extensive planning for St Leonards and Crows Nest. The North Sydney Local Development Strategy envisages St Leonards as a specialise centre, building on the health and education uses generated from the Royal North Shore Hospital. The goals specified in the 2006 St Leonard Strategy have been used as the vision for North Sydney Council's planning of St Leonards and Crows Nest.

Issues and opportunities

North Sydney Council's recent planning for the Precinct has primarily occurred through the *St Leonards/Crows Nest Planning Study*, completed between 2011 and 2015. The *St Leonards/Crows Nest Planning Study* has been prepared to assess opportunities for increased employment and residential development in the centre. The area that was the subject of the study is shown in Figure 5. The red line on the map indicates the suburban boundaries in the area, with each of the numbers corresponding to council's division of the area into precincts, for the consideration of detailed planning studies within the area.

FIGURE 5 NORTH SYDNEY COUNCIL'S ST LEONARDS/CROWS NEST PLANNING STUDY - STUDY AREA



Source: North Sydney Council, 2015

The opportunities identified in North Sydney's planning framework include:

- New open space in St Leonards/Crows Nest.
- Increased investment in St Leonards and decreased commercial vacancy rates, with particular focus on the rejuvenation of the Pacific Highway between St Leonards train station and the intersection of Pacific Highway and Willoughby Road
- Improved connectivity, particularly between St Leonards / Pacific Highway and Willoughby Road
- Improved urban design and street level amenity particularly in St Leonards and along the Pacific Highway
- Improved building design and residential amenity in St Leonards.

Planning framework

Under the North Sydney LEP 2013, St Leonards and the commercial centre of Crows Nest are zoned B3 Commercial Core, which permits a range of commercial uses. The B3 zone prohibits industrial and residential uses however there are already residential uses within the commercial core area. The North Sydney LEP 2013 also contains specific development controls relating to the North Sydney CBD, including setbacks, building massing, and building height. The B4 Mixed Use zone is utilised in the local centre such as Crows Nest along Willoughby Road to provide for a range of uses, including commercial, retail and residential uses.

Height controls vary through the North Sydney LGA portion of St Leonards/Crows Nest, from 49-50 metres (approximately 15 storeys) along the Pacific Highway to 10 metres (approximately 3 storeys) in the Crows Nest local centre (see Figure 41 on page 81).

A minimum non-residential floorspace ratio applies to land in St Leonards/Crows Nest zoned B4 Mixed Use (see Figure 42 on page 82). The ratio varies 0.5 of the site area, which is the ratio across most of the precinct, up to 3:1 bordering B3 Commercial Core zoned land. For the purposes of this control, non-residential uses exclude all forms of residential accommodation, serviced apartments, car parks, and telecommunications facilities.

Willoughby City Council

Vision

The vision from the St Leonards Strategy is applied to planning for the part of St Leonards that is in the Willoughby local government area.

This strategy has recently been supplemented by the Willoughby Economic Development Study¹ which covers both the Willoughby part of St Leonards and the Artarmon industrial area.

Artarmon is recognised in Willoughby's community strategic plan and the Willoughby Structure Plan as a regionally significant industrial precinct. Alongside Chastwood and St Leonards, Artarmon is nominated as a place for future employment growth. Willoughby's planning documents advocate for the retention and enhancement of the Artarmon industrial precinct, recognising there are redevelopment pressures from residential and commercial uses.

Issues and opportunities

The Willoughby Economic Development Strategy notes that the role of St Leonards as an employment centre is potentially slipping. This concern stems from the lack of redevelopment opportunity due to the fragmented strata titles across the centre and limited prospects for financing new commercial development. The study recommends preparation of a comprehensive St Leonards planning strategy, covering the whole centre, before any planning decisions are made.

In the case of Artarmon, the Willoughby Economic Development Strategy recommends the protection of its existing capacity, and investigation to increase employment capacity. It is recognised that Artarmon is under pressure to be redeveloped for residential uses. However, as the Economic Development Strategy notes, Artarmon is of strategic importance, supporting businesses and populations across northern Sydney.

The strategy notes that Artarmon and St Leonards benefit from some agglomeration economies and relationships between businesses in both locations should be supported where possible.

Planning controls

Under the Willoughby LEP 2012, St Leonards is zoned B3 Commercial Core, which permits a range of commercial uses and prohibits industrial and residential uses. The SP2 Infrastructure zone applies to the hospital, TAFE, and utility infrastructure throughout Artarmon.

Artarmon is a mix of land zoned IN1 General Industrial (which permits general industries), IN2 Light Industrial (which does not permit general industries), with zoned B7 Business Park along the Pacific Highway. Bulky good retailing in the form of garden centres, hardware and building supplies, and vehicle sales is permitted with consent in these zones.

Industrial zoned land in Artarmon does not have a maximum height of buildings. Land zoned B7 Business Park and the majority of land zoned B3 Commercial Core in St Leonards has a maximum height of buildings of 20 metres (approximately 6 storeys). Unique and complex height controls apply to The Concourse and the former ABC site. Maximum building heights up to 190 metres RL are permitted at the Concourse and up to 131 metres RL at the former ABC site (see Figure 43 on page 83)

The majority of Artarmon is subject to a floorspace ratio of 1:1. The floorspace ratio in St Leonards varies from 2:1 up to 5.5:1 at The Concourse (see Figure 44 on page 84).

¹ SGS Economics and Planning (2016) Willoughby Economic Development Study,
<http://www.willoughby.nsw.gov.au/Development/planning-rules/strategic-land-use-planning/>

Lane Cove Council

Vision

The majority of recent planning policy for St Leonards in Lane Cove has centred on St Leonards South, the area currently zoned for residential purposes south of the Pacific Highway and west of the rail line.

The St Leonards South Masterplan follows a similar vein to the St Leonards Strategy, focusing integration of the plaza over the rail line and the surrounding B4 zone. The masterplan emphasises the role of St Leonards South to provide 'new and diverse housing opportunities'. Development in St Leonards South is intended to embody the principles of sustainable urbanism and transit oriented development.

Lane Cove Council has also undertaken a pilot project targeting three sites within the St Leonards commercial core area. The projects were designed in partnership with the Department of Planning to catalyse commercial development.

Issues and opportunities

The topography of St Leonards South is identified as a major constraint to development. The steep south facing slopes impact on pedestrian mobility and amenity, as well as having implications for overshadowing. A lack of east-west connections through the precinct as well as the highway and rail line act as barriers limit pedestrian movements through the precinct.

The proximity of the largely low density precinct to employment and services in St Leonards is considered a significant opportunity in Lane Cove's planning documents. The potential for St Leonards South to provide a higher density of housing to service diverse population needs is recommended in the masterplan and St Leonards South Strategy. Considering the environmental constraints and nature of development in St Leonards in surrounding LGAs, the strategy recommends diversity of scale and siting and providing a transition in built form scale generally from north to south and east to west.

The existing character of the precinct with leafy streetscapes is identified as a strength. Opportunities are put forward in the masterplan and strategy to maintain and enhance this character to maintain a sense of place as development occurs through St Leonards South.

Planning controls

The B3 Commercial Core has been applied to the St Leonards centre and along the Pacific Highway north of St Leonards South. A small area of St Leonards South is zoned B4 Mixed Use.

The maximum height of buildings varies significantly through St Leonards, from 15 metres (approximately 4 storeys) up to 94 metres (28 storeys). Maximum height of buildings appears to have occurred in a site by site basis. The maximum height of buildings for the B3 Commercial Core zone north of St Leonards South is 25 metres (approximately 7 storeys). For further detail see Figure 45 on page 85

Floorspace ratio also varies by site in the Lane Cove portion of St Leonards. Maximum floorspace ratio varies between 2:1 to 17.1:1.

2.3 Summary

From a review of available policy documents and studies Willoughby, Lane Cove and North Sydney Councils are focussed in protecting the employment roles of Artarmon, St Leonards and Crows Nest, and are concerned that introducing residential will undermine the achievement of future employment

growth. The strategic economic role of Artarmon and St Leonards in particular are highlighted in Willoughby, Lane Cove and North Sydney planning documents.

Lane Cove Council, while emphasising the role of St Leonards as an employment location, and having adopted the St Leonards Strategy which prioritises commercial development, has proposed the introduction of additional residential development in the St Leonards South area (however not on the blocks closest to the highway that are zoned B3 or B4).

3 ECONOMIC CONTEXT

This section introduces some relevant economic trends affecting the broader metropolitan economy which will (and have) played a significant role in the growth and spatial distribution of economic activity across the Precinct.

3.1 Broad Economic Trends

Restructuring of the economy

Globalisation has had a profound impact on the structure and economies of cities throughout the world.

Economic globalisation has led to an expansion of international trade and opened the world up for business thereby eroding national boundaries in the financing, production, sale and distribution of goods and services. International production, trade and investments increasingly being conceptualised and organised within so-called 'global value chains'. Firms are investing based on economic specialisations and to maximise production efficiencies. For the Australian economy this has meant a loss of manufacturing capacity, as lower cost production goes off-shore, but also increased international investment in agriculture and mining where the country retains a competitive advantage. Our cities have been the focus for an expansion of business services which are education and 'knowledge' dependent. Sydney has been the gateway to the flows of international capital and is particularly strong in the finance service sectors.

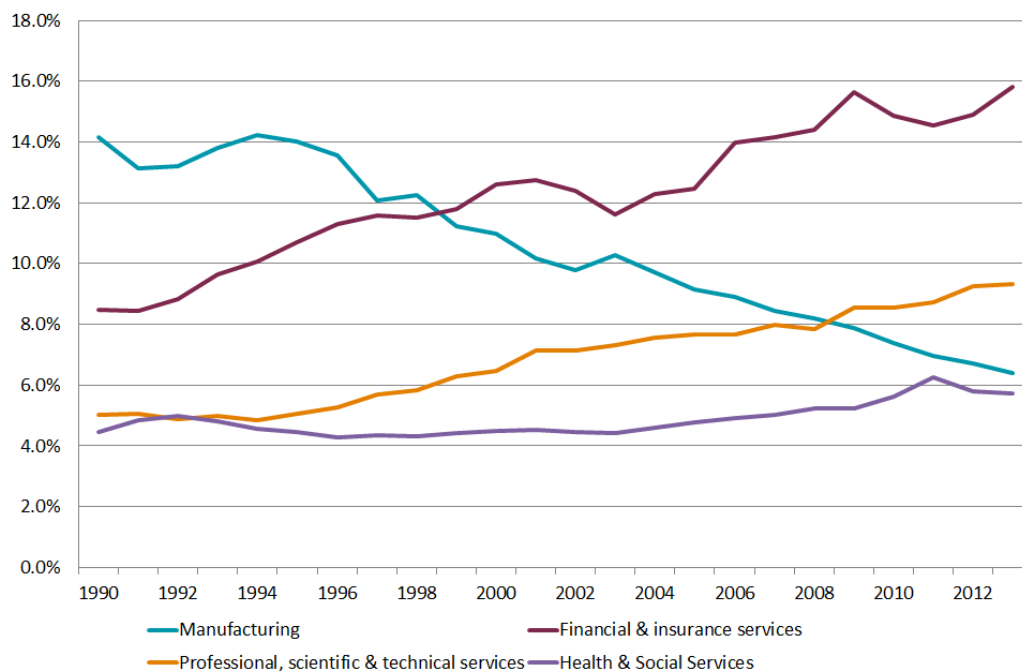
Country by country specialisations have increased and the competition for skilled labour has grown. Globalisation has led to increased personal migration, not only between countries but within them, as people seek out their best chance of jobs and opportunities.

These trends have underpinned the continued urbanisation of Australia. The Australian economy has been significantly boosted in recent years by a mining boom, and agriculture has always been an important industry, however the majority of the country's wealth is generated within its cities where the service sectors are concentrated.

Australia's economic backbone has transitioned from one built on manufacturing to one predominately supplying services.

The decoupling of the value chain and movement of production activities across national borders has had a profound impact on the structure of Australia's economy. Australia's economic backbone has transitioned from one built on agriculture and manufacturing to one predominately supplying services, with competitive advantage generally achieved through specialising in activities higher up the value chain, such as in advanced business services in the 'Finance and insurance', as well as 'Professional, scientific and technical service industries' (Figure 6). The growing significance of these service industries in Sydney is evident in the continued strong demand for office space in the CBD and selected office centres and business parks in accessible suburban locations.

FIGURE 6 INDUSTRY INCOME SHARE OF SYDNEY'S GDP FOR SELECTED SECTORS



Source: SGS Economics & Planning, 2014.

In these high value-add sectors, competitive advantage is gained and maintained by offering environments that promote innovation and are able to attract the high levels of skilled labour necessary to enable high productivity firms to flourish (agglomeration economies).

Over the coming decades, it is expected that these service sector jobs will continue to increase as well as diversify into other specialisations such as health care and education, where Australia has a competitive advantage globally.

Knowledge intensive jobs have, and are projected to represent an increasing share of the economy in the future.

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

Business supply-chains are fragmenting.

Supply-chains have become more fragmented and business components are often scattered across wide areas – sometimes internationally. An example of this change can be seen in the motor industry. Once concentrated in cities, the motor industry has evolved into a process where design, manufacture, and assembly occur in many different locations worldwide. All this has heightened time-based competition and flexibility, with implications for the functional characteristics and spatial disposition of industrial activity.

Productivity is significantly affected by the size and structure of cities, particularly in terms of transport accessibility and connectivity.

The concepts of urbanisation and localisation are important here. In developing economies, greater investment in technology and human capital improvements (skills and education) may be prioritised in

generating a greater mass of economic activity. In developed economies, where additional sources of competitive advantage must be secured, the question of localisation becomes paramount, with the way cities are structured and how they function being key to productivity enhancements.

A city which is large but dysfunctional in, for example, a transport sense will not optimise its potential for agglomeration economies. In such an example, 'city shaping' transport investments (such as major freeways, metros and commuter railway infrastructure) and interventions to create employment nodes in strategic locations are of vital significance.

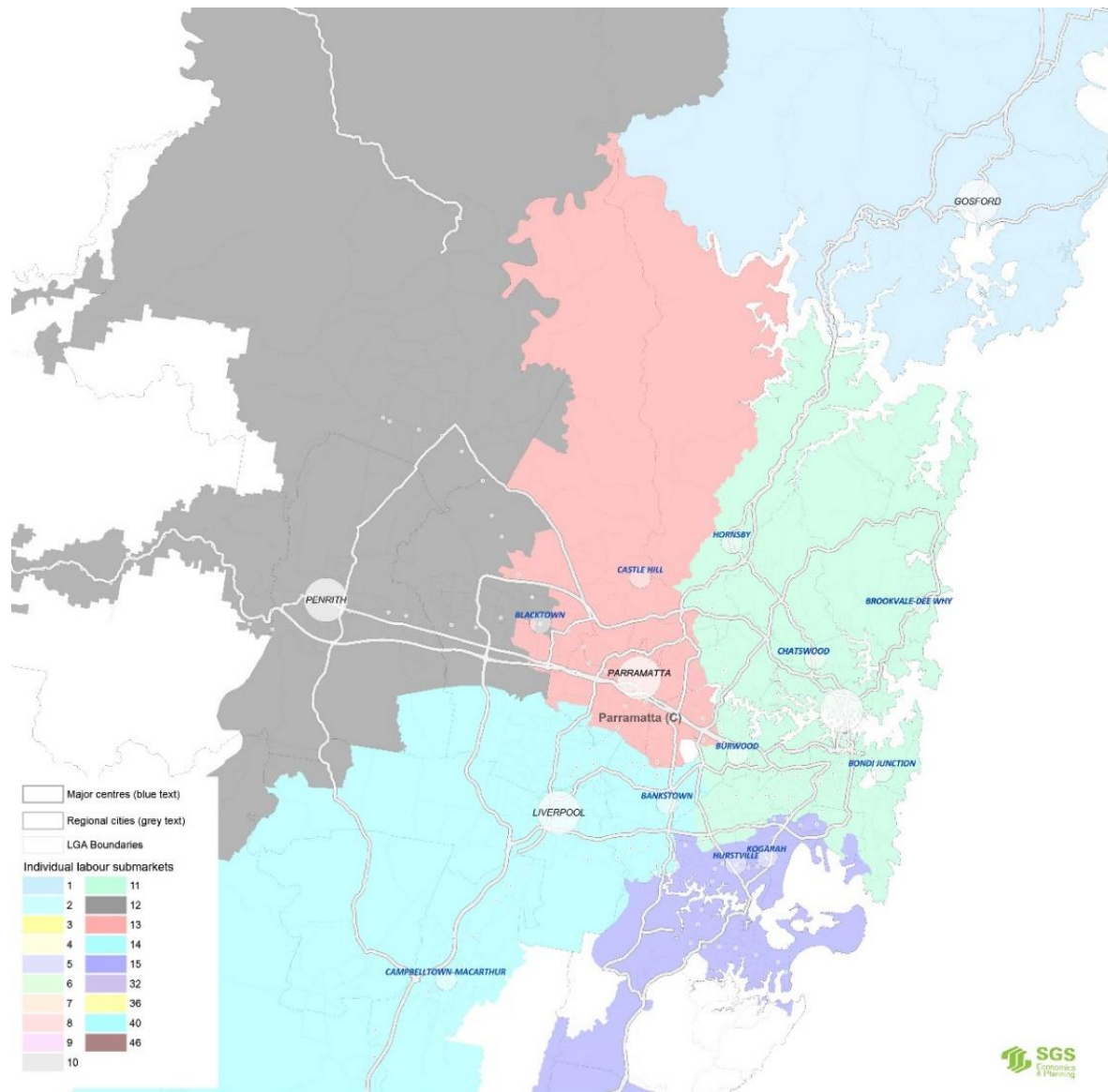
The macroeconomic forces that promote specialisation of components of the global value chain are having distinct spatial implications across the cities of the world, and Sydney is no exception. In recent years there has been an acceleration of the centralisation of jobs in Sydney, with agglomeration economies strongly in evidence. Highly connected central Sydney areas have benefitted which includes the lower north shore and the corridor of jobs from Macquarie Park, through Chatswood, St Leonards and North Sydney.

Access to an appropriate labour force is key for business location decisions.

Firms need to locate in an area where there is an available workforce that matches its skill requirements. The services sector needs access to an educated labour pool, while retail does not necessarily require access to highly skilled residents. Greater Sydney is broadly broken up into six relatively self-contained labour markets based on journey-to-work patterns evident in the 2011 ABS Census, as depicted in Figure 7 below.

The broader Sydney region houses almost 1.86 million jobs. More than half of these jobs are located in the 'inner' Sydney labour catchment, which stretches from Port Botany in the south east, to the Canterbury area in the inner south-west, Hornsby in the north-west and the Northern Beaches to Sydney's north-east. There are 1.2 jobs for every resident in this inner catchment of Sydney, with only 12 per cent of inner residents travelling beyond the catchment for employment. This catchment houses not only the job rich Sydney CBD, but also the employment clusters of North Sydney, St Leonards, Chatswood, and Macquarie Park.

FIGURE 7 GREATER SYDNEY LABOUR MARKETS



Source: SGS Economics and Planning, 2015.

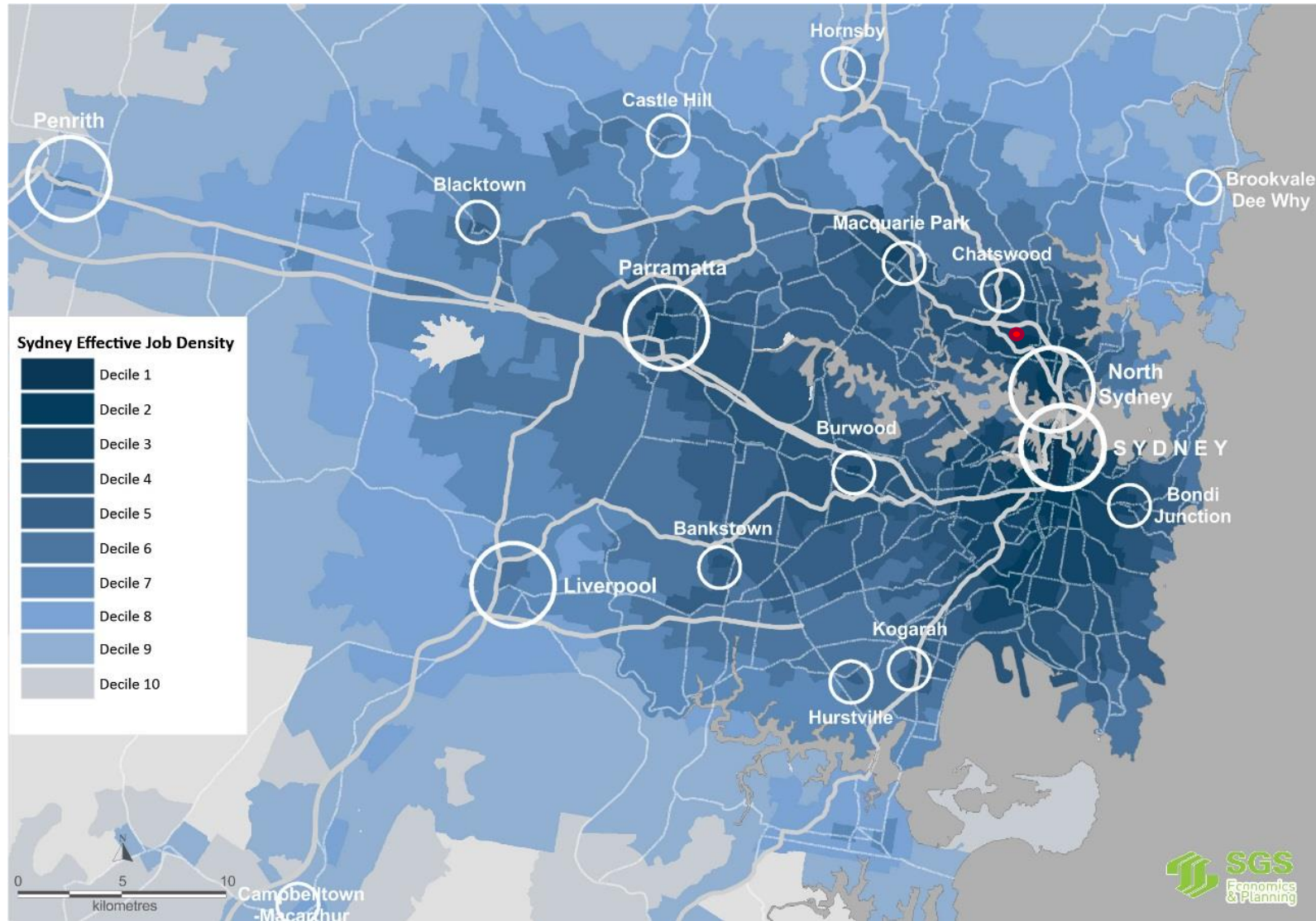
Agglomeration economies in Sydney

The precinct is located in a highly agglomerated area of Sydney

Agglomeration benefits can be measured by reference to differences in 'effective job density' (EJD). The EJD score of a locality is given by the number of jobs in that location plus all the jobs that can be reached from that location divided by the travel time involved, weighted by mode split. Here, jobs are a proxy for economic or business mass. EJD across the Sydney metropolitan area is shown in Figure 8.

The darker the blue, the more jobs that can be accessed within a given travel time. A worker residing in a dark blue area has access to greater employment opportunities, while a business in one of these areas likely benefits from having access to a greater pool of labour. The St Leonards-Crows Nest precinct has a high EJD associated with its proximity and strong transport links to the Sydney CBD, North Sydney, Chatswood and Macquarie Park as well as the presence of employment opportunities within the precinct. There is also likely to be significant demand for residential development in these areas because of the associated access employment opportunities.

FIGURE 8 METROPOLITAN SYDNEY'S CURRENT EFFECTIVE JOB DENSITY (ST LEONARDS IN RED)

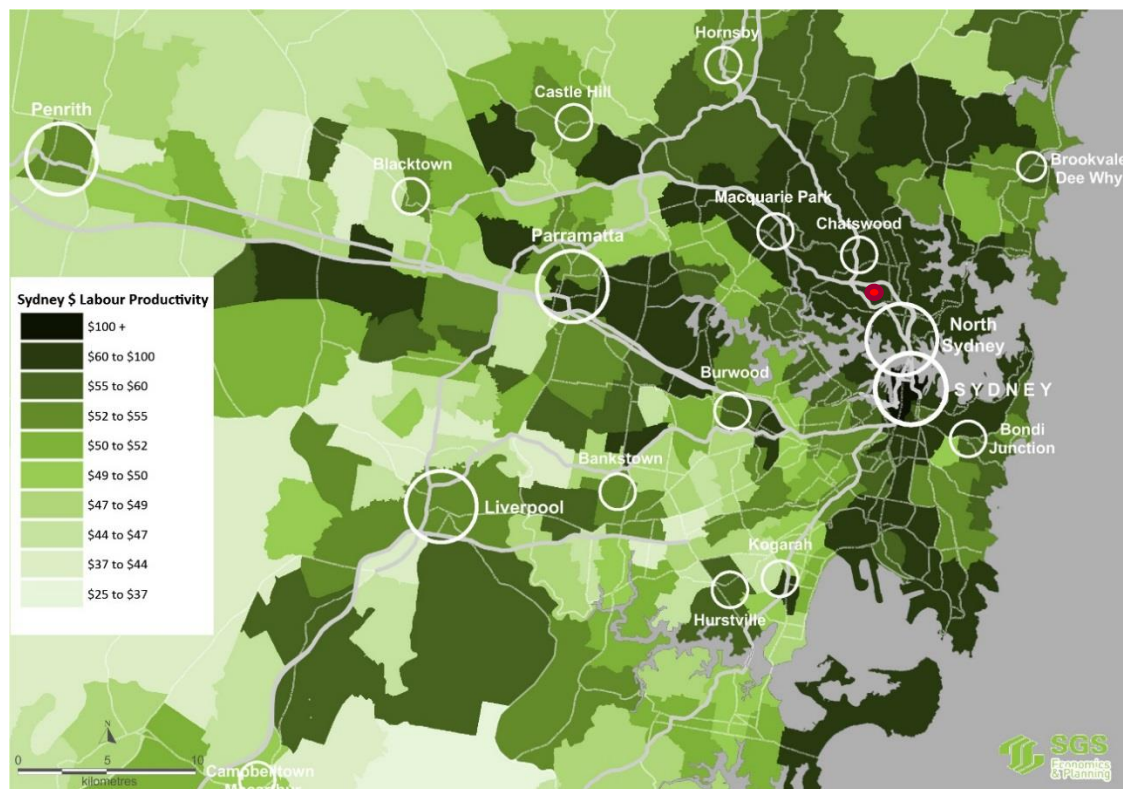


Source: SGS Economics and Planning, 2015

The precinct also exhibits high levels of labour productivity.

Labour productivity is the amount of income (wages and profits) generated for each hour worked. In 2012-13 the whole of Sydney's labour productivity was \$81, i.e. for every hour worked, \$81 in income is generated. The CBD has labour productivity of around \$100. The Global Economic Corridor (including North Sydney) and the Parramatta corridor (with concentrations of higher value jobs) and areas with industrial clusters also exhibit high levels of labour productivity (refer to Figure 9).

FIGURE 9 LABOUR PRODUCTIVITY (ST LEONARDS IN RED)



Source: SGS Economics and Planning

Analysis has been undertaken at the Statistical Area 2 (SA2) level. Table 1 presents a range of statistics for the top ten SA2 areas contributing to employment growth. These ten SA2s contributed over 40 per cent of all employment growth in Sydney between 2007-08 and 2012-13.

Two of these SA2s are located in the precinct, St Leonards - Naremburn and Chatswood (East) – Artarmon. Employment growth across this period has been strong, with an additional 3,143 jobs in St Leonards – Naremburn and 1,947 jobs in Chatswood (East) – Artarmon. St Leonards – Naremburn has the second highest average weekly hours worked at 36 hours. Chatswood (East) – Artarmon has an average weekly hours worked of 33 hours. Population growth has also been strong, with almost 2,500 additional people in the five year period in the two SA2s. Labour productivity is \$69 in St Leonards – Naremburn and \$67 in Chatswood (East) – Artarmon.

Crows Nest falls into the Crows Nest - Waverton SA2, which is not within the top ten SA2s contributing to population growth in Sydney.

TABLE 1 HIGHEST EMPLOYMENT GROWTH CONTRIBUTING SA2 IN SYDNEY

Statistical Area 2	2012/13				Growth past 5 years	
	Labour Productivity	Average hours /week	Total employment	Total population	Employment	Population
Sydney - Haymarket - The Rocks	\$100	36	329,343	26,497	28,678	3,186
North Sydney - Lavender Bay	\$88	37	57,408	11,005	5,637	1,471
Pymont - Ultimo	\$77	35	40,992	21,384	4,789	2,080
Macquarie Park - Marsfield	\$79	35	49,026	20,380	4,240	1,618
St Leonards - Naremburn	\$69	36	34,136	10,282	3,143	974
Surry Hills	\$66	34	30,684	17,251	2,850	905
Parramatta - Rosehill	\$76	33	53,030	26,207	2,662	4,930
Newtown - Camperdown - Darlington	\$54	32	21,529	23,673	2,533	1,352
Randwick	\$52	32	18,598	30,483	2,270	1,621
Chatswood (East) - Artarmon	\$67	33	29,218	26,342	1,947	1,453

Source: SGS Economics and Planning & Regional Population Growth, Australia (Cat. No. 3218.0)

Professional services

Sydney's competitive advantage is centred on high value-add services.

In the global economy Sydney's competitive advantage is centred on its concentration of high value adding finance and insurance, and professional services firms located in the city's CBD. These firms are well connected to one another, to global markets (through sea and air ports), as well as to a large and diverse skilled labour market. As a result these firms are highly productive and highly profitable.

...and business parks remain an attractive alternative to traditional employment centres.

Across Sydney, several business parks have been developed over the last 10 to 20 years. Successful examples of businesses parks in Sydney are Norwest and Macquarie Park. The success of a business park location is reliant on numerous factors. The site needs to offer 'good business park fundamentals' including a high quality external environment, a high quality internal environment, motorway access, multi-modal access and services, proximity to a skilled labour force and executives, proximity to supply chains, high quality digital connectivity and other infrastructure serving the site and a variety of on-site support services and facilities. These centres, particularly Macquarie Park, is a major competitor for St Leonards and Crows Nest.

Information and Communications Technology

The global adoption of advanced Information and Communications Technology (ICT) into the operations of business is a significant driver of social and economic change.

The ICT sector has changed the nature of economies in terms of the way in which goods are marketed, the way in which they are delivered and the way in which people access and share information. The ICT sector has impacted the nature and performance of other sectors, resulting in productivity efficiencies.

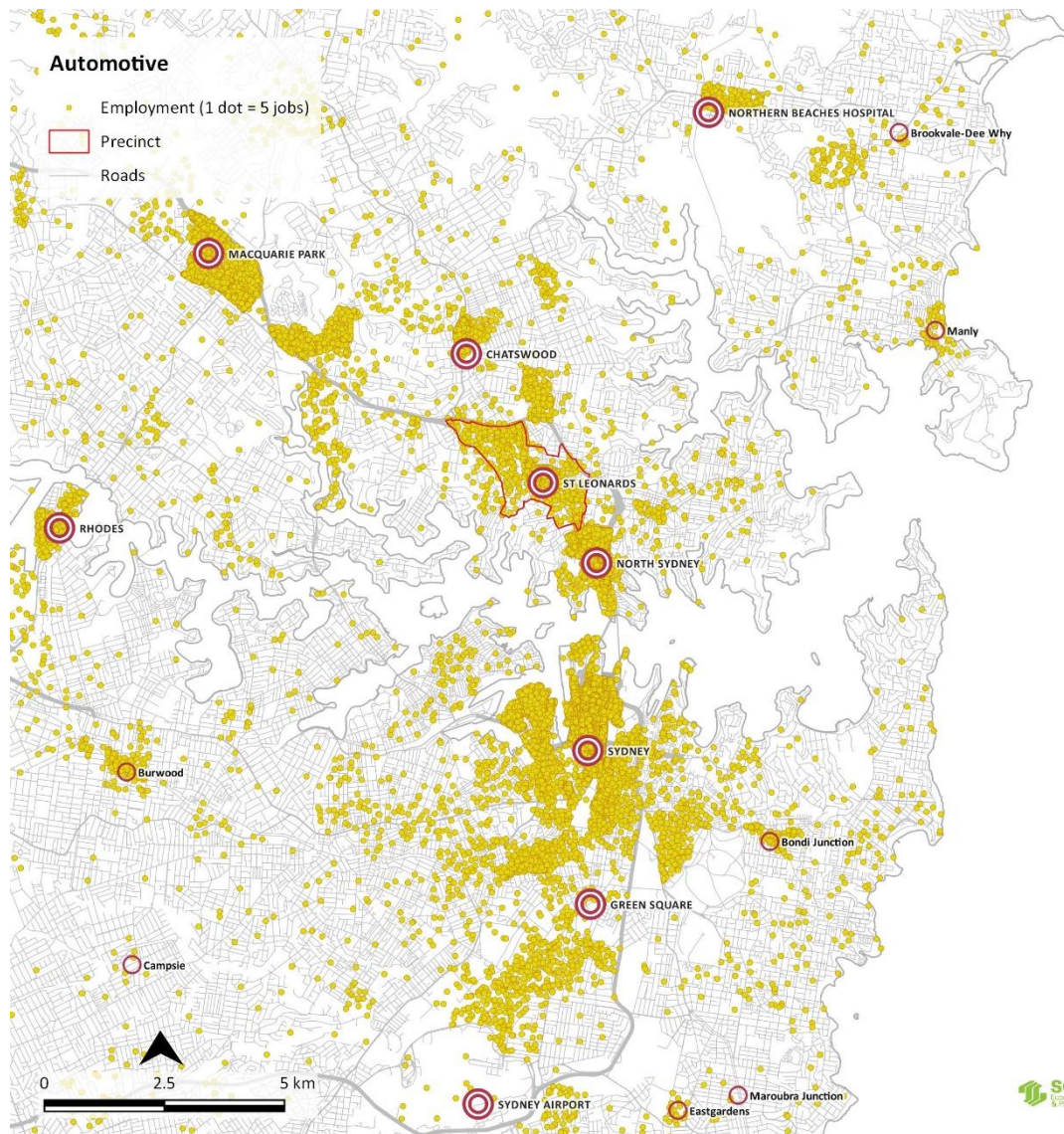
Recent trends in the ICT sector include:

- Convergence of these sectors into the 'Digital Economy'
- Increasing adoption of advanced information technologies across a variety of sectors and subsectors
- Proliferation of small and medium sized enterprises in this sector driving innovation and job creation.

Sydney plays a large role in the ICT sector, benefiting from a relatively high share of the nation's ICT sector, accommodating 39% of the nation's ICT businesses and 40% of ICT industry value added output.

The map below shows that not only does St Leonards possess a significant concentration of Digital and Media jobs, it is also proximate to other key similar clusters including Macquarie Park, Chatswood, North Sydney and the Sydney CBD.

FIGURE 10 DIGITAL AND MEDIA JOBS IN THE REGION



Manufacturing

Whilst manufacturing jobs growth is slowing, manufacturing can still play a pivotal role in the Australian and Sydney economy.

At a Greater Sydney Metropolitan level the proportion of jobs in the industrial sector is predicted to decline although the actual number of jobs is still expected to increase through to 2036. Job growth will continue in advanced manufacturing in particular.

Manufacturing's decline has been well documented, and Australian cities have drawn on their competitive advantage and increasingly orientated themselves around high value add service based

industries. However the experience of other manufacturing nations has been that manufacturing can still play a relevant role in the economy if production moves up the value chain.

In the global value chain, developing nations (for example China) initially utilise their relatively cheap labour to manufacture less sophisticated, more labour intensive products. Over time, as their manufacturing base expands there is a move towards robotics, intellectual property and other attributes to produce goods and services with a greater degree of sophistication (as witnessed in Japan and Korea). This specialisation in industries of comparative advantage is impacting all economies and industries, acting as a catalyst for them to evolve from their historical economic configuration into dynamic, adaptive and internationally competitive industries.

A new technological trend for manufacturing is 3D printing or 'desktop manufacturing', allowing for the 'thinking' and the 'making' to be more closely integrated. The technology is in its formative stages but it could see advances in high-tech and niche manufacturing.

There is the potential for manufacturing in Australian cities to evolve.

If the resurgence of so-called 'urban manufacturing' in the United States is an indicator, this trend could soon be realised in Australia. Although the research literature is still developing, observed growth in urban manufacturing in U.S. cities is variously attributed to:

- changing global cost structures – rising costs of energy, transport and overseas labour and the risks in these supply chains are making outsourcing less competitive in some circumstances;
- fears over protection of intellectual rights;
- local linkages to knowledge industries (for example, in the high end garment trade); and
- changing consumer preferences, with growing interest in fair trade, sustainability, local origination and customisation. This has been led by high income knowledge sector clients, but may now be spreading to more mainstream markets.

Training and the retention of highly skilled labour is a major challenge for the growth of the manufacturing industry.

With innovation and creativity at the core of manufacturing in developed economies, leading executives from the industry are identifying the training and retention of highly skilled labour as a major challenge. Furthermore, a recent report from the World Economic Forum (2014) noted the importance of superior science and technology research and development, particularly through partnerships with universities and other institutions, as essential to national competitiveness and global competitive advantage in the manufacturing sector.

These trends appear to be playing out in the Sydney manufacturing market, with two main drivers and trends apparent. Firstly, there is a continued relocation of big space manufacturers to the outer western region. Secondly, there is strong investor demand for institutional grade assets, particularly from smaller tenants who are demanding floor plates below 2,000 square metres (Colliers, 2014). For such manufacturers, proximity to residential areas is appealing to occupiers looking to attract and retain staff (Colliers, 2014).

From the literature (and to a lesser extent the trends observed in the Sydney manufacturing market), the urban manufacturing sector appears to operate and prosper on many of the same spatial attributes central to the success of advanced business services, namely the benefits gained through agglomeration economies. Notwithstanding, urban manufacturers occupy a lower rung on the value add ladder and are at significant risk of displacement from the inner and central ring locations that nurture them, with the threat of being outbid in the market for productive space and pressure for residential rezoning ever-present.

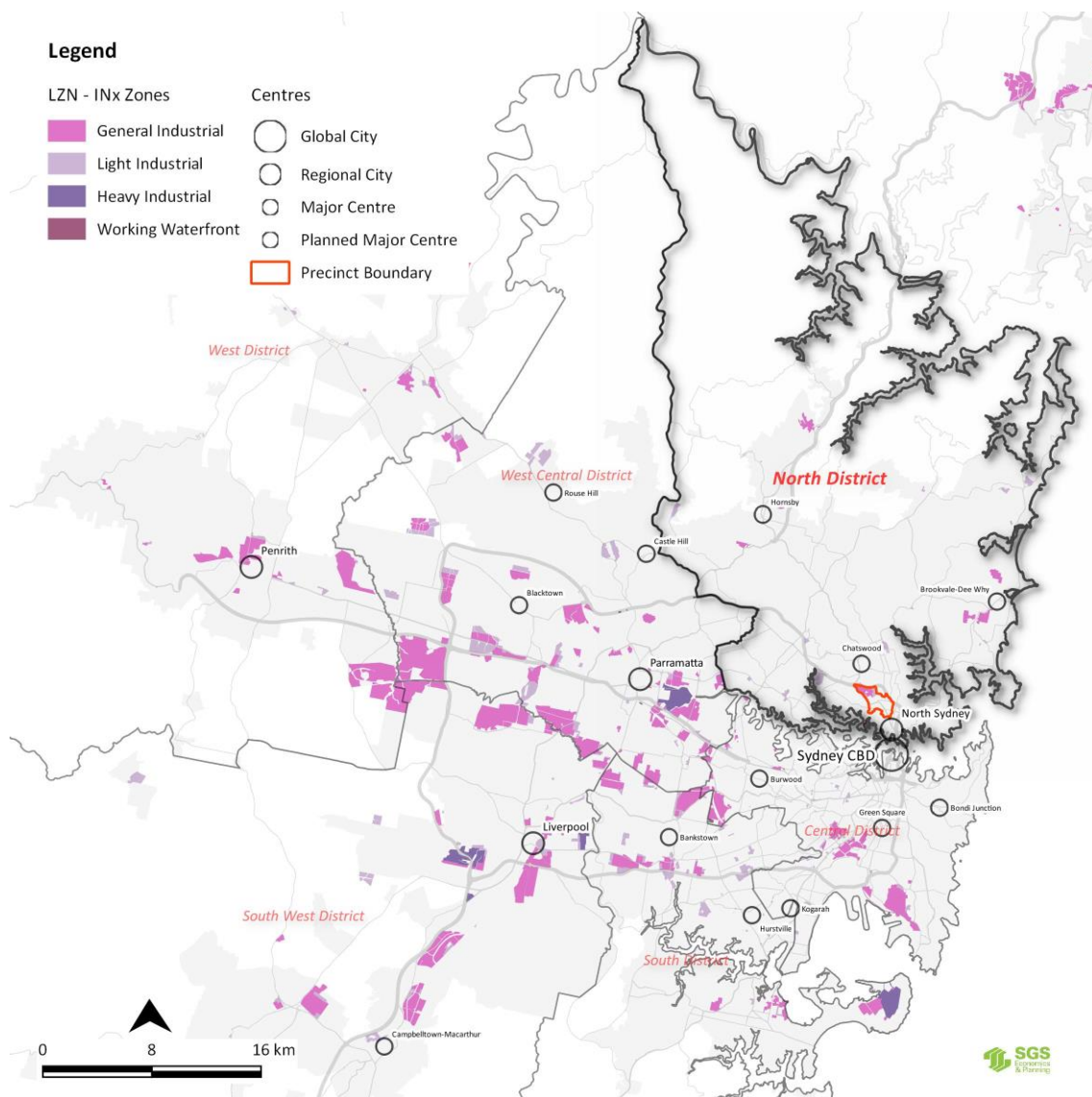
Service industry

Not all industrial uses have been in decline. Service industry in particular, responds to population growth – meaning that regardless of the presence of manufacturing, there will also be district level demand for industrial land in any district where there is population.

Activities which serve that level of catchment include service industry, repairs, construction supplies, wholesaling and general warehousing (formal freight and logistics is differentiated by its need for larger lots and significantly greater levels of B-Double truck access).

Figure 11 shows the relatively scarce amount of industrial zoned land in the North Shore, with Artarmon, Brookvale and Hornsby providing the only substantial industrial precincts. Brookvale and Hornsby are also a significant distance away from the Artarmon. This is one driver of the relatively high rents for industrial land in Artarmon.

FIGURE 11 INDUSTRIAL ZONED LAND IN METROPOLITAN SYDNEY HIGHLIGHTING THE NORTH DISTRICT



While land hungry warehousing, freight, distribution and manufacturing activities have generally moved to the west, with new rezonings of industrial land to accommodate them, and while recognising that users of industrial land vary considerably, it is telling that the North district now has by far the least

industrial land per person, at 7.3 hectares per 10,000 residents compared to a metropolitan average of 33.1 (see Table 2).

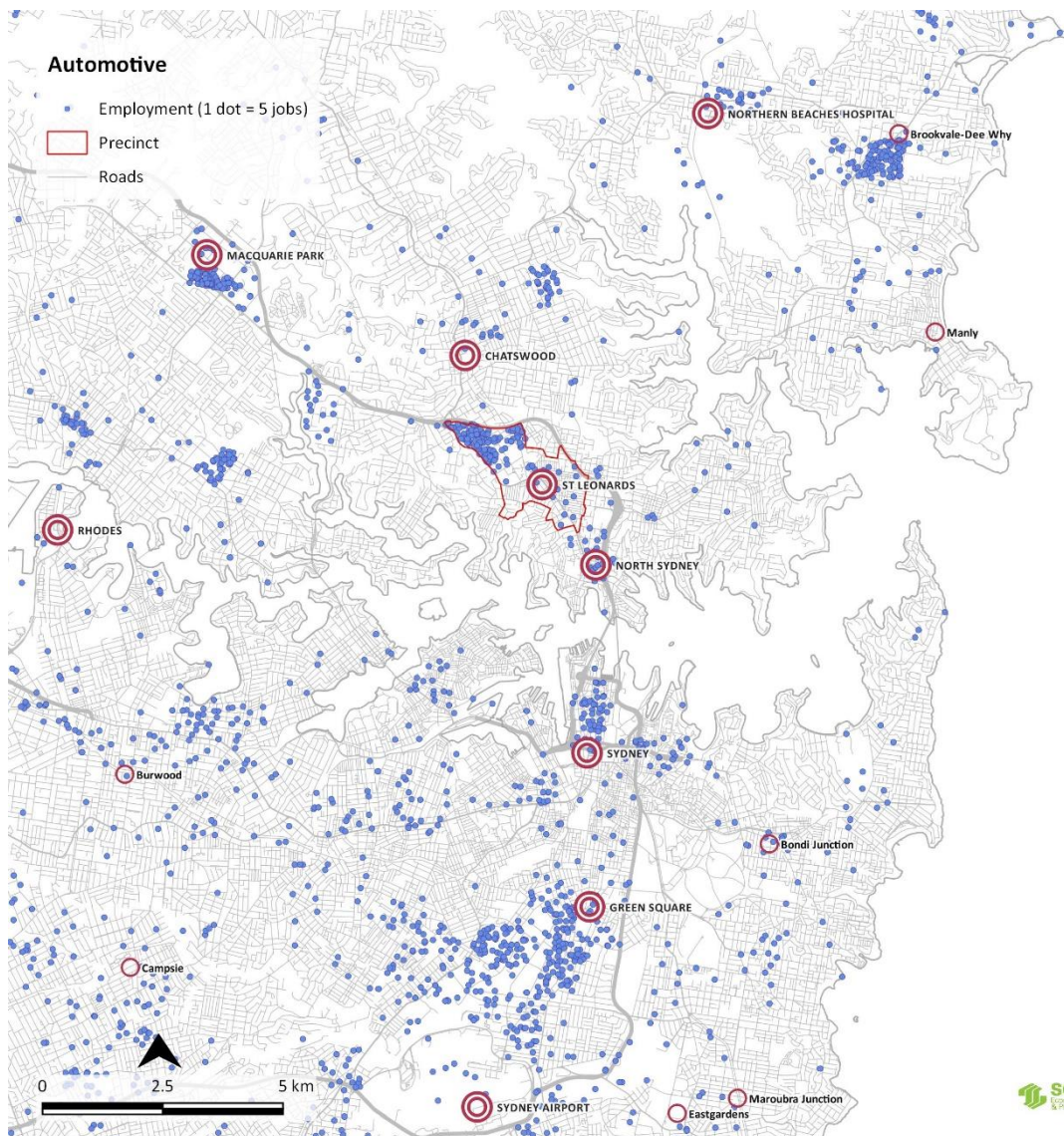
TABLE 2 INDUSTRIAL LAND BY DISTRICT

District	Industrial Zoned Land (Ha)	Population (2011)	Ha of Industrial Land per 10,000 residents
West	2,128	327,500	65.0
South West	3,736	638,800	58.5
West Central	5,523	1,036,850	53.3
South	905	610,550	14.8
Central	1,274	819,400	15.6
North	627	853,150	7.3
Total Metropolitan Sydney	14,193	4,286,250	33.1

Source: SGS Economics and Planning using Employment Lands Development Program and DPE population data

While there should be no attempt to equalise the share by District, because of the different accessibility, lot sizes and characteristics of precincts and because of the diverging demands of users, it does highlight that the north shore industrial precincts, and Artarmon in particular, need careful planning to retain opportunities for service and light industry uses meeting the needs of a growing population. The map below for example shows the significant cluster of automotive employment in Artarmon (mostly within the auto repairs sub-sector, and satisfying population related demand). As the new documentation supporting the draft District Plans points out inner and central ring suburbs still need industrial land, to meet service industry and population needs (2016 Draft District Plans, GSC), with one of the key actions in the District Plans being to clearly define the industrial area. These demands will grow in the Northern District and the industrial land at Artarmon represents one of the few precincts where this demand can be met.

FIGURE 12 AUTOMOTIVE JOBS IN THE REGION



Health

Health Care and Social Assistance is a major employer now and is forecast to grow into the future.

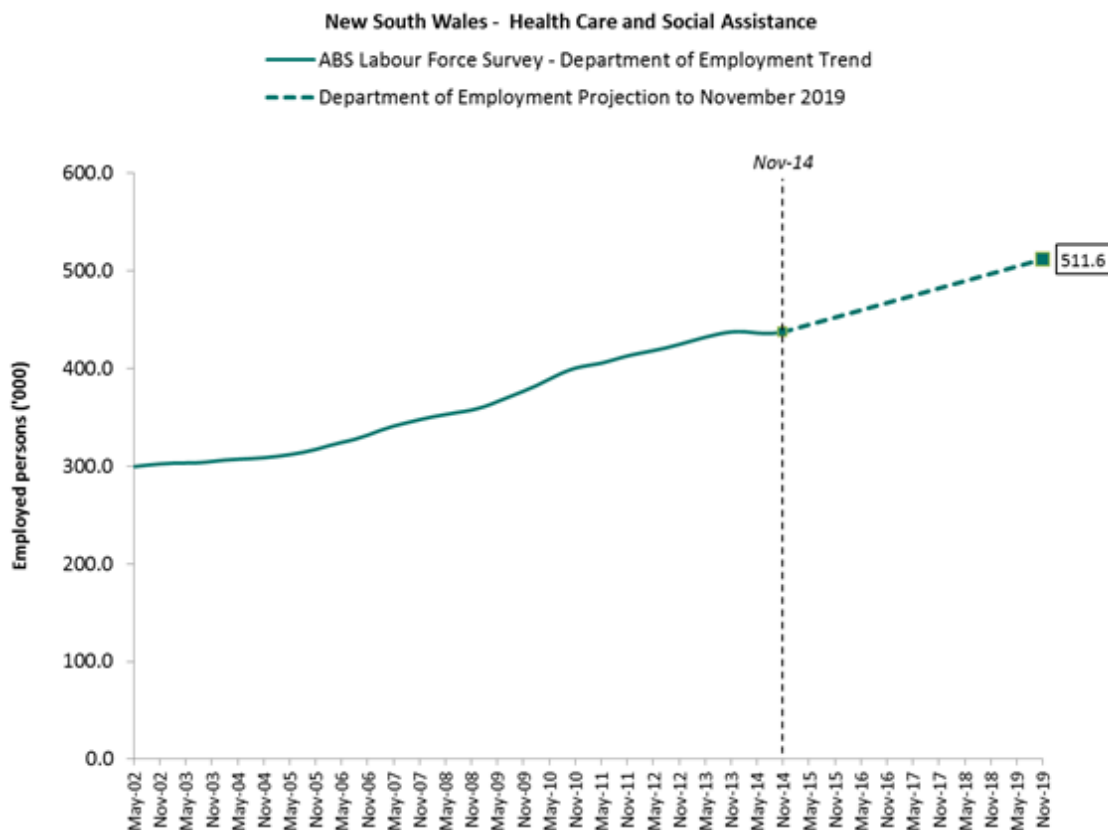
Health Care and Social Assistance is the largest employing industry in Australia, accounting for approximately 12% of jobs nationally. Health Care and Social Assistance is also one of the strongest growing industries. This industry has experienced continued growth over the past decade, due in part to the ageing population. In the five years to November 2014, the Health Care and Social Assistance industry grew by 16% (Department of Employment, 2015), revealing that the industry has experienced continued demand in a period that included an economic downturn (Department of Employment, 2014).

Between November 2014 and November 2019, the Health Care and Social Assistance industry is forecast to grow by 18.7% (Department of Employment, 2015). This growth is forecast to account for 20.9% of all new jobs in Australia over the next five years (Department of Employment, 2015). High growth is also anticipated in New South Wales, with an additional 74,000 jobs forecast from November 2014 to November 2019 (Department of Employment, 2015, see Figure 13).

Driving this growth is an increasing need for health services as the population ages.

Driving this employment growth is the growth in population and associated demand for health services. The population of NSW is expected to grow by approximately two million people (approximately 29.3%) between 2006 and 2031. Growth in bed-days for acute activity in NSW hospitals is expected to grow by 49% over this period (PricewaterhouseCoopers 2012). There is projected demand for approximately an additional 200 acute and 75 sub-acute overnight beds per year to 2021 in public sector hospitals (PricewaterhouseCoopers 2012). An ageing population also increases demand for health services and a growing health industry. On average the health related expenditure per person over 65 is four times that for people under 65 (PricewaterhouseCoopers 2012).

FIGURE 13 EMPLOYMENT IN HEALTH CARE AND SOCIAL ASSISTANCE IN NEW SOUTH WALES



Source: Department of Employment, 2014.

3.2 Summary

As the region's economy continues to evolve, the St Leonards-Artarmon-Crows Nest Precinct is suitably positioned to capitalise in a number of ways.

Australia's increasing reliance on the services sectors means that a skilled, educated labour force is now the key input into a region's economy. The north district possesses some of the most highly skilled and qualified workforces in the country, helping to explain the significant presence of knowledge based jobs in the Precinct.

Whilst the concurrent stagnation and decline of manufacturing has been well documented, it is important to understand the importance of other types of industrial activity. In the north shore context, industrial land is in such short supply that service industry businesses are now serving much larger

catchments than their traditional 'local' role would suggest, elevating them to almost a district level status.

Finally the growing and ageing population of Metropolitan Sydney sees a rapidly escalating trend of increased demand for health services of all types. Now recognised broadly across state and regional planning documents, the growth in demand for not just hospitals but also allied health services means significant consideration of accommodating these uses will be a core consideration of precinct planning.

4 PROFILING THE PRECINCT

This section profiles the Precinct's role and function from an economic and spatial context. It defines the individual characteristics and key strengths of individual sub-precincts. This level of understanding in turn identifies opportunities which can be leveraged into the future.

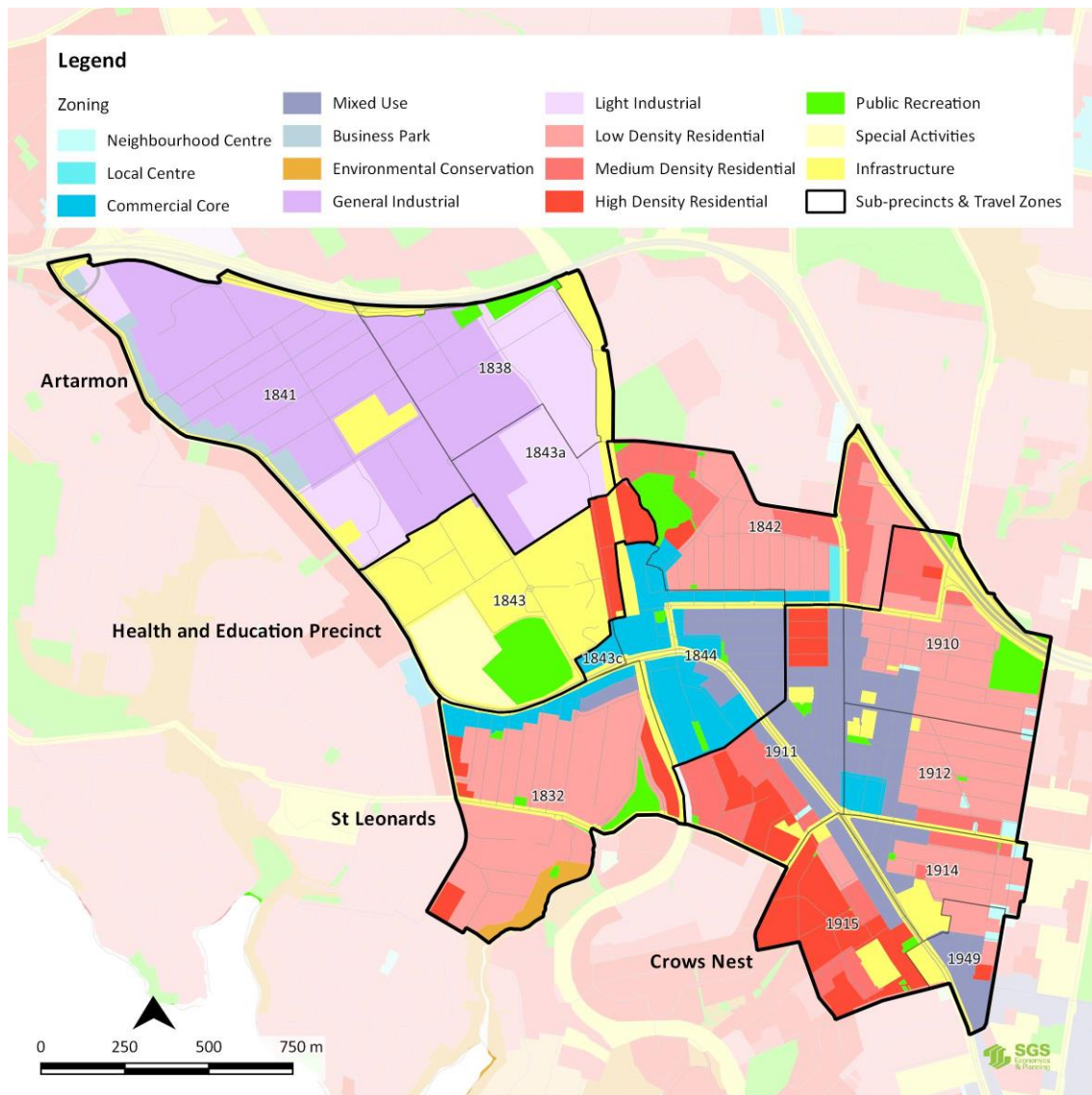
4.1 The Precinct and its attributes

The St Leonards Crows Nest area's location within the metropolis, its relationship to some key employment nodes and hosting of important institutional assets drive the nature of employment growth. These elements present major opportunities which should be recognised and capitalised upon in the strategic planning investigation.

The consolidated map of land use zoning for the Precinct is shown in Figure 20. The map also shows the Precinct divided into four sub-precincts. Two can be classified as Centres (St Leonards with rail station, retail and significant office and surrounding residential development and Crows Nest with local retail, lower scale office and residential), one as a health and education sub-precinct (focussed on the Royal North Shore Hospital), and one an industrial area (Artarmon) albeit that it is gradually evolving into an industrial mixed business and enterprise precinct.

Note that these precinct boundaries have been defined to ensure that economic uses and geographic separations are appropriately captured with the Precinct.

FIGURE 14 PRECINCT WITH ZONING AND PRECINCT BOUNDARIES²



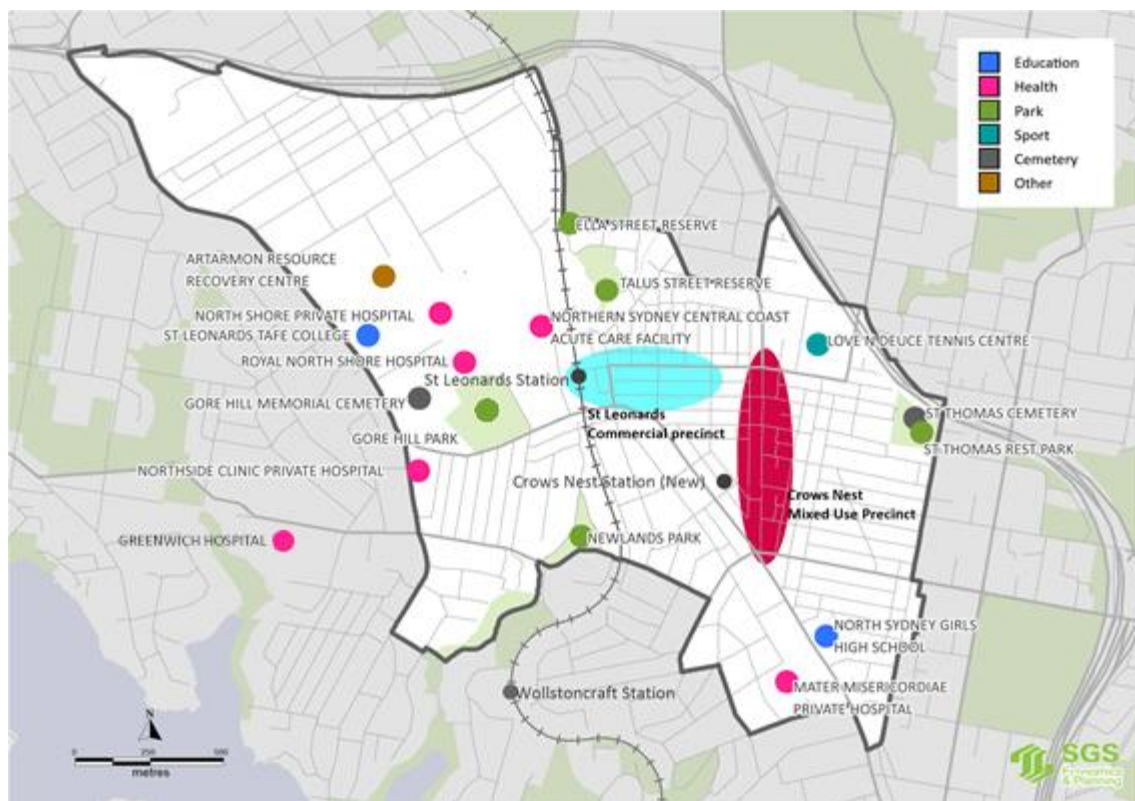
Source: Department of Planning and Environment, 2016; SGS custom modification of BTS Travel Zones

Figure 15 presents a selection of major employment nodes and assets that influence the Precinct's economic trajectory. They can be broadly grouped into three distinct categories –Centres, Health and Education, and Infrastructure Assets.

The precinct possesses access to critical transport infrastructure in the form of the Pacific Highway and existing heavy rail station at St Leonards and proposed Sydney Metro rail station at Crows Nest. An important factor shaping retail and employment opportunities across the precinct has been the heavy rail network. St Leonards has attracted a mixed use and successful retail and mixed use development and has been the focus for public transport travel in the precinct and for the Royal North Shore Hospital. The new station at Crows Nest will also drive change, based on improved access to employment opportunities elsewhere in the metropolis, but also by concentrating foot traffic and retail expenditure for its catchment.

² The numbers within the maps represent BTS Travel Zone codes.

FIGURE 15 URBAN LANDMARKS



Source: SGS 2016

4.2 Precinct employment and industry specialisations

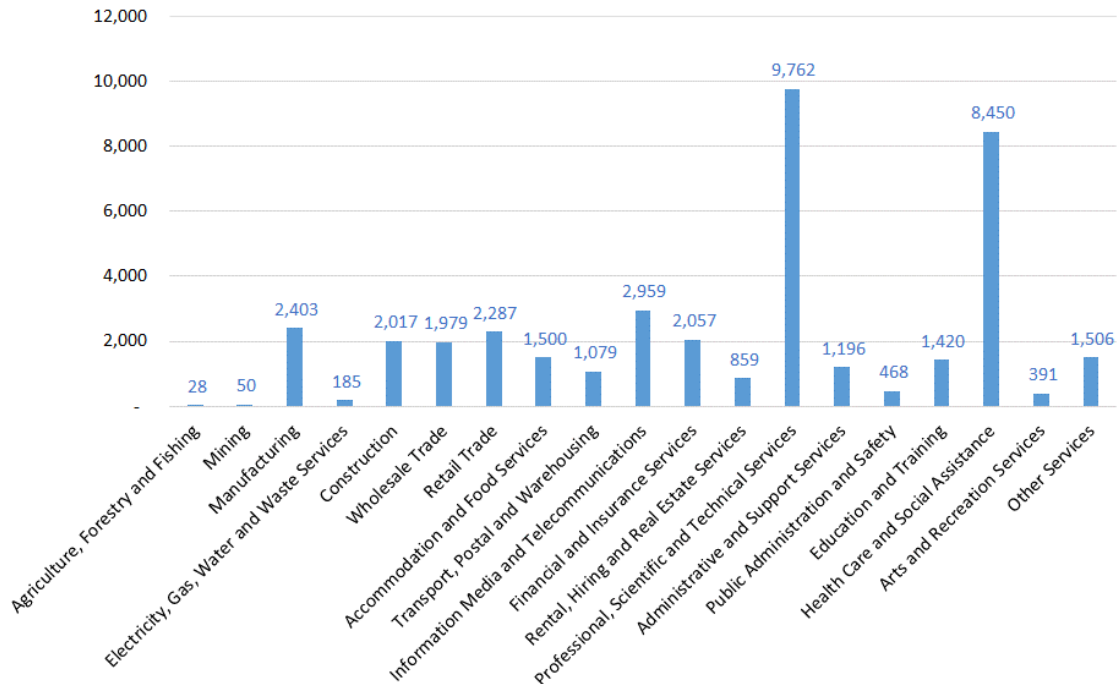
Employment is a key focus for this study, with DPE seeking to refine its planning policy to support employment growth in the Precinct. However, all employment is not the same; land use requirements and drivers are different for different sectors. Broad structural changes in the economy also strongly influence local and regional employment growth. The following sub-section analyses recent employment trends across the employment sub-precincts. It draws on ABS Census employment data by travel zone which SGS has aligned over Census periods and adjusted for undercounts.

Overall trends

Employment by industry type for the whole Precinct is presented in Figure 16 below. Broadly, across the total jobs of 40,596 (in 2011) the St Leonards Precinct has a notable over representation of health care (21%) and the professional services (24%), along with a relatively even distribution in most other urban employment uses.

Other notable industries include Information Media and Telecommunications (7%) and Manufacturing (6%) – both clustered in the Artarmon area and (to a lesser extent) the St Leonards centre.

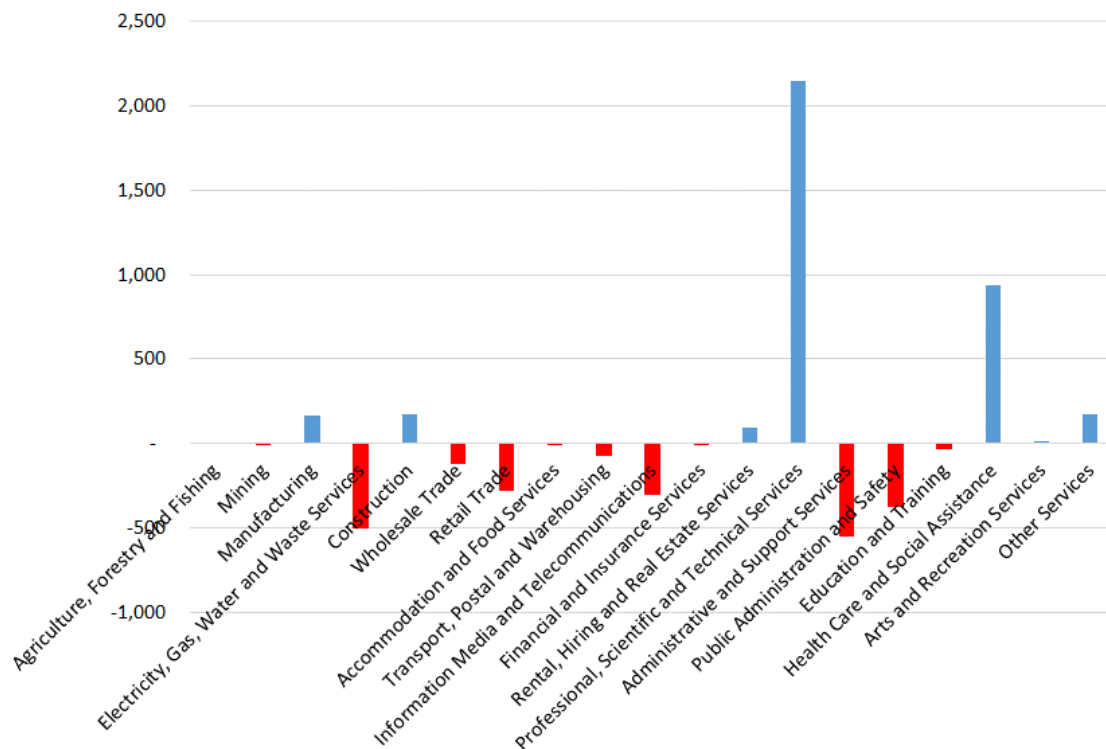
FIGURE 16 TOTAL JOBS IN PRECINCT IN 2011



Source: SGS derived from ABS Census

Employment grew by 1,451 jobs between 2006 and 2011. Figure 17 shows that the two dominant industries of Professional services and Health Care continued to expand, whilst Manufacturing has also gained ground in the five year period. Whilst the growth in Manufacturing has been modest, it is still significant, as employment in this sector has declined across most other parts of Sydney and NSW since 2006.

FIGURE 17 CHANGE IN EMPLOYMENT BY INDUSTRY 2006 TO 2011



Source: SGS derived from ABS Census

Spatial distribution

The structural changes in employment detailed so far in this report have implications for the spatial distribution of employment across the Precinct. Understanding how these changes manifest at a local level is important when planning the future of employment related land uses.

Table 3 lists the four broad industry groups that have been used by the GSC to describe economic change and trends in the draft District Plans, and the detailed industry classifications which they comprise.

TABLE 3 EMPLOYMENT GENERAL CONCORDANCE

Broad industry category	ANZSIC 2006 industry classification
Knowledge Intensive	Information Media and Telecommunications, Financial and Insurance Services, Rental, Hiring and Real Estate Services, Professional, Scientific and Technical Services, Administrative and Support Services, Public Administration and Safety
Population Serving	Retail Trade, Accommodation and Food Services, Arts and Recreation Services, Other Services ³ , Construction
Health & Education	Education, Health Care and Social Assistance
Industrial	Agriculture, Forestry and Fishing, Mining, Manufacturing, Electricity, Gas, Water and Waste Services, Wholesale Trade, Transport Postal and Warehousing

Source: SGS for GSC

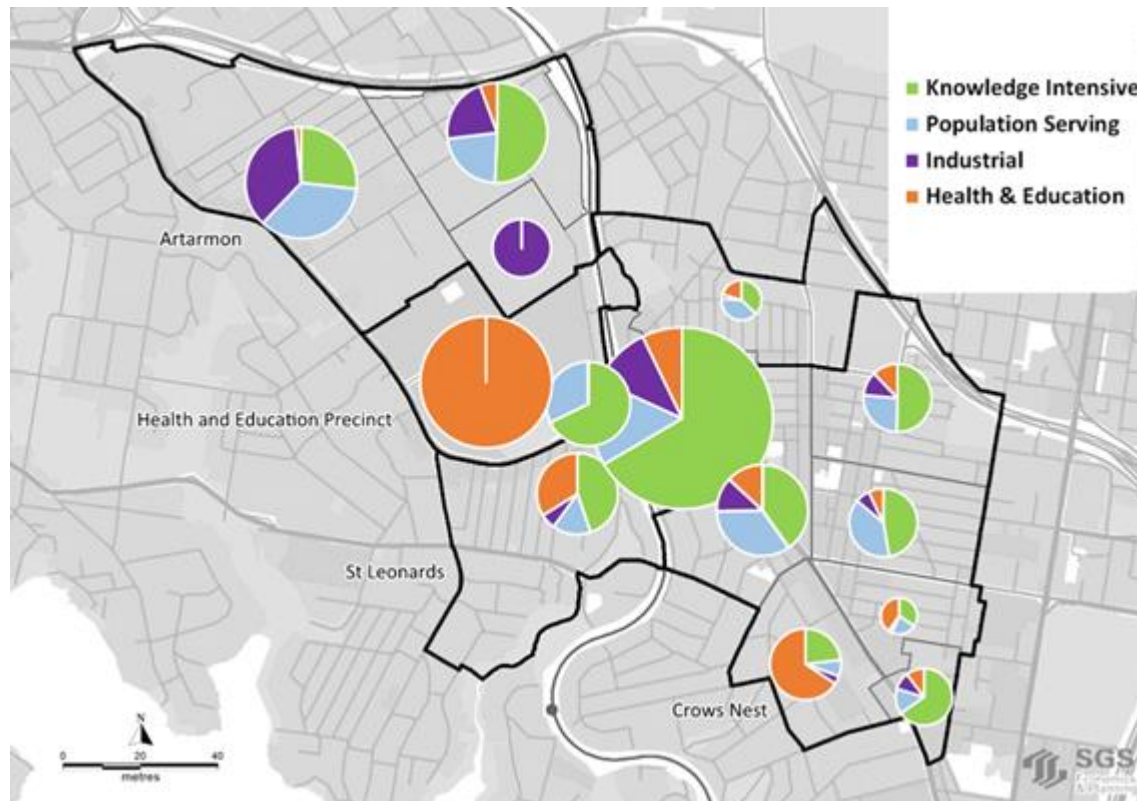
Transport and Spatial Analytics (TPA) has created small area (travel zone) based estimates of employment and these have been used to identify the distribution of employment across the employment sub-precincts by the four broad industry categories in Figure 18. The size of the dot represents the amount of employment in each Travel Zone with the segments reflecting the aggregated

³ Includes Urban Services

industry composition. From this map it can be seen that employment is relatively evenly distributed across the Precinct. While knowledge intensive jobs dominate the Precinct, it still plays a multifunctional role, with a population serving function as well as an innovative, export type role that encompasses a range of business with interstate as well as international clientele.

In both categories, businesses do more than just serve the local catchment. Consultation with firms in Artarmon and St Leonards found that the population serving businesses had relationships with customers across the North Shore. Many of the knowledge intensive export businesses meanwhile, had a client base across Australia and the Asia-Pacific.

FIGURE 18 DISTRIBUTION OF BROAD EMPLOYMENT USES ACROSS THE PRECINCT



Industry specialisation

Further insights to the strategic clustering in this Precinct can be gained by categorising the employment sectors by their location quotient (LQ). The LQ is given by the proportional representation of the sector in the Precinct versus the proportional representation of the sector in the North District of Sydney. An LQ of greater than 1.0 signifies that the Precinct has a specialisation and competitive advantage in the sector, as it has a greater than average representation of economic activity in the area in question.

Here the LQ is analysed for nine specific industries (as opposed to the four broad categories), in order to gain a more in depth understanding of the relative significance of specific industries.

This analysis is shown in Figure 19. The top right box is of particular importance. It covers those industries where the Precinct has a competitive advantage. Digital and Media possesses an LQ of nearly 1.93, which demonstrates its competitive advantage in the region.

Further detail can be gleaned from the coloured bars. For each industry, there are three sub-precincts analysed (A for Artarmon, CN for Crows Nest and StL for St Leonards). The height of the bar provides an indication of the extent of that industry's significance, based on its share of total jobs in the North District (to the left) and in the precinct (to the right).

FIGURE 19 CONTRIBUTION OF PRECINCT TO COMPETITIVE ADVANTAGE (LQ)



Industry clusters

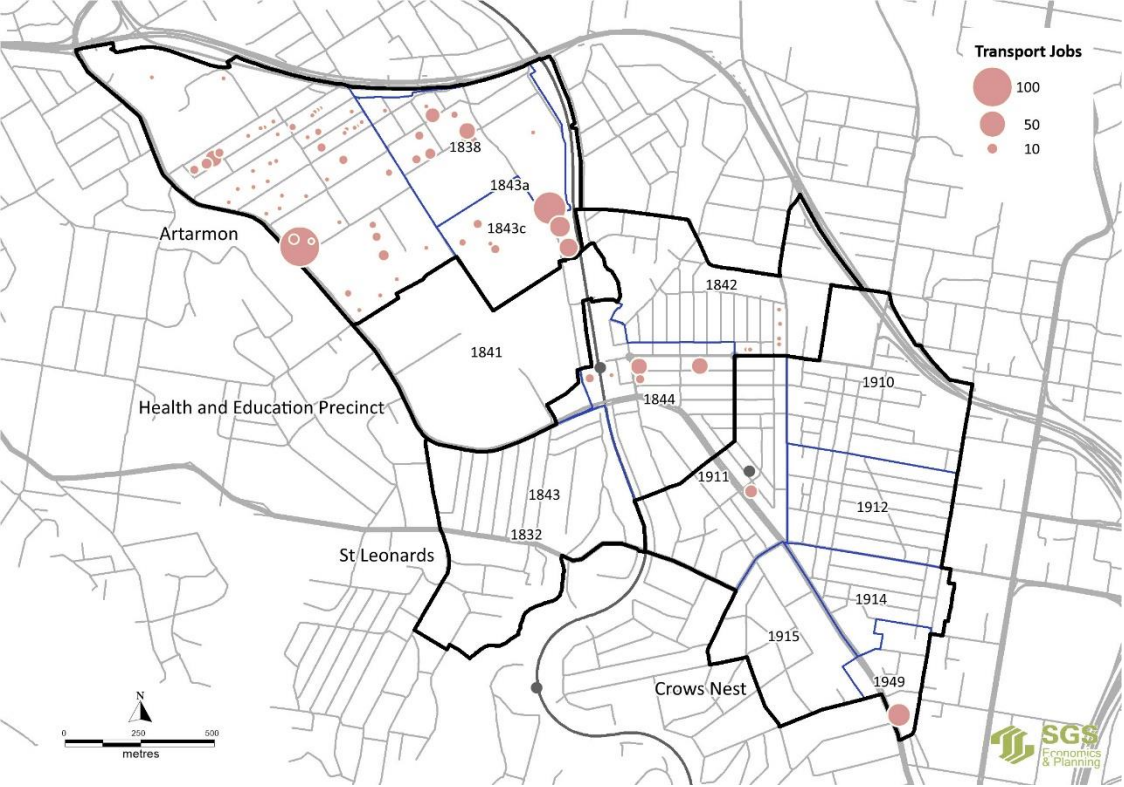
Figure 20 (A to I) provides industry breakdowns of audited employment clusters across the Precinct. Key observations include:

- A manufacturing cluster in Artarmon (as expected), but also in the St Leonards Centre. There is a distinction between the two however, with the manufacturing activities in Artarmon employing mostly labourers and machine operators, whereas St Leonards possesses in excess of 500 ‘white collar’ manufacturing jobs, with employees performing managerial, sales and administrative functions of manufacturing enterprises⁴.
- IT/Publishing jobs which are predominantly clustered around the South Eastern edges of Artarmon and the St Leonards centre, though they are also represented elsewhere. The consultation with businesses found that proximity to St Leonards Station was a major factor in the emergence of many of these businesses over the past three to five years. In the Artarmon case, the ability to co-locate the head office with a warehouse or factory facility was identified as an important advantage for local businesses.
- Population serving (service) jobs, which as expected, have a significant presence in the St Leonards and Crows Nest Centres. However their presence in Artarmon should also be noted, because the volume of service industry floorspace and employment suggests that the precinct plays a regional role across the North Shore. Indeed, the consultation found that many of the service businesses in Artarmon are able to draw customers from across the Metropolitan area, with businesses relocating from precincts such as Hornsby and Alexandria – while still retaining their old clientele in the process. This includes the automotive sector, as well as other population serving activities such as construction and maintenance.
- Health jobs, which are understandably clustered around the Royal North Shore and Mater Hospitals. This is common to health precincts, with the hospitals not only accommodating a significant presence of employment on-site, but also underpinning a cluster of allied health business on surrounding sites. There are also hundreds of health service jobs located within the St Leonards and Crows Nest centres – all of which makes health a significant feature right across the broader precinct’s economy.

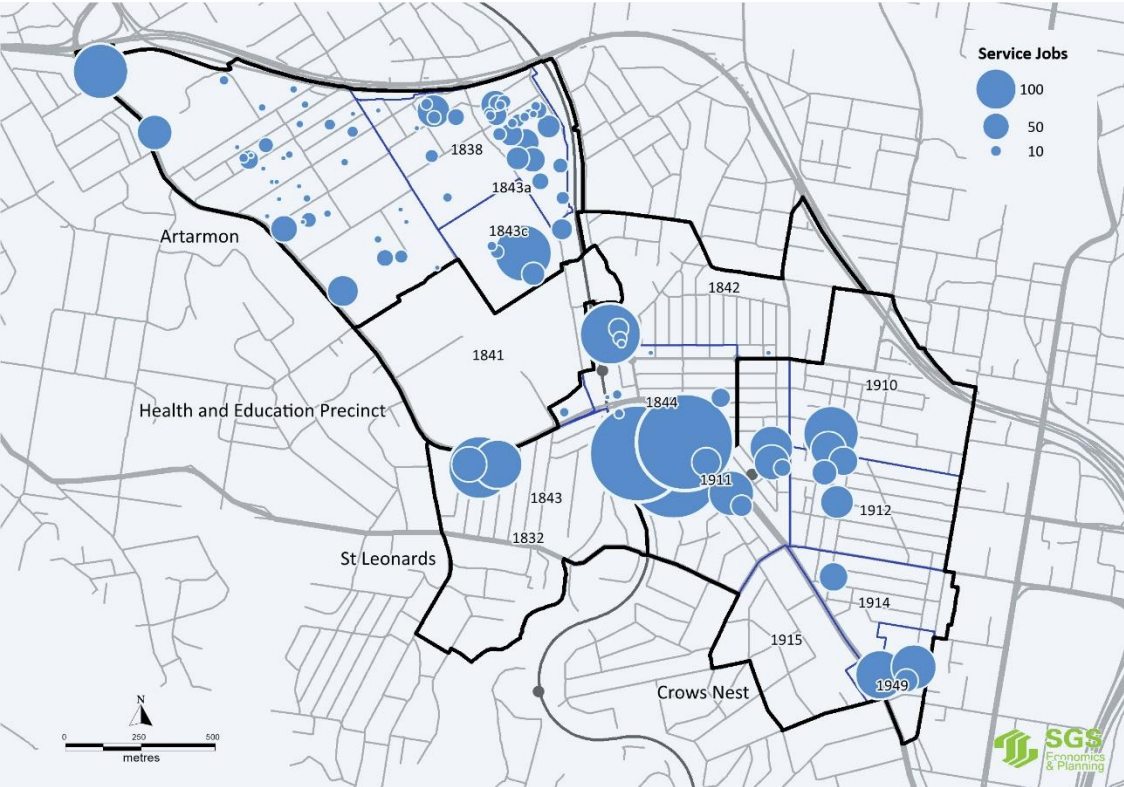
⁴ Source: SGS Audit, ABS Census 2011

FIGURE 20 EMPLOYMENT CLUSTERS ACROSS ARTARMON-ST LEONARDS-CROWS NEST
BY VARIOUS LAND USES

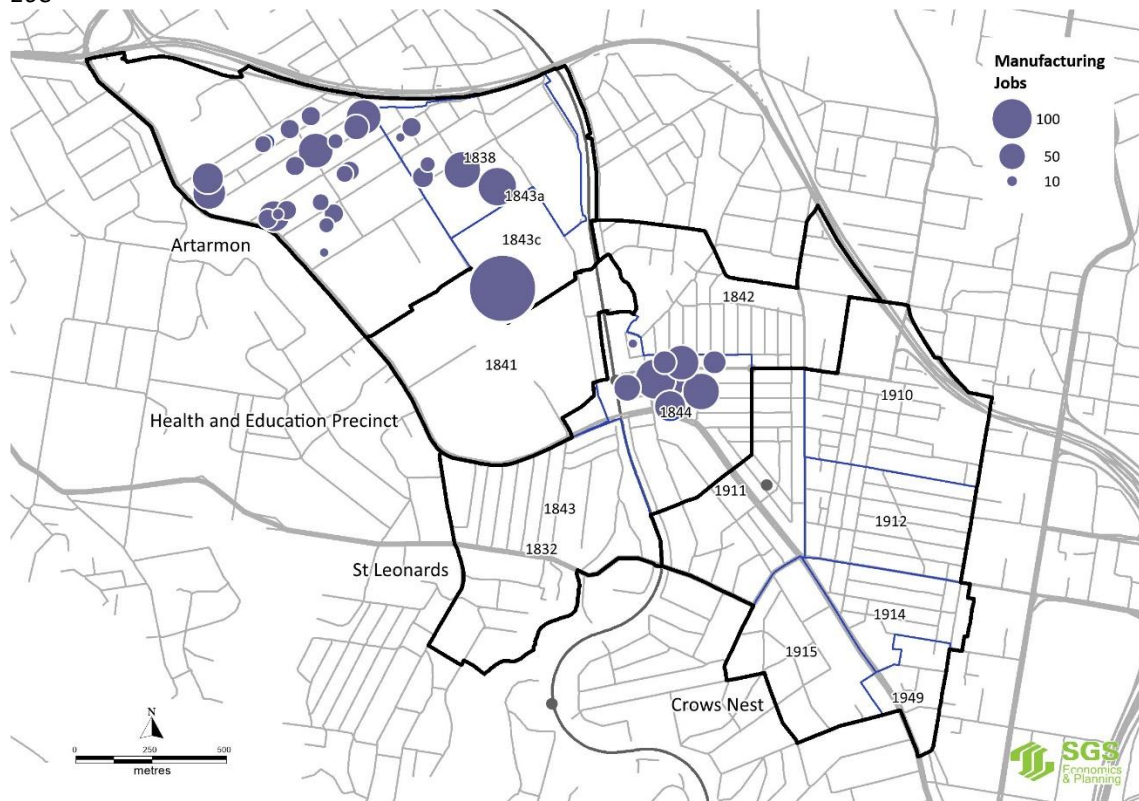
26A



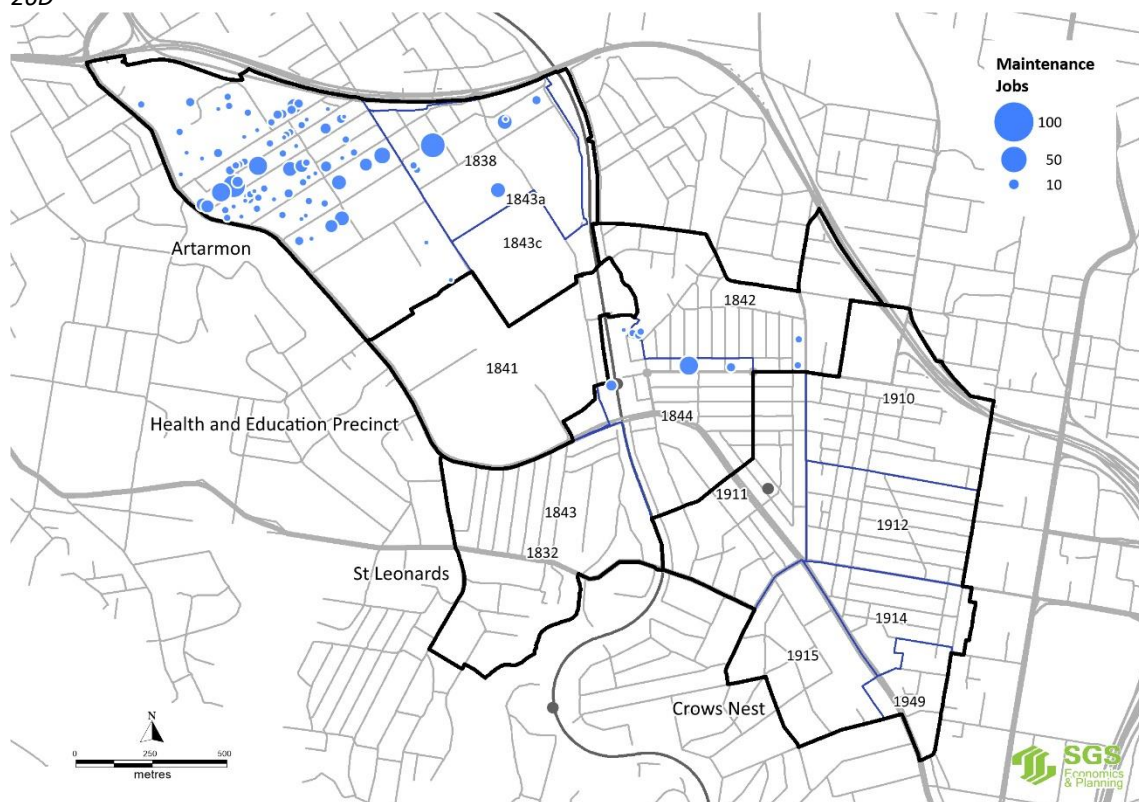
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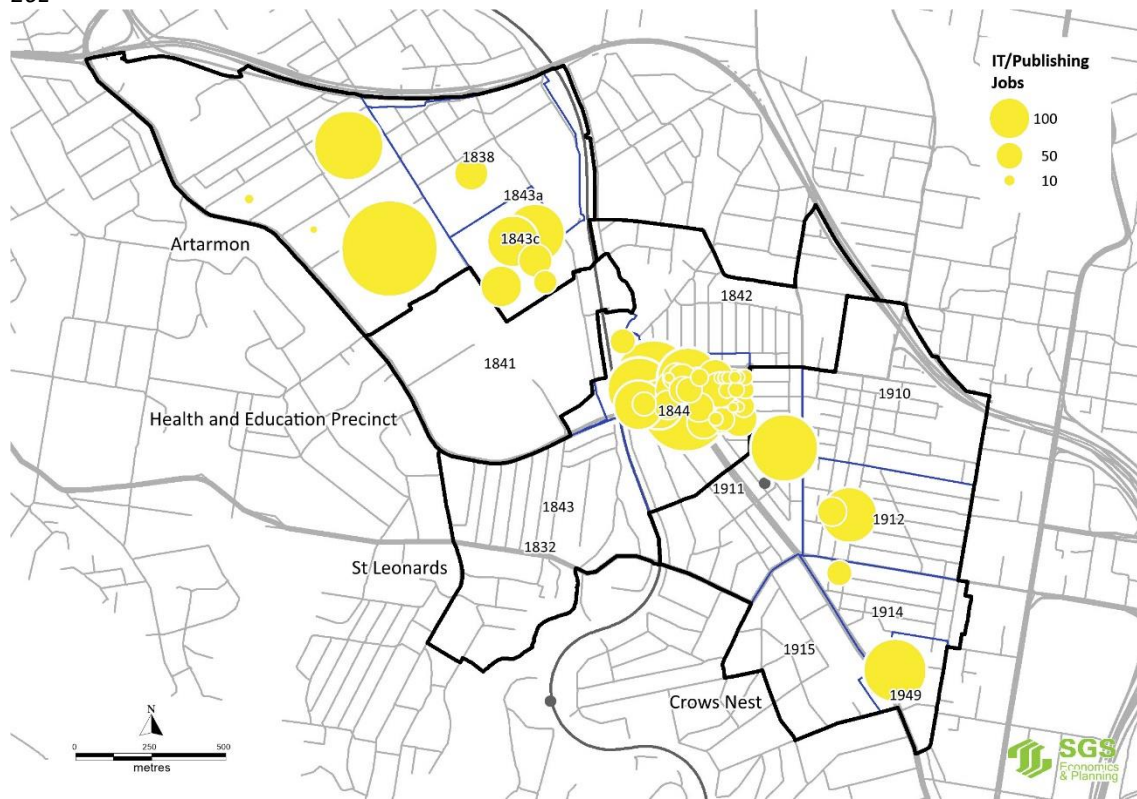
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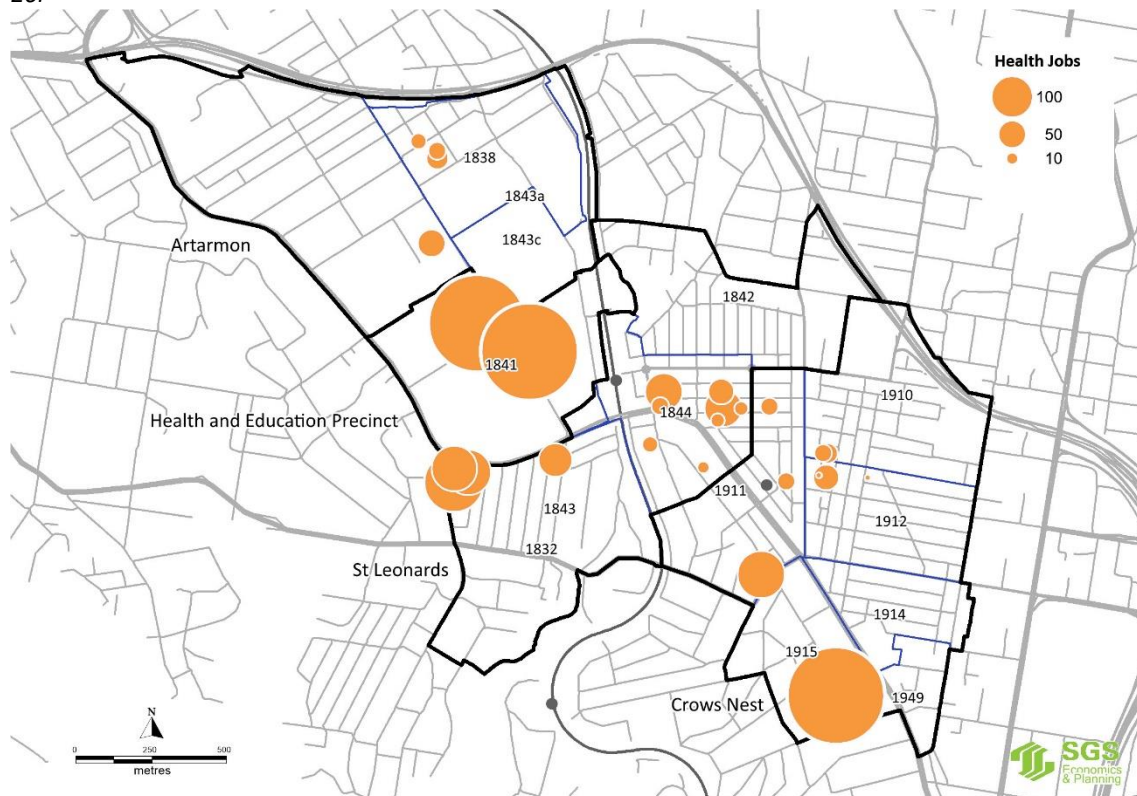
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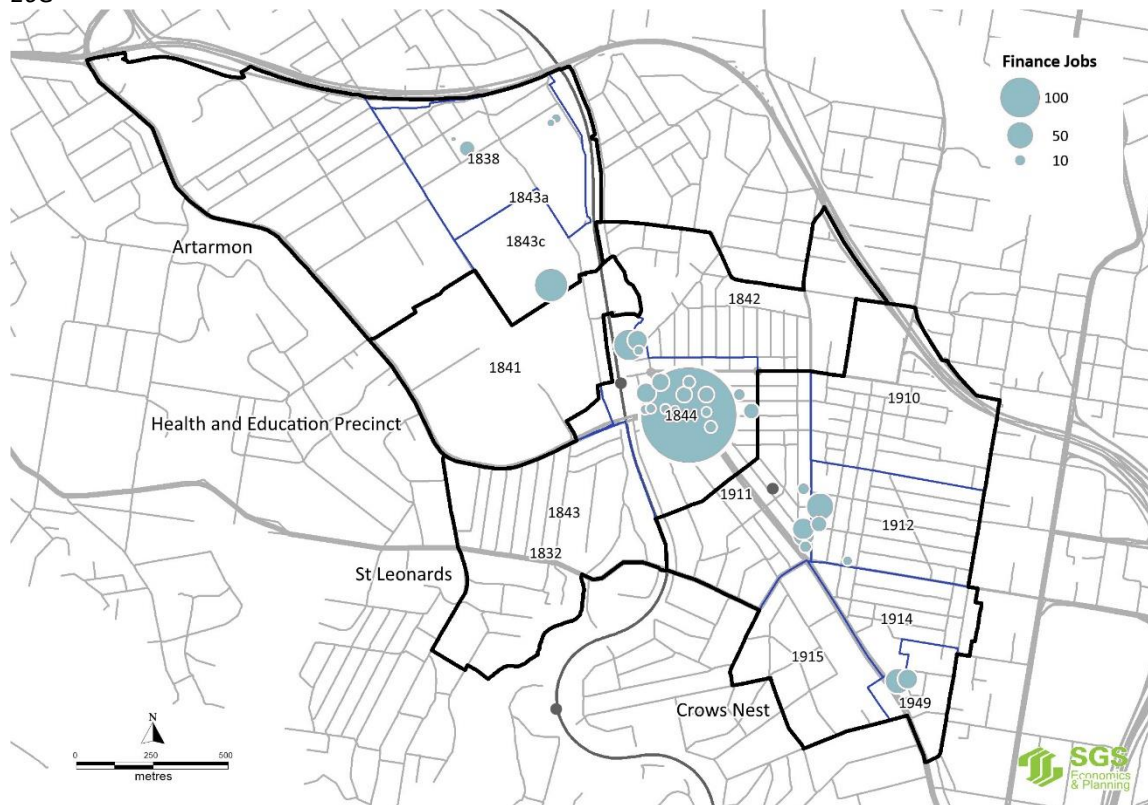
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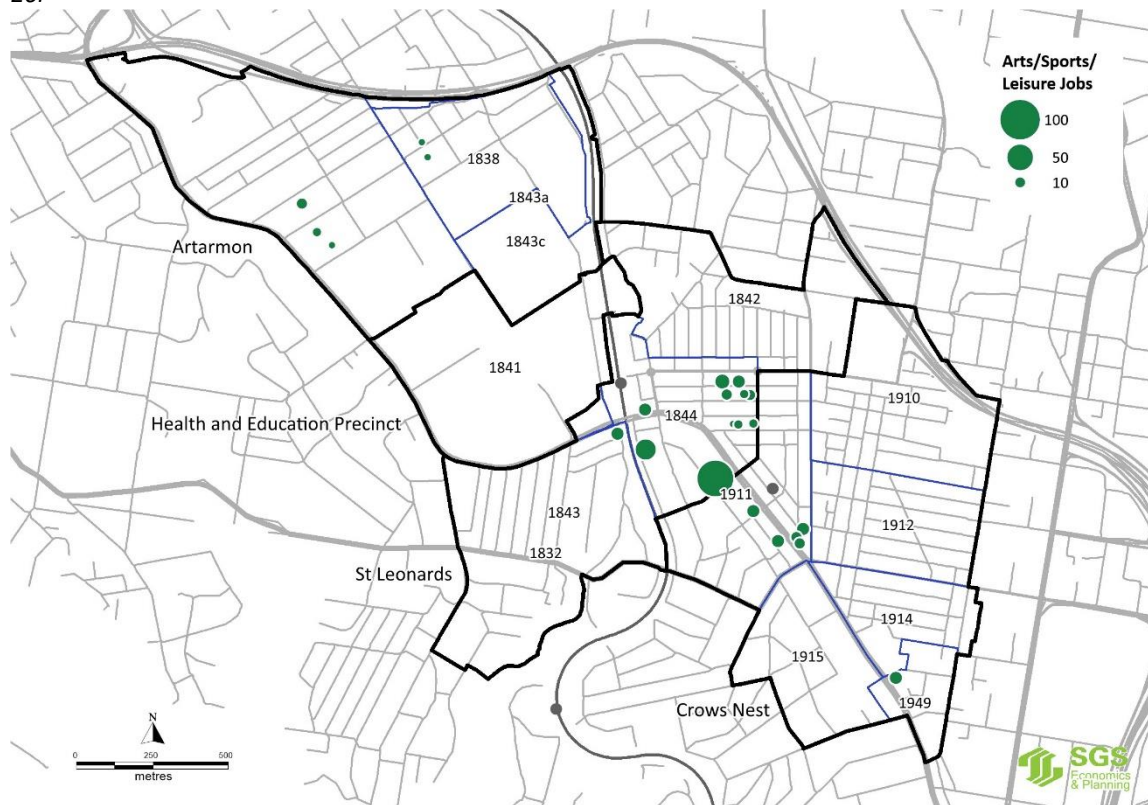


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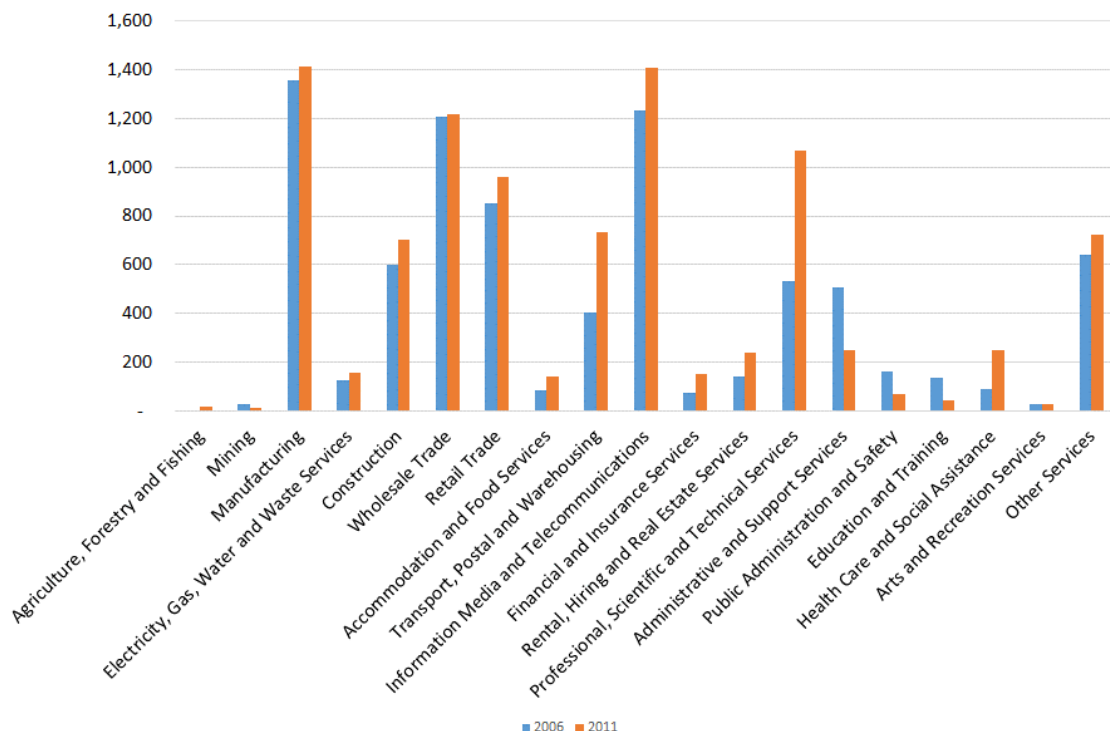
4.3 Sub-precinct by sub-precinct

Artarmon

Employment by industry

Artarmon is predominant an industrial zoned sub-precinct located within Willoughby LGA. Figure 21 shows employment by industry in Artarmon from 2006 to 2011. The sub-precinct is characterised by its depth and diversity of industries and employment. Growth has been occurring in most sectors but particularly manufacturing, information and media professional services, retail and wholesale. In 2011, the Artarmon industrial sub-precinct (including Gore Hill) contained 7,800 jobs, up from 6,800 jobs in 2006. That growth pattern has continued, with 10,700 jobs now in the sub-precinct as of 2016.

FIGURE 21 ARTARMON, EMPLOYMENT BY INDUSTRY 2006 TO 2011



Floorspace

Consistent with the employment profile Artarmon contains a significant mix of floorspace that ranges from office uses to light industry. There are two key, notable clusters of activity in the sub-precinct. One is the large number of service industry businesses to the north-west, playing a significant auto repairs role for the region/North District.

The other identifiable cluster is an emerging professional services and IT precinct in the south east of the sub-precinct. Consultation with local businesses in this sub-precinct indicated that the amenity of Herbert Street, walking access to St Leonards Station and the ability to co-locate a warehouse with an office on the one site is driving the emergence of this area as an IT hub.

The vacancy rate of 3.7% is considered extremely low for an industrial precinct, and if anything, prevents sufficient turnover of land uses as new businesses look to locate in the area.

FIGURE 22 AUDITED LAND USES IN ARTARMON EMPLOYMENT SUB-PRECINCT

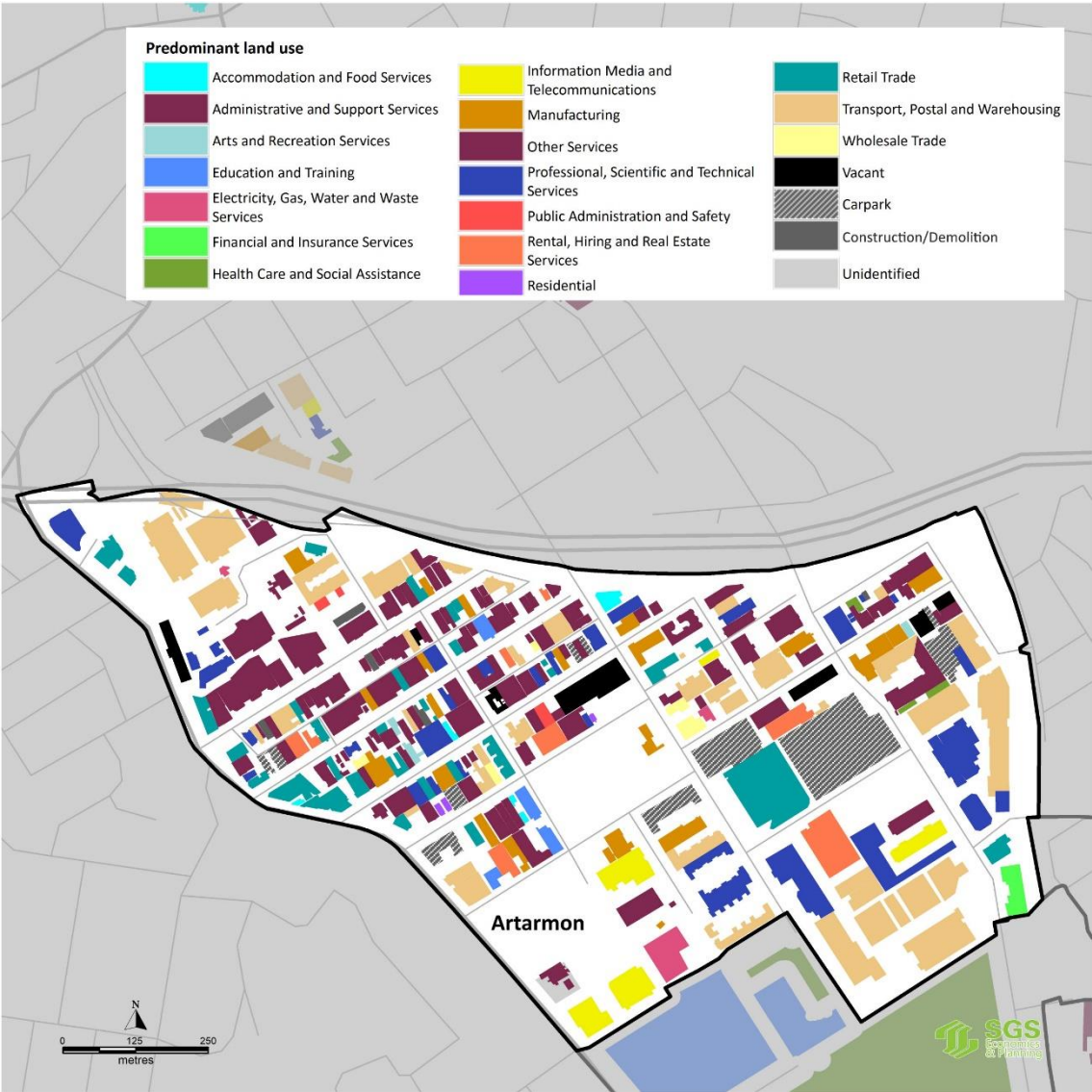


TABLE 4 TABLE OF AUDITED LAND USES IN ARTARMON

ANZSIC 1-Digit Industry	Floorspace	Proportion
Transport, Postal and Warehousing	104,550	18.1%
Administrative and Support Services	100,385	17.4%
Professional, Scientific and Technical Services	88,400	15.3%
Retail Trade	61,710	10.7%
Other Services	59,415	10.3%
Information Media and Telecommunications	51,340	8.9%
Manufacturing	27,625	4.8%
Rental, Hiring and Real Estate Services	12,155	2.1%
Financial and Insurance Services	8,245	1.4%
Wholesale Trade	7,990	1.4%
Electricity, Gas, Water and Waste Services	7,650	1.3%
Education and Training	6,630	1.1%
Accommodation and Food Services	4,845	0.8%
Public Administration and Safety	4,505	0.8%
Health Care and Social Assistance	1,615	0.3%
Arts and Recreation Services	1,530	0.3%
Mining	170	0.0%
Total Occupied	548,760	94.9%
Vacant	21,335	3.7%
Construction/Demolition	7,990	1.4%
Total Supply	578,085	100.0%
Residential	1,400	
Carpark	155,800	
Hardstands	-	

Employment context

There are a number of advantages - and some disadvantages - associated with the location of the Artarmon industrial sub-precinct which were identified by SGS in the 2016 Willoughby Economic Development Study.

In summary the advantages of the Artarmon industrial sub-precinct were identified as follows:

- The industrial area is one of only a few in the North District (as discussed earlier). As a result it has strategic value in terms of retaining the opportunity for those businesses that require a location within an industrial zone buffered from more sensitive uses such as residential.
- The industrial area is located on the north edge of St Leonards, and provides a valuable, alternative 'non-centre' business location with the southern part of the industrial area within walking distance of St Leonards Station.
- The northern parts of the industrial area are within an 800 metre walking distance of the Artarmon local shopping centre and railway station. However, the M1 Motorway provides an effective barrier in that direction.
- At the intersection of the Pacific Highway and the M1 Motorway, the sub-precinct has excellent access to the metropolitan arterial road network, both in a north-south as well as an east-west direction, including access to Port Botany and Sydney airport. This accessibility was greatly enhanced by the construction of the Lane Cove Tunnel.
- The industrial area is well buffered from sensitive residential and other uses in most directions and does not have interface issues. The Pacific Highway to the west, M1 Motorway to the north and

railway line to the east provide effective long term buffers to sensitive uses and clearly define the area in those directions. The George Place area on the north side of the Freeway (not included in the Precinct) is an exception. It is an isolated pocket of industrial land that is located in an otherwise residential precinct.

- There appear to be synergies between the industrial zone and the hospital precinct. Close to Royal North Shore Hospital there are several of medical industry related manufacturers; including one of the sub-precinct's largest manufacturers Stryker (7,500 sqm).

The disadvantages associated with the Artarmon industrial sub-precinct were noted as follows:

- Artarmon predominantly consists of smaller sized sites, less than 2,500 sqm. If businesses grow beyond these requirements, they generally relocate, often to Lane Cove or further west. There are also fewer opportunities for purpose built industrial space, which deters larger corporations, who tend to move to Macquarie Park or Lane Cove.
- Some stock is outdated for modern businesses, and with fragmented ownership redevelopment can be challenging, but this also provides opportunities for business start-ups.
- Given lot sizes in the central part of the sub-precinct, business expansion may require the purchase of the next door unit or site, which could lead to two entrances, two offices etc., creating unnecessary dead space.

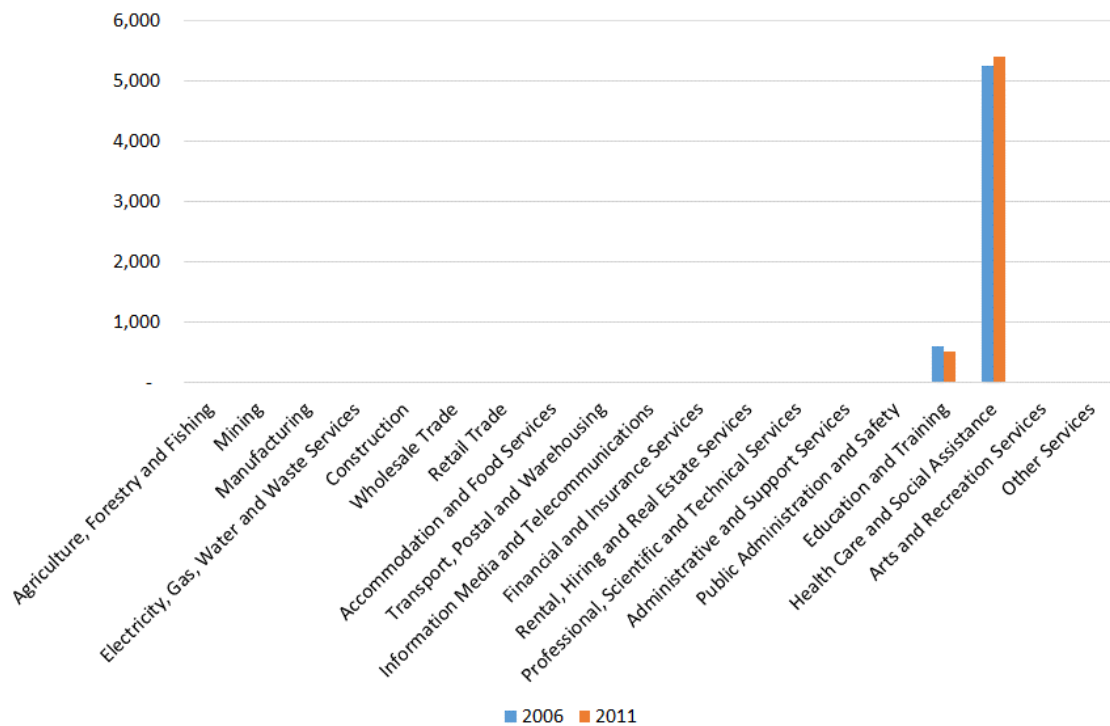
Overall the Economic Development Study emphasises Artarmon's strategic economic role. It is a successful mixed business sub-precinct, and provides rare opportunities for service and light industry, start-ups, urban services activities, urban manufacturing and more advanced technology focussed businesses. Its location is key, with good public transport access, immediate connections to Sydney's motorway system, proximity to professional and executive labour, and nearby business service nodes in Chatswood, St Leonards, North Sydney the Sydney CBD. It has excellent separation from residential development (provided by major roads and rail) and provides an environment for 24 hour operations without the prospect of complaints, which is rare in inner-city Sydney locations.

Health & Education Sub-precinct

Employment by industry

Figure 23 shows employment by industry in the Health and Education sub-precinct from 2006 to 2011. Not surprisingly the sub-precinct is dominated by health and education sector employment. In 2011, the Health and Education sub-precinct contained 5,921 jobs, up from 5,857 jobs in 2006. This represents around a one percent increase over the 5 years.

FIGURE 23 HEALTH AND EDUCATION PRECINCT, EMPLOYMENT BY INDUSTRY 2006 TO 2011



Floorspace

The Health and Education sub-precinct primarily consists of the Royal North Shore Hospital, the Bradfield Senior College and the Northern Sydney Institute of TAFE, shown in Figure 24.

FIGURE 24 AUDITED LAND USES IN HEALTH & EDUCATION SUB-PRECINCT



TABLE 5 TABLE OF AUDITED LAND USES IN HEALTH AND EDUCATION SUB-PRECINCT

ANZSIC 1-Digit Industry	Floorspace	Proportion
Education and Training	232,390	51.4%
Health Care and Social Assistance	219,300	48.6%
Total Occupied	451,690	100.0%
Vacant *	-	0.0%
Construction/Demolition	-	0.0%
Total Supply	451,690	100.0%
Residential	-	
Carpark	-	
Hardstands	-	

* The Royal North Shore Hospital master plan fact sheet confirms there is significant capacity for expansion within the buildings on its sites (though none are vacant as such).

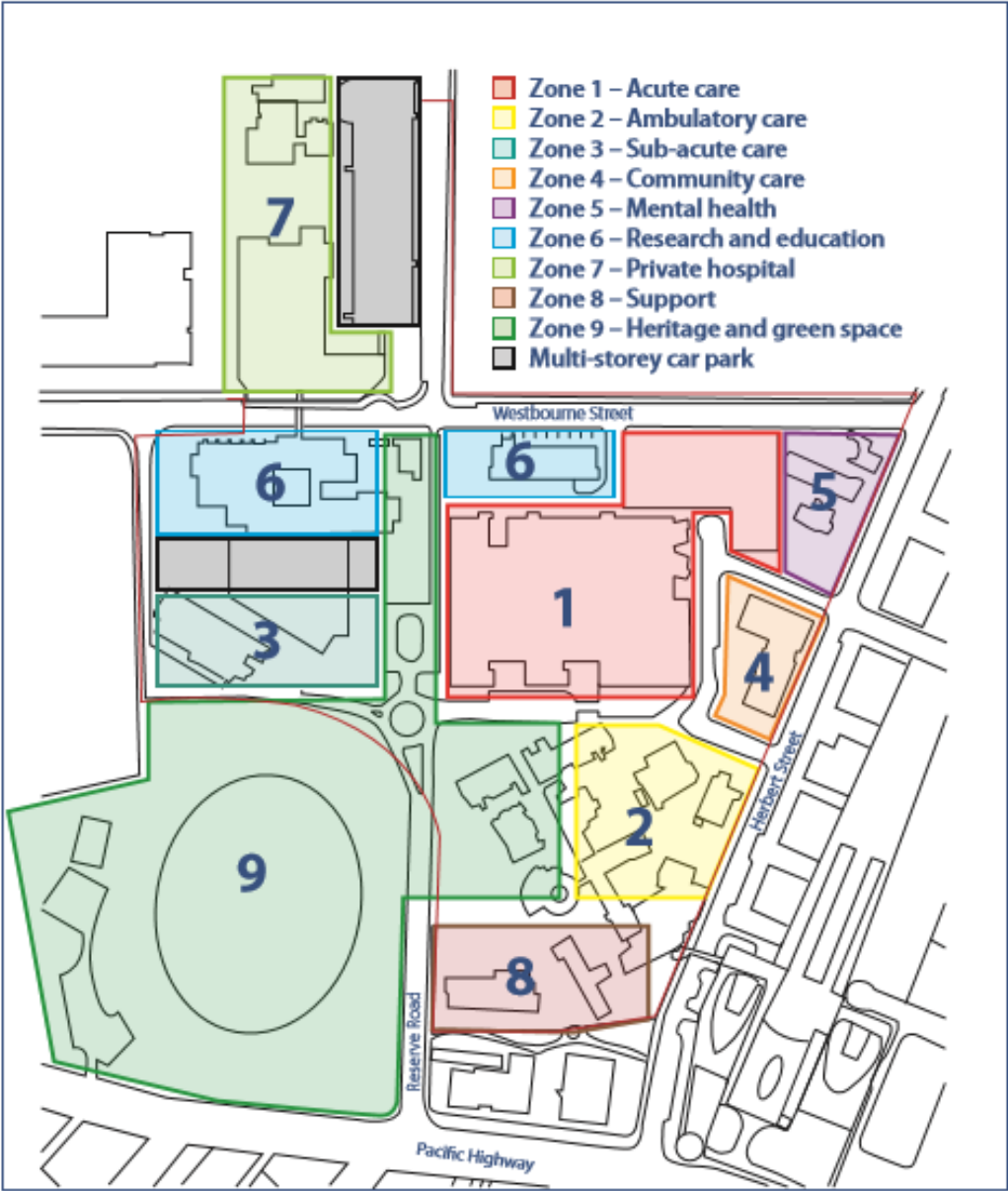
Employment context

Established in 1885, Royal North Shore Hospital (RNSH) and its associated health services principally serve the local government areas of Mosman, Willoughby, Lane Cove and North Sydney. RNSH is a tertiary teaching hospital of the University of Sydney (medicine, allied health), University of Technology, Sydney (nursing), and Australian Catholic University (nursing and allied health).

Developed in line with the 2012 Clinical Services Plan, the RNSH master plan organises the campus into nine zones (see Figure 23). It doesn't prescribe building styles or sizes or the number of car park spaces. The nine zones allow for future expansion of all services, including clinical services.

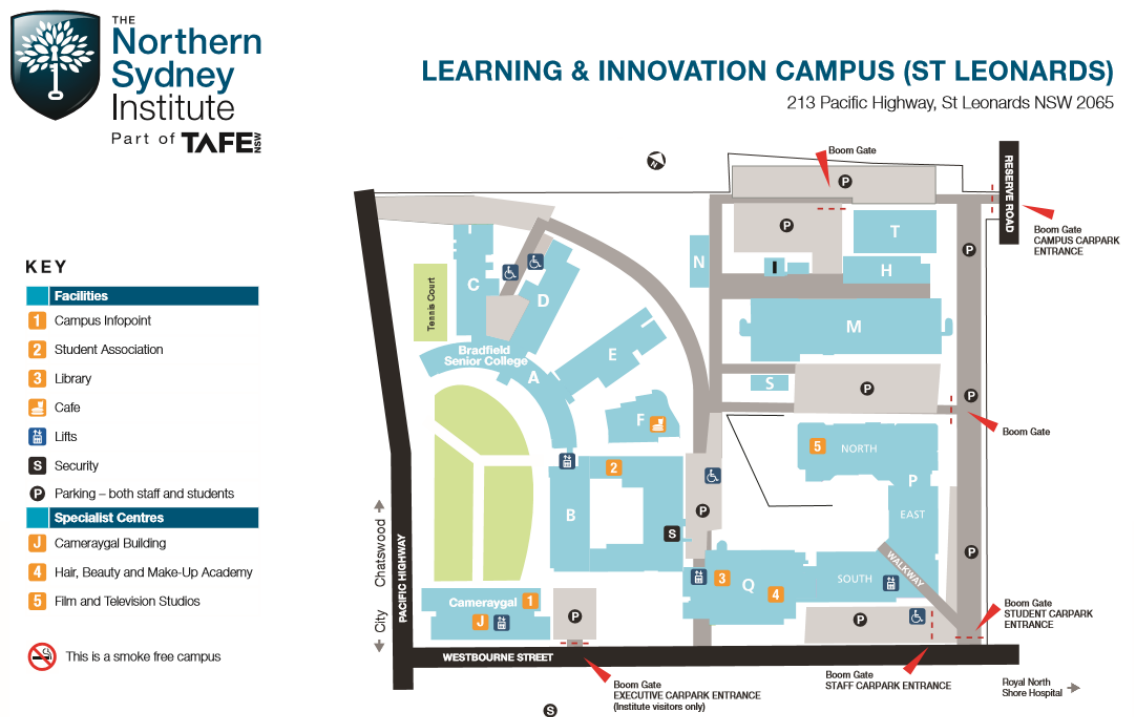
The Northern Sydney Institute of TAFE and the associated Bradfield Senior College (Years 11 and 12) are the other uses on this site (see Figure 24).

FIGURE 25 ROYAL NORTH SHORE HOSPITAL MASTER PLAN



Source: NSLHD

FIGURE 26 NORTHERN SYDNEY INSTITUTE OF TAFE SITE PLAN



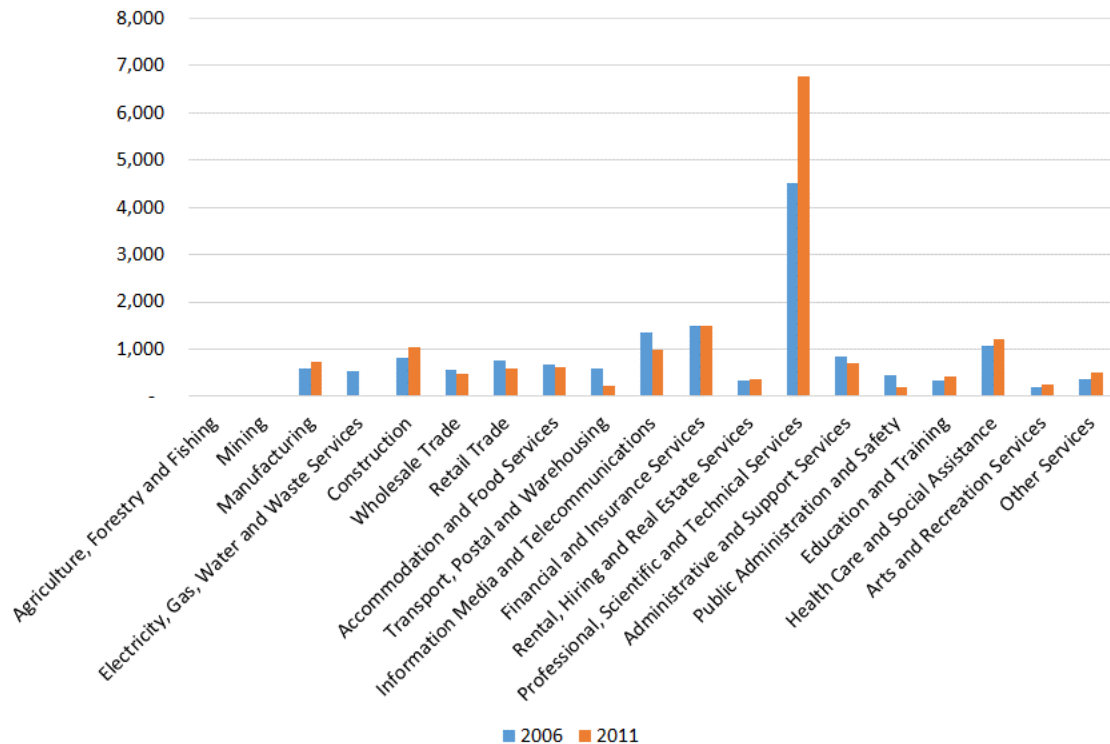
Source: http://www.nsi.tafensw.edu.au/Downloads/colleges/Maps/2016_st-leonards-campus-map.pdf

St Leonards sub-precinct

Employment by industry

Figure 27 shows employment by industry for the St Leonards sub-precinct. In 2011, the St Leonards sub-precinct contained 16,642 jobs, up from 15,481 jobs in 2006, representing a 7% increase.

FIGURE 27 ST LEONARDS, EMPLOYMENT BY INDUSTRY 2006 TO 2011



Employment in St Leonards is predominantly in the Professional, Scientific and Technical Services with 8,700 jobs or 27 per cent of total employment. To some extent it is an extension of the North Sydney office market.

Health Care and Social Assistance is the next largest area of employment with 8,200 jobs or 25 per cent of total employment.

Some other key statistics for St Leonards include:

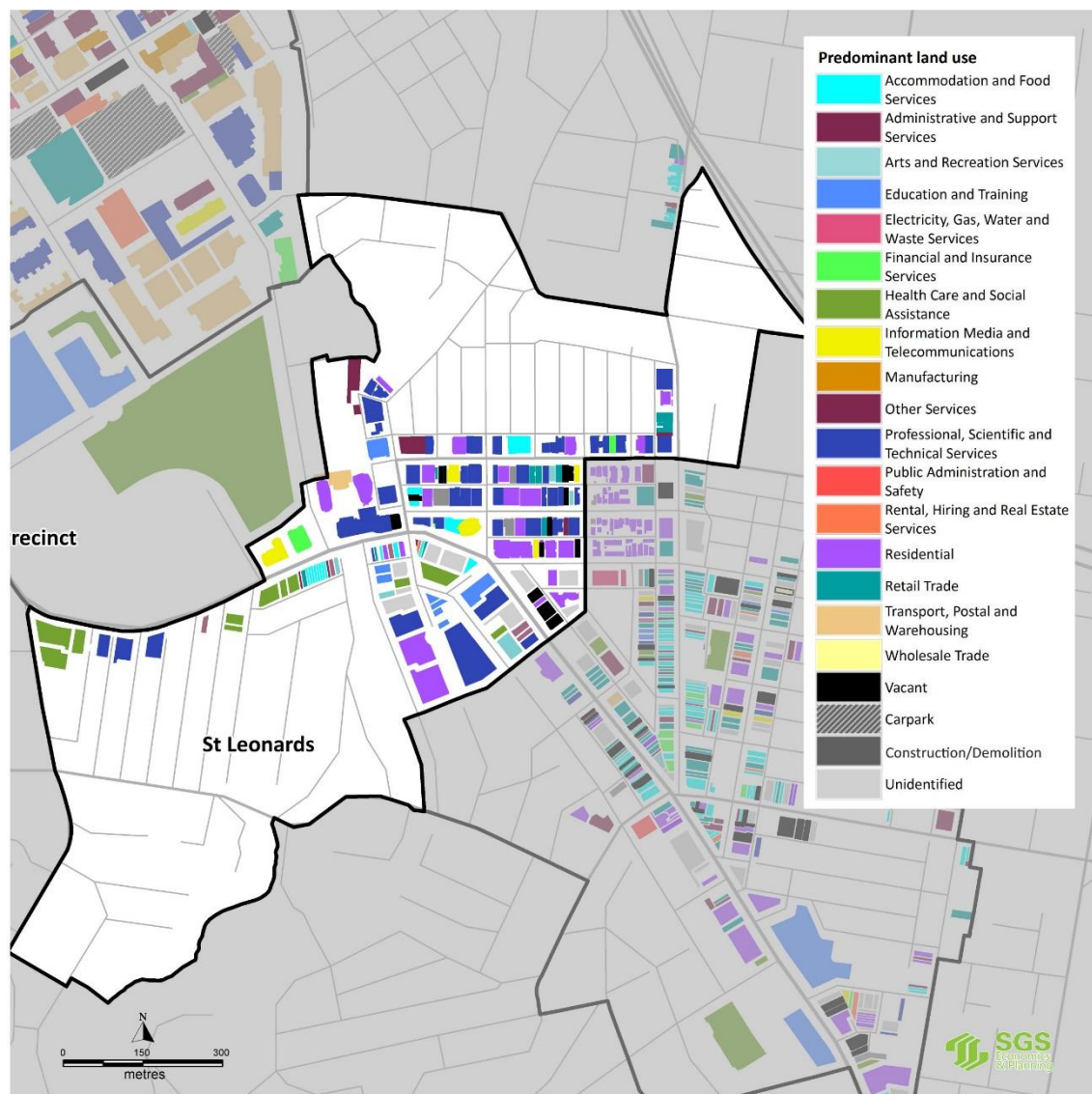
- Average annual growth between 1996 and 2011 was been 0.2 per cent per year and 2.7 per cent.
- These rates produced a range of between 41,000 and 56,000.
- The number of dwellings in St Leonards increased by 3,700 (3.8 per cent). This would suggest that, like Chatswood, there is increased competition from housing for sites within the centre which is crowding out employment functions.

Floorspace

The St Leonards sub-precinct contains a mix of office and residential buildings. The employment activities in the offices include a mix of professional services, health care, manufacturing and IT businesses.

It is important to note that while there are no factories, many manufacturing businesses have their operational or administrative headquarters located in the sub-precinct.

FIGURE 28 AUDITED LAND USES IN ST LEONARDS SUB-PRECINCT



Note that only part of this sub-precinct was audited, with the remaining (white) areas representing non-employment lands – mostly residential. Part of this sub-precinct was also audited in 2015, so with the exception of some sense-checks, the main purpose of the 2016 audit was to supplement and audit those areas which were not previously audited.

TABLE 6 TABLE OF AUDITED LAND USES ST LEONARDS SUB-PRECINCT

ANZSIC 1-Digit Industry	Floorspace	Proportion
Professional, Scientific and Technical Services	167,025	36.2%
Health Care and Social Assistance	42,500	9.2%
Manufacturing	30,685	6.6%
Information Media and Telecommunications	30,515	6.6%
Rental, Hiring and Real Estate Services	29,665	6.4%
Financial and Insurance Services	25,840	5.6%
Education and Training	24,055	5.2%
Administrative and Support Services	20,910	4.5%
Accommodation and Food Services	12,665	2.7%
Retail Trade	12,410	2.7%
Arts and Recreation Services	8,075	1.7%
Other Services	5,610	1.2%
Transport, Postal and Warehousing	5,270	1.1%
Public Administration and Safety	3,570	0.8%
Total Occupied	418,795	90.7%
Vacant	41,395	9.0%
Construction/Demolition	1,615	0.3%
Total Supply	461,805	100.0%
Residential	305,600	
Carpark	17,200	
Hardstands	6,800	

Employment context

St Leonards grew strongly as an office location in the 1980s and 1990s, based on its proximity to North Shore executive labour and its cheaper than CBD office rents.

A recent study in 2014 for North Sydney Council suggested that new commercial development would be unviable in the short term in St Leonards⁵. Notwithstanding the highly accessible location the office market in the area is suffering, with competition from surrounding office centres at North Sydney and Macquarie Park. According to consultation, St Leonards currently attracts small businesses looking for cheaper, short-term lease office space, while larger and higher profile businesses tend to look for higher grade office space in Macquarie Park or North Sydney. Completion of commercial developments in North Sydney in the short term may result in relocations out of St Leonards/Crows Nest and into North Sydney as greater prime office space opportunities emerge.

There is a sense that if A-grade offerings were made available at competitive rents they might be attractive. However, it is difficult for investors in office development to justify a major redevelopment of an existing office building given the need for pre-commitments from prospective tenants – which appears to only be occurring in isolated cases. Incremental or speculative redevelopment of smaller office buildings given the differentials in replacing B or C-grade space with the same or slightly more A-Grade space is difficult to justify financially. These development equations are also being contemplated at a stage in the property cycle when residential redevelopment is more easily justified compared to office given comparative square metre returns.

⁵ SGS Economics and Planning (2014) St Leonards Market Feasibility Study, see http://www.northsydney.nsw.gov.au/Building_Development/Strategic_Planning/St_Leonards_Crows_Nest_Planning_Study

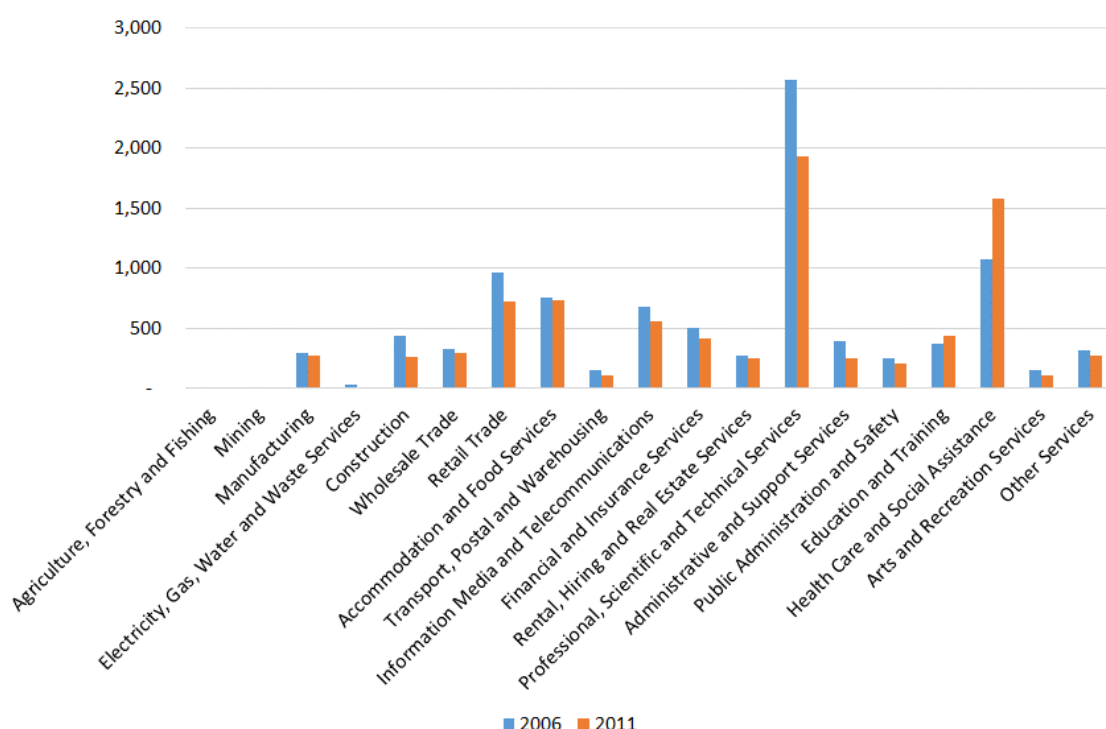
Nevertheless, the addition of the Crows Nest Matro station and a more coordinated planning effort as evidenced by this study and the initial work of the GSC may mean a new perspective on employment and commercial development at St Leonards is possible.

Crows Nest sub-precinct

Employment by industry

Figure 29 shows employment by industry for the Crows Nest sub-precinct. In 2011, the Crows Nest sub-precinct contained 8,446 jobs, down from 9,610 jobs in 2006.

FIGURE 29 CROWS NEST, EMPLOYMENT BY INDUSTRY 2006 TO 2011



Historically a centre with a similar jobs profile to St Leonards, attraction of businesses in the professional services, IT and finance sectors has become more difficult for Crows Nest over the past decade. Nonetheless, there remains a significant presence of businesses in these sectors in Crows Nest, and office floorspace still needs to be retained to some extent.

Otherwise, employment in Crows Nest is distributed across a range of population serving industries including retail, hospitality, health care and education; with health care growing significantly off the back of the Mater Hospital as a major anchor.

Floorspace

The Crows Nest Centre is more of a population serving and hospitality based node. The centre possesses a particularly strong presence of Health Care (the Mater Hospital and allied health in surrounding areas), retail (including local shopping functions) and education floorspace, shown in Figure 30 and Table 7.

Whilst the vacancy rate is relatively high, the proposed development of Crows Nest Station represents a significant opportunity for revitalisation and the stimulation of new business investment.

FIGURE 30 AUDITED LAND USES IN CROWS NEST SUB-PRECINCT

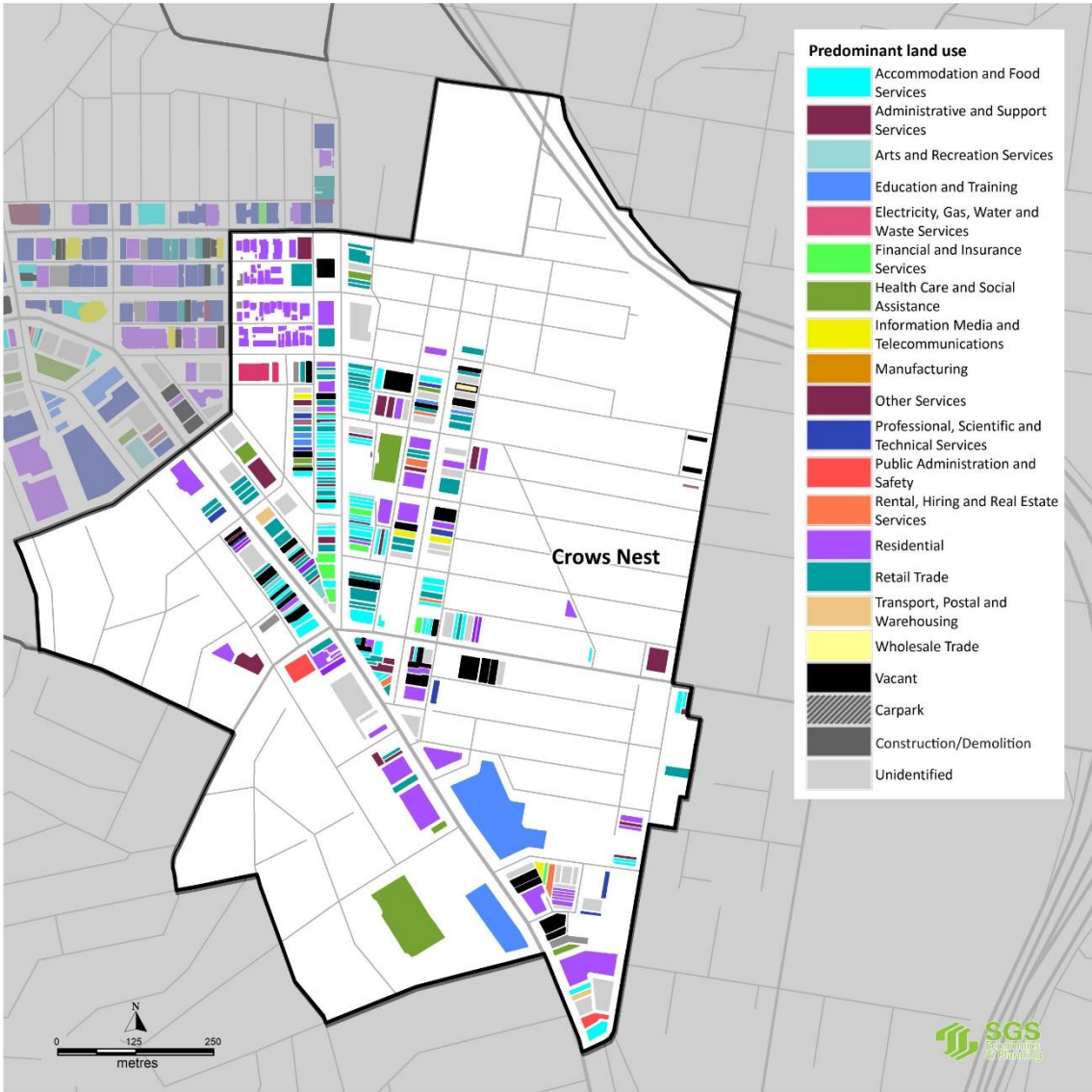


TABLE 7 TABLE OF AUDITED LAND USES IN CROWS NEST SUB-PRECINCT

ANZSIC 1-Digit Industry	Floorspace	Proportion
Health Care and Social Assistance	69,105	20.6%
Retail Trade	35,360	10.6%
Education and Training	31,620	9.4%
Financial and Insurance Services	28,500	8.5%
Information Media and Telecommunications	27,055	8.1%
Professional, Scientific and Technical Services	26,966	8.1%
Accommodation and Food Services	22,780	6.8%
Wholesale Trade	21,526	6.4%
Other Services	15,045	4.5%
Public Administration and Safety	3,570	1.1%
Manufacturing	3,485	1.0%
Rental, Hiring and Real Estate Services	3,315	1.0%
Arts and Recreation Services	3,060	0.9%
Electricity, Gas, Water and Waste Services	2,125	0.6%
Transport, Postal and Warehousing	1,870	0.6%
Administrative and Support Services	1,615	0.5%
Total Occupied	296,998	88.7%
Vacant	34,000	10.2%
Construction/Demolition	3,910	1.2%
Total Supply	334,908	100.0%
Residential	102,600	
Carpark	4,900	
Hardstands	-	

Employment context

The primary role of Crows Nest's business community is to enhance the centre's function as mixed use sub-precinct providing retail, commercial, residential and entertainment opportunities to local residents. Business consultation found that the majority of these businesses serve the local population (and operate as Business to Consumer enterprises). Crows Nest is well established as one of this region's preeminent Eat Streets, and this allows the centre to thrive during both day and night time. Consultation also found that there is an emerging arts and cultural sector in Crows Nest.

All of these features are critically underpinned by the amenity and character of the centre and public domain. This is critical, as unlike St Leonards to west and North Sydney to the East, the strategic vision for Crows Nest's core centre is not necessarily about stimulating major development, but rather how best to enhance a precinct that serves the local community so well.

The introduction of the Sydney Metro Station at the western end of the centre will create some interesting opportunities as well as challenges. On the one hand, major regional transport infrastructure investments have the potential to significantly enhance a centre's economic function – potentially elevating its role and status.

On the other hand, this may not be a natural fit for a centre such as Crows Nest, as in some respects, the existing scale and function of the centre does necessarily require a transformative set of developments; indeed wholesale changes appear to be unnecessary.

Nonetheless the Sydney Metro Station does present a great opportunity for the centre – but development should be focused to the Western side of the Station. The focus on the eastern side should be more about street activation and access for local residents.

4.4 Summary: SWOT analysis

This review of the research, data analysis and consultation distils and analyses the key strengths, weaknesses, opportunities and threats of the Precinct, particularly in relation to its role as an employment location in the future.

Strengths

A highly qualified local skills base - The North Shore possesses one of the most highly qualified workforces in the NSW and Australian economy. Combined with an increasing attractiveness as a residential location, businesses that elect to locate in this area are well positioned to draw upon and attract the most talented and skilled employees in the economy. Indeed, the establishment location of new enterprises in Australia are favourably linked to higher quality suburbs of residence.

Existing locational advantage - Proximity to the Gore Hill and M1 freeways provides rapid access to the lower north shore, central and eastern Sydney for the labour force, for businesses and distribution activities. St Leonards station and Pacific Highway buses provide excellent public transport access.

Diverse development opportunities and existing economic anchors – The Precinct possesses a variety of lot sizes and building/floorspace types. Different parts of the Precinct also possess different types of employment anchors, institutions and infrastructure – from SBS and Fox Sports in Artarmon, to the Royal North Shore and Mater Hospital, to the St Leonards Railways Station.

Weaknesses

B and C grade office space – A significant weakness in the St Leonards and Crows Nest centres in particular, the quality of floorspace stock does not match up to the quality of infrastructure (present and future) and anchor institutions which are in this sub-precinct. Many of the buildings are strata-titled with offices or suites held by different owners in the same building. This mitigates against coordinated redevelopment. This has the potential to prevent the sub-precinct from renewing and fully capitalising on its proximity to key pieces of urban infrastructure.

Limited vacancies and new development opportunities in Artarmon – Artarmon has a low vacancy rate, reflecting its strategic location and multiple economic roles for service industry through to high tech businesses. A high share of the lots in this area are small meaning scope for expansion for businesses is limited. These factors highlight how important it is to preserve the area for employment and identify meaningful opportunities for floorspace growth.

Opportunities

Diverse mix of uses – The Precinct as a whole, contains a multitude of industry specialisations with different characteristics that employ people with different skill sets. The contemporary focus on employment clusters sometimes ignores the value that diverse skills and knowledge can bring in stimulating innovation. With the continued influx and establishment of digital/IT businesses over the past five years, this benefit is only likely to increase. The different sub-precincts contribute to a virtually complete economic ‘ecosystem’ increasing its attraction as a location for new business start-ups.

Sydney Metro Station development - The introduction of the Sydney Metro station at Crows Nest has the potential to increase the accessibility of this location from across metropolitan Sydney, bringing in additional workers, shoppers and visitors. Furthermore, the location will be much more accessible to the businesses and labour in the CBD and elsewhere in the Global Economic Corridor. The new station provides an opportunity to spur on additional development and activity across the entire precinct, with the most significant impacts likely to be felt within an 800 metre walking radius around Crows Nest Station, and in the corridor between the new station and the existing one at St Leonards.

Threats

Competing demand for land – The Precinct is a viable location for a full range of urban uses including office, retail, institutional, industrial and residential. With the upcoming Sydney Metro development, most of these uses are likely to be in even higher demand. There is a risk that some uses may outbid other uses, generating a ‘crowding-out’ effect which could result in the displacement of some of the most economically productive businesses on the North Shore.

St Leonards Centre faces a challenge in ensuring that strategic sites which have the capacity to provide long term employment opportunities in office formats are not turned over wholly to residential uses. Artarmon industrial area is a particularly precious employment sub-precinct; one of a kind on the lower North Shore, providing industrial and mixed business opportunities unhindered by any proximate residential activity and benefitting from proximity to the Gore Hill Freeway and M4, St Leonards railway station and Pacific Highway.

5 CAPACITY, DEMAND AND SCENARIOS

This section profiles the existing demand and supply equation across the precinct and discusses the future of the four sub-precincts, canvassing scenarios for potential employment growth.

5.1 Introduction

The 'building blocks' for the demand and supply, and gap analysis, are included in the tables below (8 to 10). Table 8 shows the audited floorspace in the sub-precincts categorised by the standard 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC).

Table 9 aggregates to the broad industry categories used by the Greater Sydney Commission's (GSC) To some extent these categories are more relevant to land use planning, because they reflect the operational characteristics of the economic activities.

These broader categories are helpful because floorspace in a particular category can often be deployed for a multitude of land uses, across industry classifications. Indeed the inherent flexibility of developable floorspace is in and of itself a common goal in the planning and regulation of employment and (more recently) mixed use precincts.

This can then provide an indication of the extent to which redevelopment is required for a precinct to adapt to any anticipated shift in economic demand and function. For instance, office buildings can be used by a range of industries including professional services, artists and in the case of St Leonards, even businesses in the manufacturing industries.

Table 10 then calculates the existing employment floorspace per job in each sub-precinct for each broad category of floorspace.

Figure 31 shows the method used to generate the demand scenarios or forecasts. In broad terms, this involves the following steps:

1. Employment projections data from BTS forecasts, and adopt as the Base Case.
2. Develop three scenarios:
 - i. Base Case
 - ii. Metro Case
 - iii. Health & Education Case
3. Analysis of the impacts of the proposed Sydney Metro investment, including impacts on accessibility, EJD, and the level of induced employment growth, and adopt as the Metro Case. Extra employment in all sub-precincts affected by the Sydney Metro investment is redistributed from base case forecasts for other parts of Metropolitan Sydney.
4. Analysis of the GSC's Draft District Plan, particularly that pertaining employment targets in Health and Education for centres, and adopt as the Health and Education Case over and above the Metro Case.

5. Application of existing employment to floorspace ratios (derived from the land use audit) to convert employment forecasts into floorspace forecasts.
6. Adjustment of office employment to floorspace ratios based on evidence of a linear relationship between ratios and Effective Job Density; the Precinct's EJD will increase as a result of the Sydney Metro construction.
7. Align demand to existing supply numbers to understand the shortfall by broad floorspace categories by employment sub-precinct.

TABLE 8 AUDITED EMPLOYMENT FLOORSPACE ACROSS THE PRECINCT BY INDUSTRY (SQM)

ANZSIC 1-Digit Industry	Artarmon	St Leonards	H & E sub-precinct	Crows Nest	Total
Health Care and Social Assistance	1,615	42,500	219,300	69,105	332,520
Education and Training	6,630	24,055	232,390	31,620	294,695
Professional, Scientific and Technical Services	88,400	167,025	-	26,966	282,391
Administrative and Support Services	100,385	20,910	-	1,615	122,910
Transport, Postal and Warehousing	104,550	5,270	-	1,870	111,690
Retail Trade	61,710	12,410	-	35,360	109,480
Information Media and Telecommunications	51,340	30,515	-	27,055	108,910
Other Services	59,415	5,610	-	15,045	80,070
Financial and Insurance Services	8,245	25,840	-	28,500	62,585
Manufacturing	27,625	30,685	-	3,485	61,795
Rental, Hiring and Real Estate Services	12,155	29,665	-	3,315	45,135
Accommodation and Food Services	4,845	12,665	-	22,780	40,290
Wholesale Trade	7,990	-	-	21,526	29,516
Arts and Recreation Services	1,530	8,075	-	3,060	12,665
Public Administration and Safety	4,505	3,570	-	3,570	11,645
Electricity, Gas, Water and Waste Services	7,650	-	-	2,125	9,775
Mining	170	-	-	-	170
Agriculture, Forestry and Fishing	-	-	-	-	-
Total Occupied	548,760	418,795	451,690	296,998	1,716,243
Vacant	21,335	41,395	-	34,000	96,730
Construction/Demolition	7,990	1,615	-	3,910	13,515
Total Supply	578,085	461,805	451,690	334,908	1,826,488
Residential	1,400	305,600	-	102,600	409,600
Carpark ⁶	155,800	17,200	-	4,900	177,900
Hardstands	-	6,800	-	-	6,800

Source: SGS Audit

⁶ Only includes superstructure car parks – underground (substructure) car parks were not audited.

TABLE 9 EMPLOYMENT FLOORSPACE SUPPLY (SQM)

Floorspace (sqm)	Artarmon	St Leonards	H & E sub-precinct	Crows Nest	Total
Knowledge Intensive	164,645	313,480	-	91,021	569,146
Population Serving	127,500	38,760	-	76,245	242,505
Health & Education	8,245	66,555	451,690	100,725	627,215
Industrial	248,370	-	-	29,006	277,376
Total Occupied	548,760	418,795	451,690	296,998	1,716,243
Vacant	21,335	41,395	-	34,000	96,730
Construction/Demolition	7,990	1,615	-	3,910	13,515
Total Supply	578,085	461,805	451,690	334,908	1,826,488
Vacancy %	3.7%	9.0%	0.0%	10.2%	5.3%
Residential	1,400	305,600	-	102,600	409,600
Carpark	155,800	17,200	-	4,900	177,900
Hardstands	-	6,800	-	-	6,800

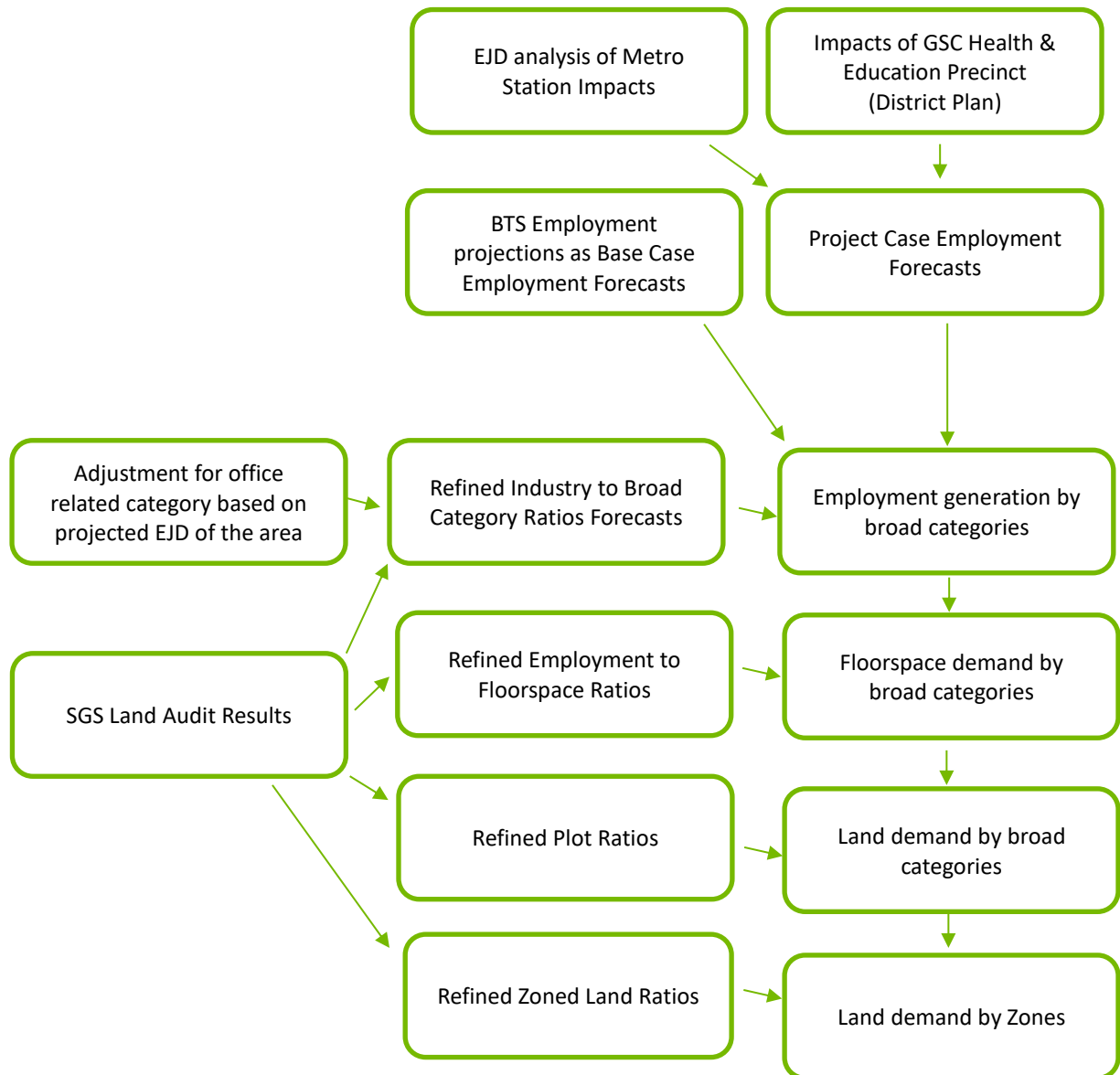
Source: SGS Audit

TABLE 10 FLOORSPACE (SQM) PER JOB FOR AUDITED SUB-PRECINCTS

Broad Land Use Category (BLC) (sqm per job)	Artarmon	St Leonards	Health & Education sub-precinct	Crows Nest	All sub-precincts
Knowledge Intensive	48.0	25.8		23.8	29.3
Population Serving	61.8	17.9		38.4	39.1
Health & Education	25.6	36.6	68.4	47.3	57.7
Industrial	60.2			39.9	51.7

Source: SGS Audit, BTS Travel Zone Employment Estimates 2016

FIGURE 31 EMPLOYMENT LAND FORECAST METHOD DIAGRAM



5.2 Base case forecast and scenarios

Base case employment forecast (Scenario 1)

A base case scenario essentially represents a trend based scenario, adjusted by known infrastructure investments. It largely relies on established trends, with the full realisation of policy shifts generally not intended to be captured in this type of scenario.

It assumes that the employment generating uses in the Precinct will continue to grow in line with broader macro-economic trends and that some modest incremental investments (e.g. in parking, local roads, landscaping) will continue to be made in the future to ensure that the projected employment patterns can be realised.

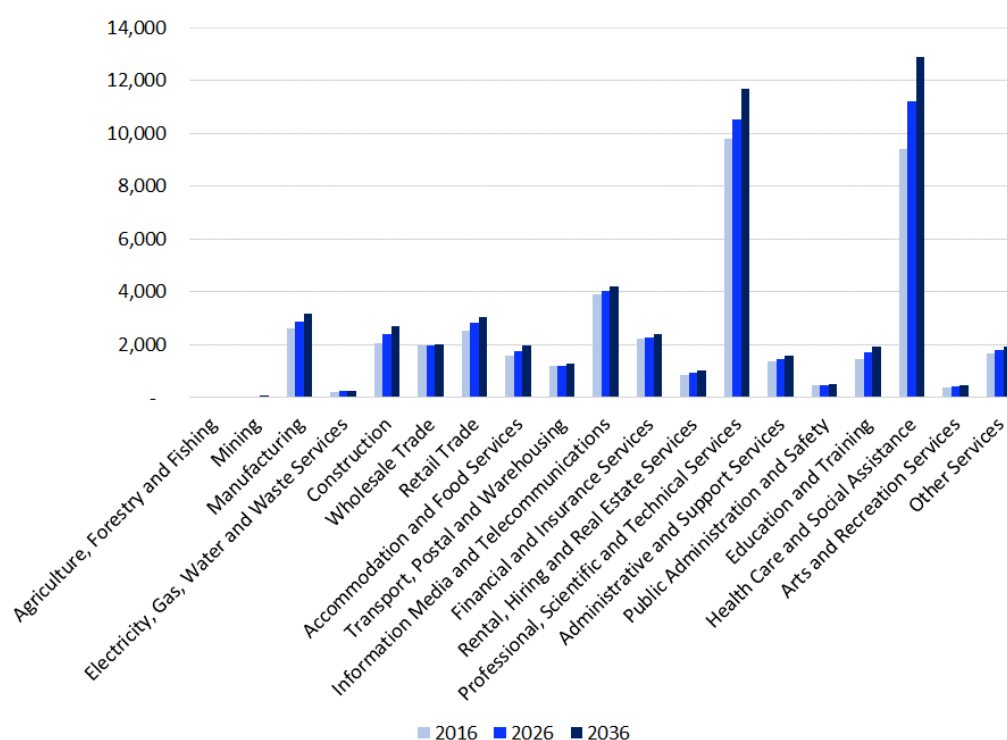
In effect, this scenario assumes that:

- Total employment (structure) will grow in line with recent trends and based on information currently available.
- The distribution of growth will largely follow recent trends along with known future development opportunities.

Where there is an existing pattern, these trends will be more fully realised. To that end, an ageing population will see increased demand for employment in health care and social assistance – some of which can be expected to be provided for in this Precinct. The continued growth of the IT sector around St Leonards Station can also be expected. The base case scenario for this study does not include the impact of the new Sydney Metro Station (though it would include assumptions about the impact of the North West Rail Link).

These forecasts postulate that by 2036, the Precinct is likely to accommodate in excess of 53,000 jobs – up from 44,000 or about 25% in 2016. Figure 32 shows the growth by industry sector, with professional and health care employment growing the strongest.

FIGURE 32 PRECINCT EMPLOYMENT FORECASTS – BASE CASE SCENARIO

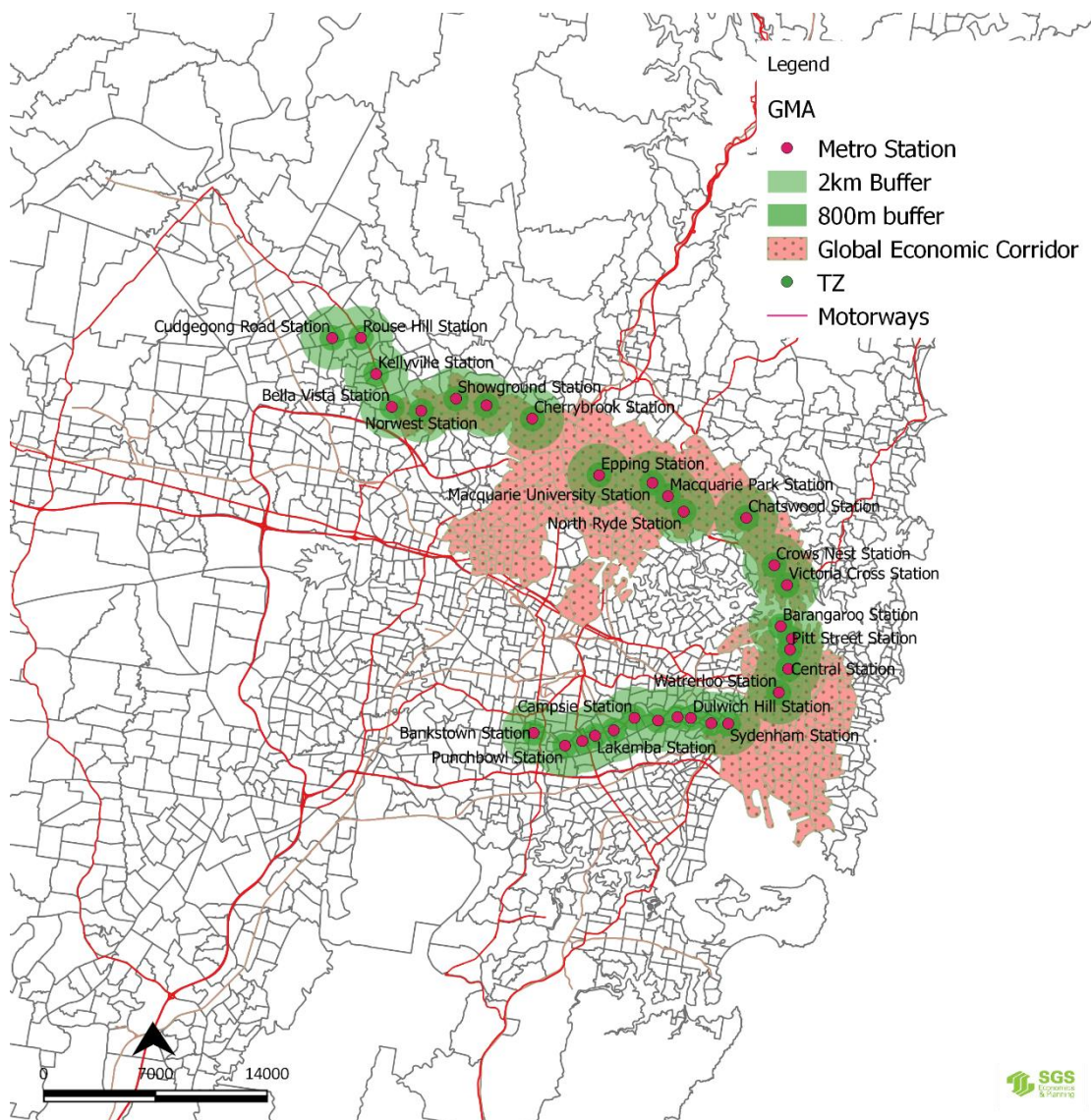


Sydney Metro impact (Scenario 2)

Sydney Metro is a planned rapid transit system which will connect a large number of suburbs and centres across Metropolitan Sydney from Rouse Hill in the North West, through Central Sydney down south to Bankstown (Figure 33).

Of particular interest to the Precinct is the proposed Sydney Metro Station at Crows Nest. The future rail line is expected to significantly reduce the travel time from Crows Nest to a number of other centres and suburbs around the metropolitan area. For example, the travel time between the Crows Nest Station and Martin Place Metro Station will be just 7 minutes compared to the current situation where a trip from St Leonards Station to Wynyard Station is a 14 minute journey⁷.

FIGURE 33 PROPOSED SYDNEY METRO STATION NETWORK



This increased level of connectedness will have significant positive impacts to the Effective Job Density (EJD) of all Centres located along the Sydney Metro Station Line, including any centres that are within proximity of Crows Nest Station. The travel time improvement assumptions underpinning this EJD uplift are outlined in Figure 34.

⁷ Travel times found at <http://www.sydneymetro.info/>

Why EJD?

A simple measure such as looking at the employment density of an area does not adequately reflect the phenomenon of agglomeration. A firm in a relatively low-employment area but located on the edge of a Central Business District (CBD) could potentially capture agglomeration benefits through such proximity. Thus a measure of agglomeration must incorporate both the local scale and accessibility to economic activity (as measured by employment) and be able to be calculated for small geographical regions.

Accordingly, SGS has used the level of employment relative to the time taken to gain access to that employment and the mode split that is currently experienced by those workers in their travel to employment.

A travel time matrix shows how long it takes to travel from one zone in the city to all other zones by both car and public transport.

This measure of effective job density (EJD) enables a more 'real life' representation of the proximity (in terms of travel time) component of agglomeration that other more basic measures overlook.

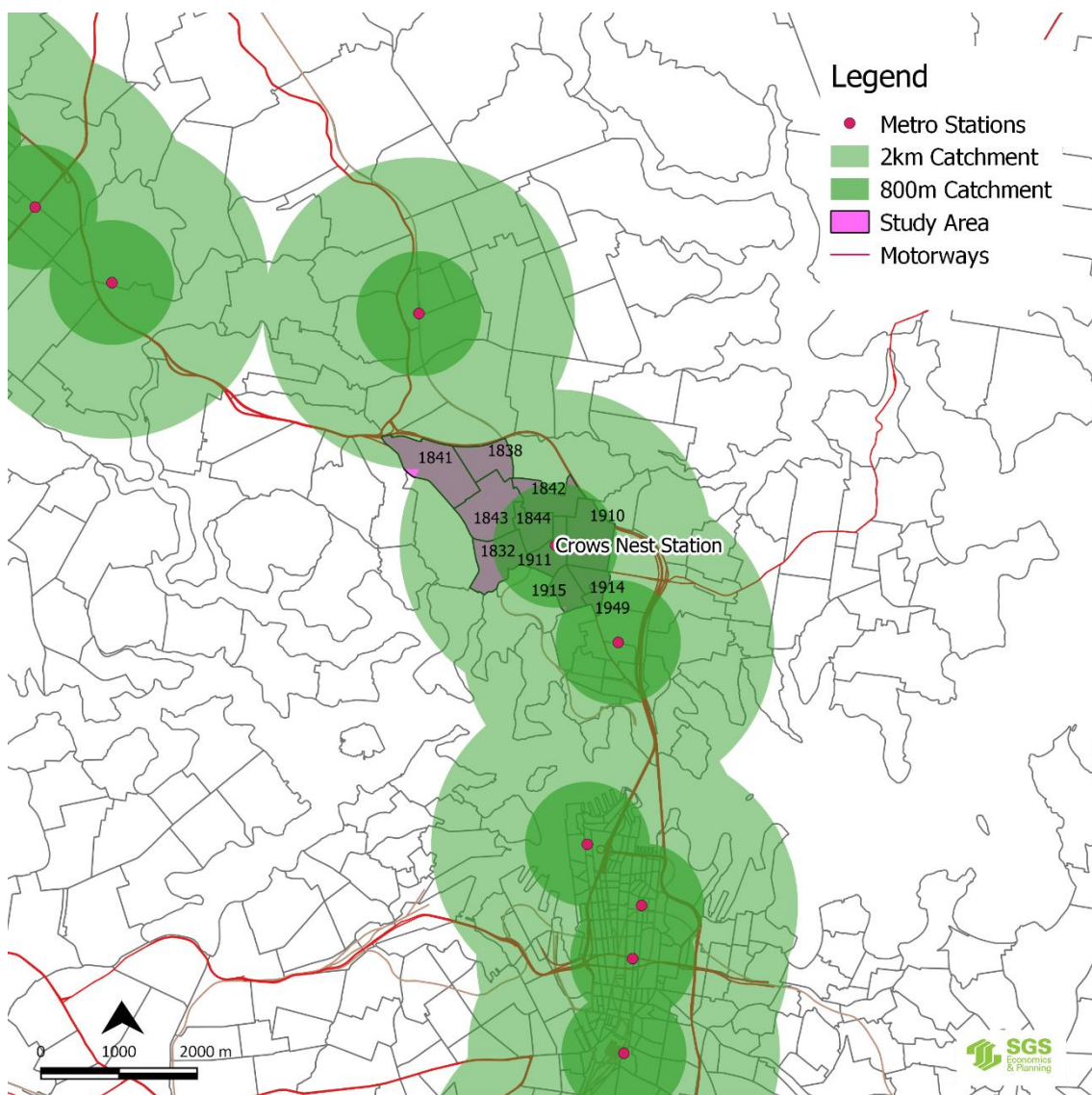
Methods of improving accessibility of firms differ across industries based on their customer and supplier base. Generally, Manufacturing requires quality road infrastructure and as a consequence tend to locate closer to areas where they have access to major road networks. Both their suppliers and customers also tend to have a similar accessibility requirement. Therefore efficiencies can be gained for those industries when they locate closer to points of road infrastructure. However, this is not necessarily the case for most other industries in the economy, particularly knowledge based service industries. Whilst all firms require timely access to their suppliers, employees and customers, their strategic ability to access those people differ based on the function of their business models.

FIGURE 34 MODELLING IMPACTS OF SYDNEY METRO STATION ON ACCESSIBILITY
(PUBLIC TRANSPORT)

Origin	Destination	Improvement to accessibility	Rationale
Metro Stations	to Metro Stations (within an 800 metre walking radius)	50%	E.g. 14min journey from Crows Nest to Sydney CBD halved to 7min journey
Metro Stations	to Metro Stations (within a two kilometre radius)	25%	Outer limit of train station catchment
Non-metro locations of Sydney	to Metro Stations	No change	The uplifts would not be significant enough to induce any observable land use changes.
Non-metro locations of Sydney	to non-metro locations of Sydney	No change	The uplifts would not be significant enough to induce any observable land use changes.

Significant agglomeration economies will flow from the better access that the proposed Sydney Metro station provides, as the EJD of this centre improves. Figure 35 shows the parts of the Precinct that are likely to be most significantly impacted. It also shows how the majority of this Precinct will fall into at least the outer limit of the station's catchment area, with St Leonards CBD continuing to be well serviced by the existing station. Note the southern part of the precinct will also be partially serviced by the proposed Victoria Cross Station.

FIGURE 35 EXTENT OF CROWS NEST METRO STATION CATCHMENT AREA ACROSS ARTARMON-ST LEONARDS-CROWS NEST



The change in EJD associated with an infrastructure or land use initiative is estimated via the same method used to calculate the base EJD (i.e. the base case BTS employment forecast in Figure 32). The difference between the base case EJD and a project case EJD (like the Metro scenario) will depend on the project inputs and data availability. In this case, the major impact is the reduction in travel times from Crows Nest Station to Martin Place Station.

As discussed, projected travel times are significantly reduced by the Sydney Metro project. A project case EJD has been estimated using these altered inputs and compared to the base case EJD. What it reveals is that after the development of the Metro Stations at Crows Nest (other locations), St Leonards has now improved its position from the 5th to 3rd highest EJD in Metropolitan Sydney (Table 11). In the process it 'leapfrogs' Burwood and Green Square in terms accessibility advantage.

TABLE 11 TOP 20 EJD SCORES ACROSS SYDNEY CENTRES FROM BASE CASE TO METRO SCENARIO⁸

Centre Name	Base Case EJD	Metro EJD	EJD Change	Base Case Rank (Scenario 1)	Metro Rank (Scenario 2)
Central Sydney	193,673	242,097	48,424	1	1
North Sydney	119,715	148,078	28,362	2	2
St Leonards	97,104	116,889	19,785	5	3
Chatswood	85,194	108,275	23,080	7	4
Green Square/Mascot	99,892	106,647	6,755	3	5
Burwood	97,706	97,706	-	4	6
Campsie	69,322	90,568	21,246	17	7
Greater Parramatta	89,894	89,836	-58	6	8
Macquarie Park	70,947	85,089	14,142	16	9
Sydney Olympic Park	84,831	84,831	-	8	10
Sydney Airport	84,508	84,508	-	9	11
Bondi Junction	80,755	80,744	-11	10	12
Kogarah	79,615	79,615	-	11	13
Randwick Health & Education	77,162	77,162	-	12	14
Rhodes	73,836	73,836	-	13	15
Hurstville	71,602	71,602	-	14	16
Bankstown	63,441	71,458	8,017	22	17
Blacktown	71,238	71,238	-	15	18
Fairfield	69,189	69,189	-	18	19
Liverpool	64,892	64,892	-	19	20

The uplift in EJD results in an uplift to employment in the St Leonards precinct.

Under the Base Case (Scenario 1) and this alternative scenario (Scenario 2), the total amount of employment in Metropolitan Sydney in 2036 remains the same, it is the distribution at the travel zone and centre level that changes. The Metro Scenario redistribution of Base Case employment includes:

- Employment from centres which St Leonards surpasses on the EJD Accessibility 'ladder' as a result of the Metro (Burwood and Green Square)
- Employment from around St Leonards, including people who would have otherwise worked from home
- Employment from lower order (neighbourhood/local) centres.
- In the Artarmon case, some employment from other employment/industrial precincts – although there are not many of those in the North Shore, so this effect is minimal.

All of these changes are induced by the fact that St Leonards is a more accessible location as a result of the Metro.

The spatial redistribution of employment has been informed by the historical growth rates in various locations between 1996 and 2016. The distribution of historical employment growth guides what future growth could be achieved to meet the scenario. This has ensured that the scenarios are within the realm of plausible potential future outcomes.

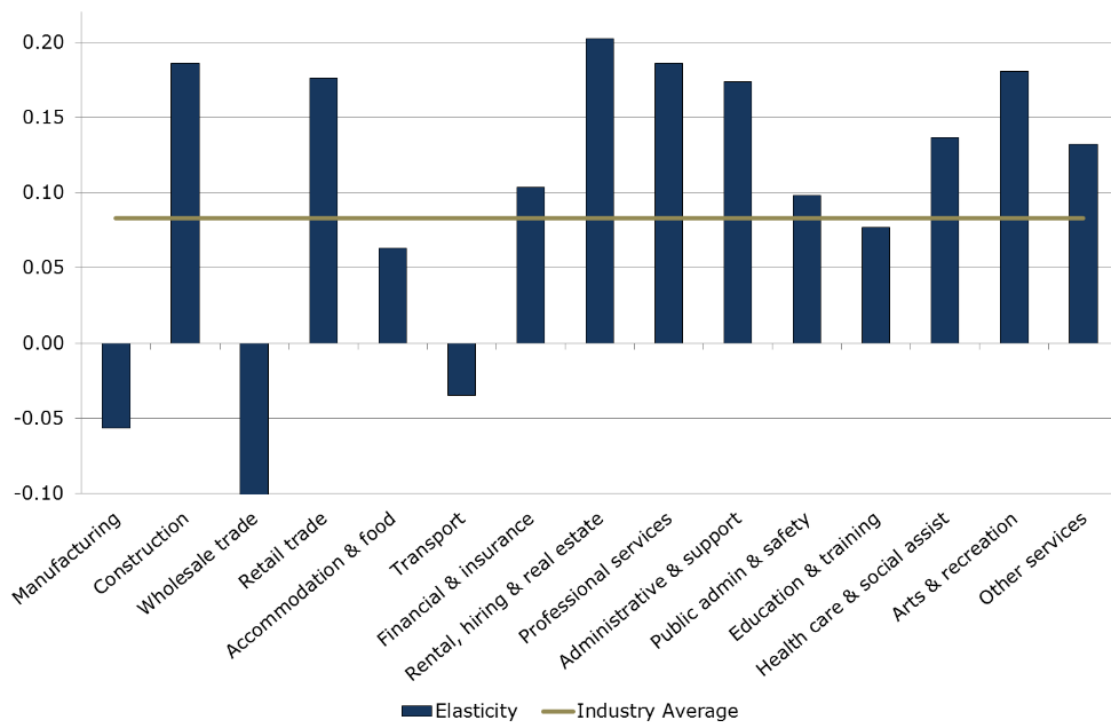
⁸ This table refers to the impact of Sydney Metro. If other infrastructure is developed (West Metro for example), the numbers would change again.

Applying the elasticities to the improvement in EJD under the Metro scenario (after 2026) yields a higher level of employment than the Base Case defined by the BTS figures in Figure 32. By 2036, this difference in employment will be significant, with employment forecast to rise to 60,186 under the Metro Scenario – an increase of nearly 7,000 jobs above the 53,195 jobs forecast under the Base Case (Figure 37).

It should be noted that the uplift is not even across all industries, because some industries tend to benefit more than others from an increase in EJD. Agglomeration benefits have been found to be particularly strong for firms in knowledge intensive and creative sectors (which have a strong presence in St Leonards). A doubling of EJD in a global city like Sydney lifts productivity of enterprises across the metropolitan economy by an average of 8% (or an elasticity of 0.08 in Figure 36).

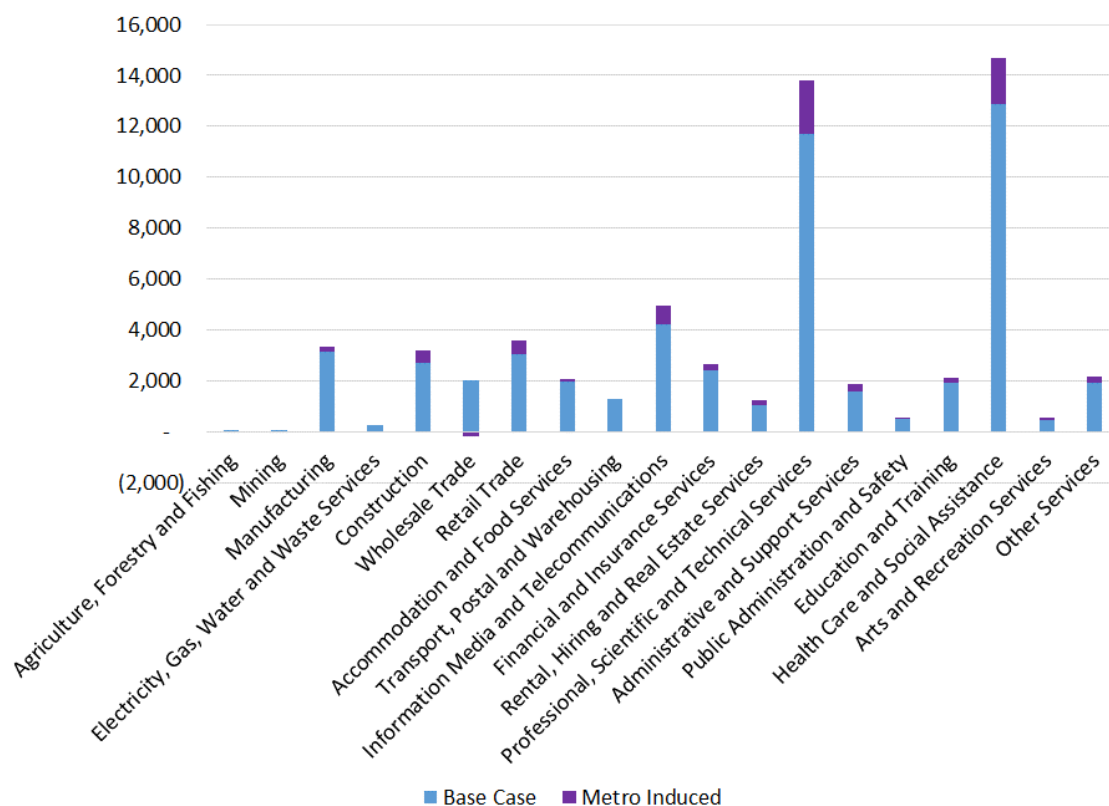
In particular, professional services, health care and IT stand to benefit most greatly under the Metro Scenario where accessibility improves.

FIGURE 36 AGGLOMERATION ELASTICITIES BY SECTOR



Source: SGS Economics & Planning (2012) *Productivity and Agglomeration Benefits in Australian Capital Cities*, Final report, published by COAG Reform Council

FIGURE 37 EMPLOYMENT SCENARIOS (2036) COMPARED – BASE CASE VS METRO (BY NO. OF JOBS)



Health & Education Precinct-GSC impact (Scenario 3)

Health and Education sector jobs fulfil an important role in terms of knowledge generation and innovation, as well as some which are more about the delivery of health services. The research and innovation jobs cluster together, as proximity enables collaboration between education and health providers, while service delivery jobs are more dispersed in line with the population. Precincts of research and innovation can also serve a service delivery role, providing access to medical and educational institutions.

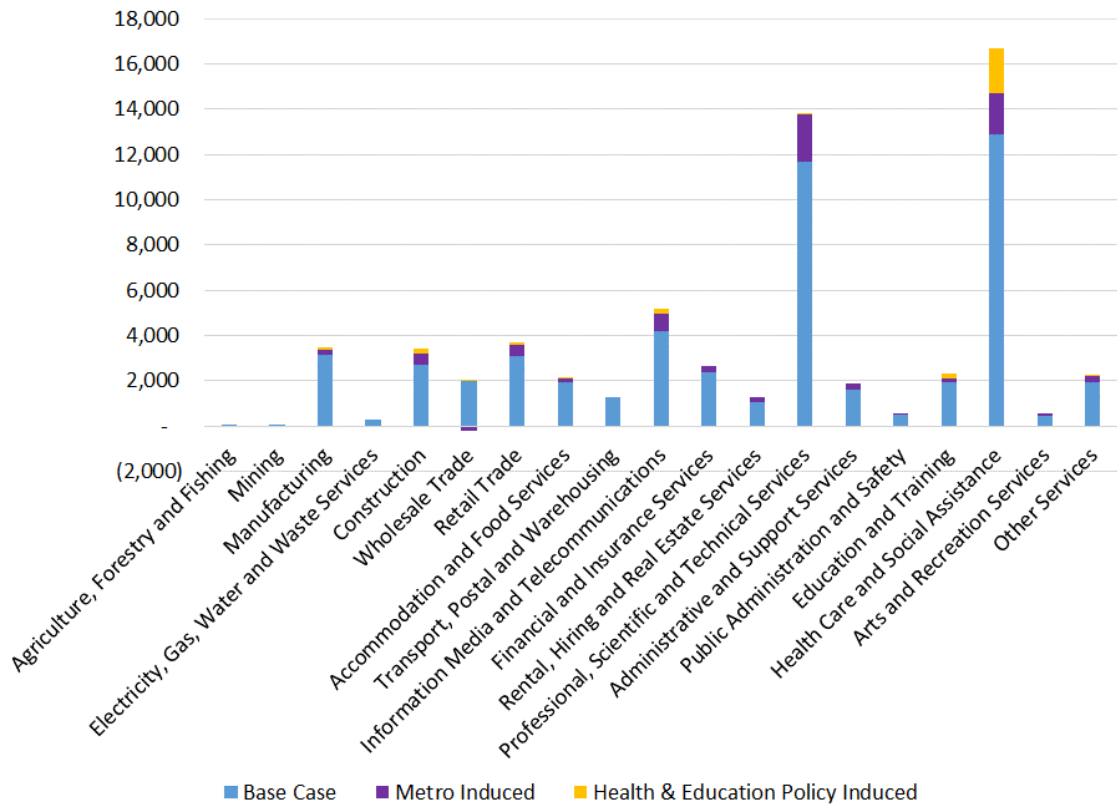
Government can influence the location of jobs in these sectors through investment decision making, while growth in the sector is dependent upon both funding, particularly for research, as well as population growth. The District Plan identifies St Leonards as a health and education super precinct with a strong focus on the growth of these sectors in the precinct.

There are opportunities for highly skilled jobs associated with health and education to grow in the Artarmon-St Leonards-Crows Nest Precinct. These jobs are already located across the Precinct and there are significant assets in the form of the North Shore Hospital, Mator Hospital and the Northern Sydney Institute of TAFE. Note that a significant amount of investment (~\$1 billion) has already occurred at the North Shore Hospital site.

An expanded health and education precinct could potentially generate an additional 3,000 jobs in these sectors. Under this scenario, the Precinct could accommodate approximately 19,000 jobs in Health and Education (up from the Base Case of 14,800 and the Metro Case of 16,800), and 63,186 jobs in total.

Note that even under the Health and Education Policy inducement through the District Plans, not all employment growth will be strictly in the Health and Education industries. What is more likely to occur, is a variety of support services and businesses also establishing in the area, leveraging off the increased presence of health and education services. This includes retailers, health product manufacturers, IT suppliers and wholesalers.

FIGURE 38 EMPLOYMENT SCENARIOS (2036) COMPARED – BASE CASE VS METRO VS EXPANDED H&E PRECINCTS



5.3 Employment floorspace forecasts

The three employment scenarios generated in Section 5.2 have been converted into floorspace forecasts. The translation of employment into floorspace relies on the key input of employment to floorspace ratio.

Generally these ratios are informed by land audits which collect floorspace data in a given centre or sub-precinct, compared to the known level of employment in those sub-precincts (Table 10).

This relationship is more complex for office floorspace (assumed to be hosting the knowledge intensive jobs). Figure 39 summarises the significant level of variation in employment to floorspace ratios across some of Metropolitan Sydney's key centres. In essence it finds that centres with higher levels of EJD, access (and by extension, rent) exhibit a more efficient use of floorspace. Highly productive knowledge workers are increasingly working in open floorplan and flexible office arrangements, with standing desks or studio workshops for digital/tech workers. Figure 39 highlights how an uplift in EJD (modelled in Table 11) for the Precinct, will cause a slight reduction in employment to floorspace ratio. The assumption is that the office floorspace per job will go from 26 to 23.

Accounting for this shift in employment to floorspace ratio in offices, the demand for employment floorspace has been modelled below (note retail floorspace is modelled using a separate methodology involving different assumptions outlined under Appendix A [to be inserted after confirmation of residential population growth figures with SJB]).

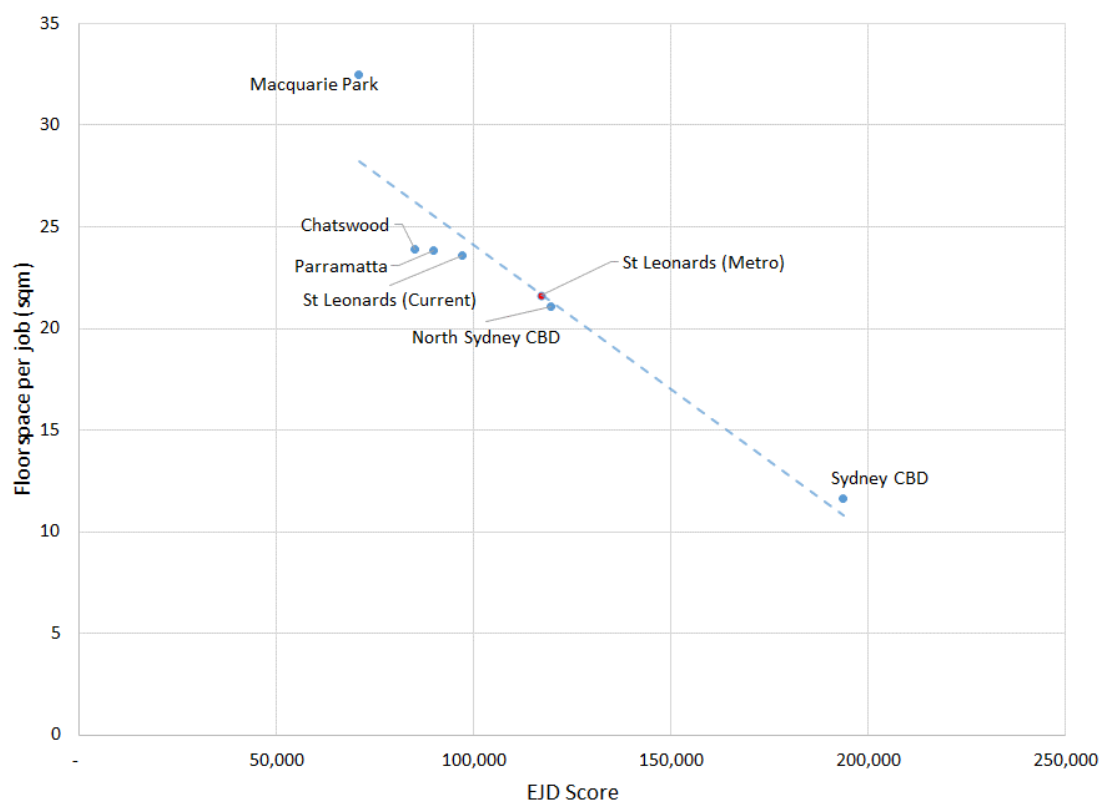
Table 12 translates jobs by industry demand across the Precinct into floorspace. It also shows existing floorspace supply for the entire Precinct (drawn from the audit data). It assumes that the employment floorspace per job ratio for most land use categories remain at the ratios quoted in Table 10. The exception is for office, where the floorspace per job has fallen as shown in Figure 39.

By comparing future demand (Table 13) with the current floorspace supply (Table 14) it shows that in aggregate, there will be a need for a further 284,000 sqm of employment floorspace by 2036 (i.e. about 15% more floorspace than the existing 1.83 million sqm). More detailed information on the supply-demand balance by sub-precinct and by land use category is shown in Table 15.

It is assumed (for now) that the Health and Education sub-precinct will be able to accommodate jobs growth without a major expansion of the existing floorspace. This remains to be tested with health infrastructure NSW, but it should be borne in mind that supply and demand in that sub-precinct is more likely to be controlled by government decisions as opposed to the rest of the Precinct, where development will be driven primarily by the market. In other sub-precincts health and education activities will typically be accommodated in floorspace which is relatively interchangeable with other activities.

Overall Table 15 shows that there is likely to be an undersupply of over 50,000sqm of office floorspace across the sub-precinct and an undersupply of over 110,000sqm of population serving employment floorspace.

FIGURE 39 QUANTITATIVE RELATIONSHIP BETWEEN EJD AND OFFICE JOB DENSITY



Source: SGS Audits, City of Sydney, Savills, Colliers International, ABS Census

TABLE 12 EMPLOYMENT FLOORSPEACE FORECAST (PRECINCT) (SQM)

	Knowledge Intensive	Population Serving	Institutional	Industrial	Total Demand	Total Supply	Difference
<i>Base Case</i>							
2016	569,146	242,505	627,215	277,376	1,716,243	1,826,488	110,245
2026	605,900	268,278	660,718	279,181	1,814,076	1,826,488	12,411
2036	659,719	297,462	691,920	287,050	1,936,152	1,826,488	-109,664
<i>Metro Scenario</i>							
2016	569,146	242,505	627,215	277,376	1,716,243	1,826,488	110,245
2026	659,053	310,707	687,292	263,863	1,920,915	1,826,488	-94,428
2036	717,990	344,674	722,469	271,489	2,056,622	1,826,488	-230,134
<i>Metro + Health & Education Policy Scenario</i>							
2016	569,146	242,505	627,215	277,376	1,716,243	1,826,488	110,245
2026	658,673	323,284	717,428	269,379	1,968,765	1,826,488	-142,277
2036	717,506	358,813	757,112	277,085	2,110,515	1,826,488	-284,027

TABLE 13 2036 **SUPPLY** EQUATION BY SUB-PRECINCT AND BROAD LAND USE (METRO + H&E SCENARIO) (SQM)

Sub-precinct	Knowledge Intensive	Population Serving	Institutional	Industrial	Total Alignment
Artarmon	179,308	127,500	8,245	263,033	578,085
St Leonards	356,490	38,760	66,555	0	461,805
Health & Education	0	0	451,690	0	451,690
Crows Nest	128,931	76,245	100,725	29,006	334,908
Total Alignment	664,729	242,505	627,215	292,039	1,826,488

TABLE 14 2036 **DEMAND** EQUATION BY SUB-PRECINCT AND BROAD LAND USE (METRO + H&E SCENARIO) (SQM)

Sub-precinct	Knowledge Intensive	Population Serving	Institutional	Industrial	Total Alignment
Artarmon	206,228	188,705	14,309	244,534	653,776
St Leonards	398,392	58,414	113,559	0	570,365
Health & Education	0	0	451,690	0	451,690
Crows Nest	112,886	111,694	177,554	32,550	434,684
Total Alignment	717,506	358,813	757,112	277,085	2,110,515

TABLE 15 2036 **DEMAND & SUPPLY** EQUATION BY SUB-PRECINCT AND BROAD LAND USE (METRO + H&E SCENARIO) (SQM)

Sub-precinct	Knowledge Intensive	Population Serving	Institutional	Industrial	Total Alignment
Artarmon	-26,921	-61,205	-6,064	18,498	-75,691
St Leonards	-41,902	-19,654	-47,004	0	-108,560
Health & Education	0	0	0	0	0
Crows Nest	16,045	-35,449	-76,829	-3,544	-99,777
Total Alignment	-52,777	-116,308	-129,897	14,954	-284,027

The spatial implications of these forecasts are discussed below for each sub-precinct.

Artarmon

Key implications to 2036 as shown in Table 15 include:

- Need for additional knowledge intensive (office) floorspace.
- Need for additional population serving floorspace (principally for auto repairs, bulky goods retail and repairs and maintenance).
- Some availability of industrial floorspace, for conversion or redevelopment for the above employment categories and uses.

The need for office floorspace is likely to be driven by the increasing presence of the IT sector in the Herbert Street precinct; 27,000sqm should be a manageable volume of demand given the large lot sizes in the area. Nonetheless, accommodating this demand should be considered a priority given it is in an emerging industry with significant upside for the economic development of the region.

The property market is likely to convert much of the industrial floorspace into population serving floorspace – principally the ‘Other Services’ ANZSIC industry, which in Artarmon refers to the significant auto repairs sub-industry along with other repair and maintenance businesses which play an important role regionally. This conversion is relatively easy given the similarity in building types occupied by the industries in question. Indeed, it is already happening in many other industrial precincts around New South Wales alongside the decline of manufacturing.

Alternatively, some industrial floorspace could also be converted to, or redeveloped as, office floorspace. This may occur rapidly given the higher level of productivity associated with knowledge intensive uses such as IT.

It is worth noting that some of the population serving floorspace includes bulky goods retail and showrooms, which in the medium term, could be placed in a more accessible location along the Pacific Highway frontage in St Leonards and Crows Nest.

St Leonards

Key implications from Table 15 for the forecast period to 2036 include:

- Need for significant additional knowledge intensive (office) floorspace
- Need for additional population serving floorspace
- Need for significant additional Health and Education floorspace.

There is a need for an additional 42,000sqm of office floorspace in St Leonards by 2036 (see Table 15). Consultation with real estate professionals operating in the St Leonards office market indicates that there will also be a challenge in finding a suitable method to upgrade existing stock – much of which is now considered by the market to be C or D grade by modern standards. There is little existing incentive to convert or upgrade this floorspace, and where ownership of buildings is strata titled redevelopment is made additionally complex.

The extent of undersupply of population serving floorspace is likely to vary slightly depending on the ultimate population that is accommodated in the sub-precinct itself, given the level of retail demand which can be generated by future residents in the sub-precinct. Conversely, this can be somewhat offset by the level of employment floorspace – workers will also generate demand for retail floorspace (crucially though, a different store type composition of retail floorspace demand).

Demand for institutional floorspace on the other hand, could potentially be transferred to the Health and Education sub-precinct, and associated with its Health and Education anchors. Alternatively this floorspace will be ancillary in nature and could be housed in office and other buildings in St Leonards.

Crows Nest

Key implications to 2036 from Table 15 include:

- Demand for office floorspace in Crows Nest is modest,
- However Crows Nest does play a significant population serving role, and this will continue as population grows in its catchment
- Need for significant additional for Health and Education floorspace.

The proposed Sydney Metro Station development – whilst likely to stimulate significant demand for office floorspace across the Precinct – may not have a great impact on the Crows Nest centre per se. This can partly be attributed to the fact that much of this sub-precinct is low rise with a ‘fine grain’ and draws its predominantly high amenity character from these attributes. It accommodates a local village centre that combines residential and retail uses. As a consequence, the potential development/redevelopment opportunities may be significantly limited to the area west of the proposed Sydney Metro Station (in the Lane Cove local government area), and north, transitioning into the St Leonards sub-precinct.

Demand for population serving activities will be easier to accommodate in this sub-precinct. In the Crows Nest context, many of the population serving businesses are likely to be in general services – including gymnasiums, cosmetics and sales of other non-retail services. It is likely that where possible, many so called population serving activities will occupy office floorspace – particularly where it is relatively accessible and in smaller format buildings.

Demand for institutional uses will also be significant, although some of this demand will be for health activities related to the Mater Hospital.

6 STRATEGIES AND DIRECTIONS

This section brings together the findings of the analysis and identifies strategies and related spatial initiatives to accommodate and maximise growth in the Precinct in future.

This section identifies a number of recommendations and ideas to stimulate discussion around employment in the Precinct. The recommendations will be further investigated in Stage 2 and supported by economic feasibility analysis for employment and residential uses and also take-up rate analysis to inform the Land Use & Infrastructure Strategy.

6.1 Strategies

This report informs the first stage of a two stage process:

- Stage 1 – Strategic Employment Review
- Stage 2 – Land Use & Infrastructure Strategy

This stage 1 report has analysed, synthesised and evaluated economic research to identify broad strategic directions for the precinct with some preliminary strategy and planning ideas. Subject to the Department progressing with the next stage of the project, it is proposed that stage 2 of this work will include further development of the stage 1 directions and an economic feasibility analysis to inform development of a proposed Land Use & Infrastructure Strategy.

The analysis presented in Sections 2 to 5 of this report have collectively documented the existing and future status of the Precinct and its constituent employment sub-precincts. Through this analysis, a number of key issues and opportunities were identified. Some headline strategies can be distilled as follows.

Further develop the emerging economic ‘eco-system’

The ever changing economy of Metropolitan Sydney, and Australia, has led to significant changes in the structure of employment in recent decades. Over a long period, the number of lower skilled industrial jobs has decreased, with jobs growth being driven by knowledge based jobs. In middle suburban industrial areas job numbers have fallen. However in Artarmon, the loss in manufacturing employment has been more than offset by the increase in service industry businesses, which serve a large catchment across Northern Sydney, as well as higher order businesses with global markets.

The presence of the IT sector has also grown across the Precinct – particularly in Herbert Street in the Artarmon sub-precinct but also in parts of St Leonards (and to a lesser extent) Crows Nest.

There is genuine diversity to the office floorspace and employment growth in the area. The consultation with business owners found there is a good mix of firms with intense ‘Business to Business’ connections, playing critical roles in multiple and varied supply chains, but also an increasing number of ‘Business to

Consumer' firms (i.e. banks, accountants, real-estate agents), particularly in the St Leonards and Crows Nest Centres.

Finally, growth in the health and education sectors is an ongoing opportunity for this employment area. Even without significant intervention from Government, this sector is likely to continue to increase in prominence given the projected levels of population growth and the ageing of the population. Nonetheless some well-tailored strategies and partnerships for specific facilities and operators would be beneficial, and should further enhance what are expected to be two of Australia's key exporting sectors of the 21st Century.

All of this highlights the notion of this complex of economic activities forming an economic eco-system, in some ways unlike any other cluster or precinct in metropolitan Sydney. The investment in new rail and a new station at Crows Nest provides the opportunities to 'super-charge' the development of the eco-system. Ancillary investment in the public domain, in infrastructure which promotes sustainable living and business operations, in much greater internal pedestrian and cycling connectivity and economic development support activities, as well as carefully crafted changes to planning controls, will be necessary to underpin this economic eco-system.

Provide varied opportunities for commercial office investment

Demand for commercial office floorspace is quite varied across the Precinct.

In the Herbert Street area within the Artarmon sub-precinct, recent commercial development includes a large office component combined with some warehouse, factory or other industrial facility. Whilst the majority of employees work from the office component of a building, the consultation revealed that the industrial component was just as important to those businesses' on-site operations. This suggests that the industrial character of Artarmon, and the mixed business floorspace potential of Herbert Street in particular, needs to be retained in order to continue to attract these businesses.

In the St Leonards sub-precinct commercial offices take on a more traditional office-tower format, with a range of businesses that include the administrative headquarters of a manufacturing firm to financial services that host clients on site. This sub-precinct will potentially require the greatest of level of planning intervention given the need to refresh ageing stock. Catalysing new office development, to host employment growth and take advantage of the significant investment in nearby new infrastructure at the Crows Nest station, is a challenge that needs to be addressed.

In Crows Nest, commercial offices are more typical of what can be found in other inner suburban centres. Some have a similar interaction to their customers as retail shops in the sense that they both play a role in serving the population. The major difference between these population serving office uses and the retailers is that there are usually no trade flows associated with the selling of physical products.

Harness a rapidly growing health sector

The health sector is experiencing significant expansion right across Metropolitan Sydney, and is expected to continue its emergence as the major metropolitan-wide industry growth sector of the 21st century. As a predominantly population serving industry, the jobs tend to be created where the population is growing. However, areas with either an ageing or affluent population are particularly attractive for district level specialised health businesses and St Leonards/Crows Nest is well located in this regard.

Whilst the North Shore and Mater Hospitals are expected to expand, there are opportunities for this sub-precinct to also host a range of allied health uses. As hospitals tend to also attract ancillary medical specialists and services, this employment area will further develop as a medical related knowledge and service cluster in the future.

There is currently capacity at the North Shore Hospital. Over time, as this facility expands, employment to floorspace ratios should gradually fall. Any development is also likely to occur on-site as horizontal expansion (to new sites) can be costly.

Protect the industrial lands in Artarmon for service and hi-tech industry

It is true that manufacturing in its purest sense is no longer as significant a land use in most industrial precincts. However this does not mean that industrial floorspace and lands are redundant. In Artarmon, there are multiple reasons why an industrial precinct is still required in this location, for example:

- The industrial area is one of only a few in the North District (for example, the nearest auto-repairs precinct is 12 kilometres away in Brookvale, while for every 1000 people in the North District there is only 7.3 ha of industrial land compared to 33.1 ha on average across the metropolitan area). It has significant strategic value in terms of retaining the opportunity for those businesses that require a location within an industrial zone.
- The industrial area is located on the north edge of St Leonards, and provides a valuable, alternative 'non-centre' business location with the southern part of the industrial area within walking distance of St Leonards Station. The northern parts of the industrial area are within an 800 metre walking distance of the Artarmon local shopping centre and railway station.
- At the intersection of the Pacific Highway and the M2 Motorway, the sub-precinct has excellent access to the metropolitan arterial road network, both in a north-south as well as an east-west direction, including access to Port Botany and Sydney airport. This accessibility was greatly enhanced by the construction of the Lane Cove Tunnel.
- The industrial area is well buffered from sensitive residential and other uses in most directions and does not have interface issues. The Pacific Highway to the west, M2 Motorway to the north and railway line to the east provide effective long term buffers to sensitive uses and clearly define the area in those directions.
- There appear to be synergies between the industrial zone and the hospital precinct. There are several medical industry related manufacturers providing evidence of a deep health related cluster in this area.

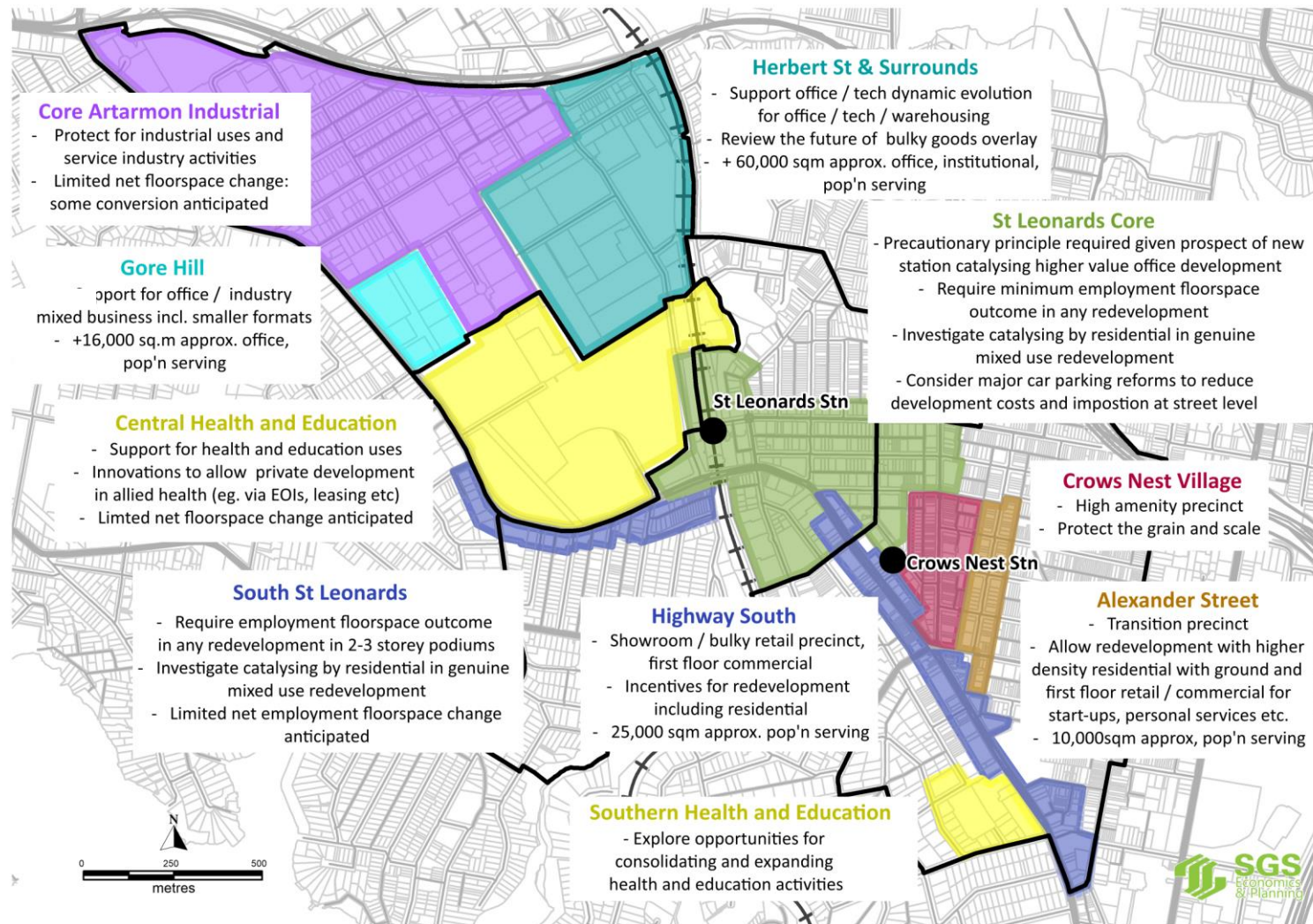
In the Core of this Industrial area, service industries are effectively using old industrial buildings. In some senses, the physical floorspace requirements of a manufacturing and an auto-repairs business is not dissimilar. It is important for the effective functioning of the lower north shore that the core Industrial area retains its building stock and continues to play a service industry function.

As mentioned above, strategies also need to support a more dynamic mixed business precinct on the Eastern side of Artarmon along Herbert Street. There, the majority of jobs are for knowledge workers in ancillary office floorspace. However, businesses actively use on-site industrial floorspace which allows for some light industrial assembly, warehousing and low level freight activities, even if they have significant office activities above or elsewhere on site. This sub-precinct will continue to evolve, embedded in a complex rather than homogeneous business environment.

6.2 Spatial directions and initiatives

The map below recommends some directions for how these strategies might be realised in the different precincts and sub-precincts in the Precinct. These will be discussed in greater detail in Stage 2.

FIGURE 40 DRAFT ECONOMIC PLANNING DIRECTIONS FOR PRECINCT



Sub-precinct	Key directions	Implications for planning, land use and infrastructure strategy
Core Artarmon industrial	<ul style="list-style-type: none"> – Protect for industrial uses and service industry land uses – Limited net floorspace change – some conversion anticipated – No residential development 	<ul style="list-style-type: none"> – Growth of lower north shore service and light industry needs will be accommodated at Artarmon – Existing available capacity and potential sufficient given options for re-use and redevelopment of existing floorspace – No change to planning controls required
Herbert St & Surrounds	<ul style="list-style-type: none"> – Support dynamic evolution for office / tech / warehousing – Delete bulky goods overlay – + 60,000 sqm approx. office, institutional, popn serving – No residential development 	<ul style="list-style-type: none"> – Precinct transitioning to a high value, mixed business and high tech area – Change to IN2 zoning or controls probably unnecessary given transition already occurring, though expansion of IN2 area, deletion of bulky goods overlay and modest FSR expansion may be necessary to provide for anticipated growth
Gore Hill	<ul style="list-style-type: none"> – Support for office / industry / mixed business including smaller formats – + 16,000 sqm approx. office as part of mixed business / warehousing development – No residential development – Capitalise on synergies between Gore Hill Tech Park, Royal North Shore Hospital and the TAFE. 	<ul style="list-style-type: none"> – Development here will be ‘lumpy’ where significant floorspace is anticipated given need for pre-commitments – IN2 zone may be appropriate to allow for smaller scale developments but allow developers to review zones and planning controls to best satisfy the market as they see it – restricted to an employment only outcome
Central Health and Education	<ul style="list-style-type: none"> – Support for health and education uses – Limited net floorspace change anticipated 	<ul style="list-style-type: none"> – RNSH Master Plan will control health related uses – capacity is provided for growth – TAFE responsible for their site and needs – also capacity for growth – Limited planning implications – Innovations to allow ancillary development ‘on-site’ in allied health etc could be explored – though likely not restricted now
South St Leonards	<ul style="list-style-type: none"> – Require employment floorspace outcome in any redevelopment sites in 2-3 storey podiums – Investigate catalysing by residential in genuine mixed use redevelopment – Limited net employment floorspace change anticipated 	<ul style="list-style-type: none"> – Encourage retail in ground floor and second floor podiums – could be used to cross subsidise additional office development/redevelopment – Incorporate bulky formats / showrooms in Pacific Highway ‘boulevard’ podiums

St Leonards Core	<ul style="list-style-type: none"> – ‘Precautionary principle’ required given prospect of new station catalysing higher value office development – Require a minimum employment floorspace outcome in any redevelopment – Investigate catalysing by residential in genuine mixed use redevelopment – Consider major car parking reforms to reduce development costs and imposition at street level – 109,000 sqm approx. office, institutional, popn serving 	<ul style="list-style-type: none"> – This sub-precinct is where most change is expected – opportunity to create modern mixed business environment, ‘green zone’ with high amenity; Crows Nest station to St Leonards stations corridor is ‘interchange’ space, pedestrian / cycling priority (e.g. woonerf) – Challenge is to ensure an employment outcome while facilitating redevelopment given cost of redevelopment and returns on officedevelopment – need to monitor to ensure capacity is provided; – Minimum employment floorspace should be required to meet need – market testing and research required to see whether mixed use with residential will catalyse development, in forms acceptable to investors – Parking innovations enhance amenity, reduce costs need consideration (e.g. investigate zero parking in new developments combined with establishing ‘market’ for existing spaces, contributions at higher rates for commercial in off-site centralised parking e.g. next to St Leonards station, other sites)
Highway South	<ul style="list-style-type: none"> – Showroom / bulky retail precinct, first floor commercial – Incentives for redevelopment including residential – 25,000 sqm approx. popn serving 	<ul style="list-style-type: none"> – Boulevard treatment for Highway – additional calming, review on-street parking to encourage, public transport priority – Incorporate bulky formats / showrooms in Pacific Highway ‘boulevard’ podiums, allow additional residential on upper floors to catalyse change – Also podiums for commercial or medical centres etc for Mater Hospital related ancillary activity
Crows Nest Village	<ul style="list-style-type: none"> – High amenity precinct – Protect the grain and scale 	<ul style="list-style-type: none"> – No change to controls
Alexander Street	<ul style="list-style-type: none"> – Transition precinct – Allow redevelopment but continuing to provide small scale commercial space for start ups, personal services etc – 10,000 sqm approx, popn serving 	<ul style="list-style-type: none"> – Subject to design and testing modest changes to controls might be considered here including higher density residential with ground and first floor retail / commercial
Southern Health and Education	<ul style="list-style-type: none"> – Explore opportunities for consolidating and expanding health and education activities 	<ul style="list-style-type: none"> – Liaise with the Mator Hospital to find initiatives that facilitate expansion and co-location opportunities with allied health providers

APPENDIX A – HIGH AND LOW DENSITY RESTRICTED RETAIL

The Household Goods expenditure category can be delineated by high and low density offerings. Higher density household goods stores can often be found in closer proximity to town centres and may even act as indirect competitors to Discount Department Stores and specialty stores. Low density household goods stores on the other hand, are more likely to be found near major arterials. Assumptions regarding the apportionment of product types are shown below in Table 16.

SGS considers that in general, 70% of expenditure in Household Goods can be located in lower density building formats, with the remaining 30% suitably accommodated in higher density, smaller shopfronts.

TABLE 16 APPORTIONMENT OF HIGH AND LOW DENSITY RETAIL BY PRODUCT TYPE

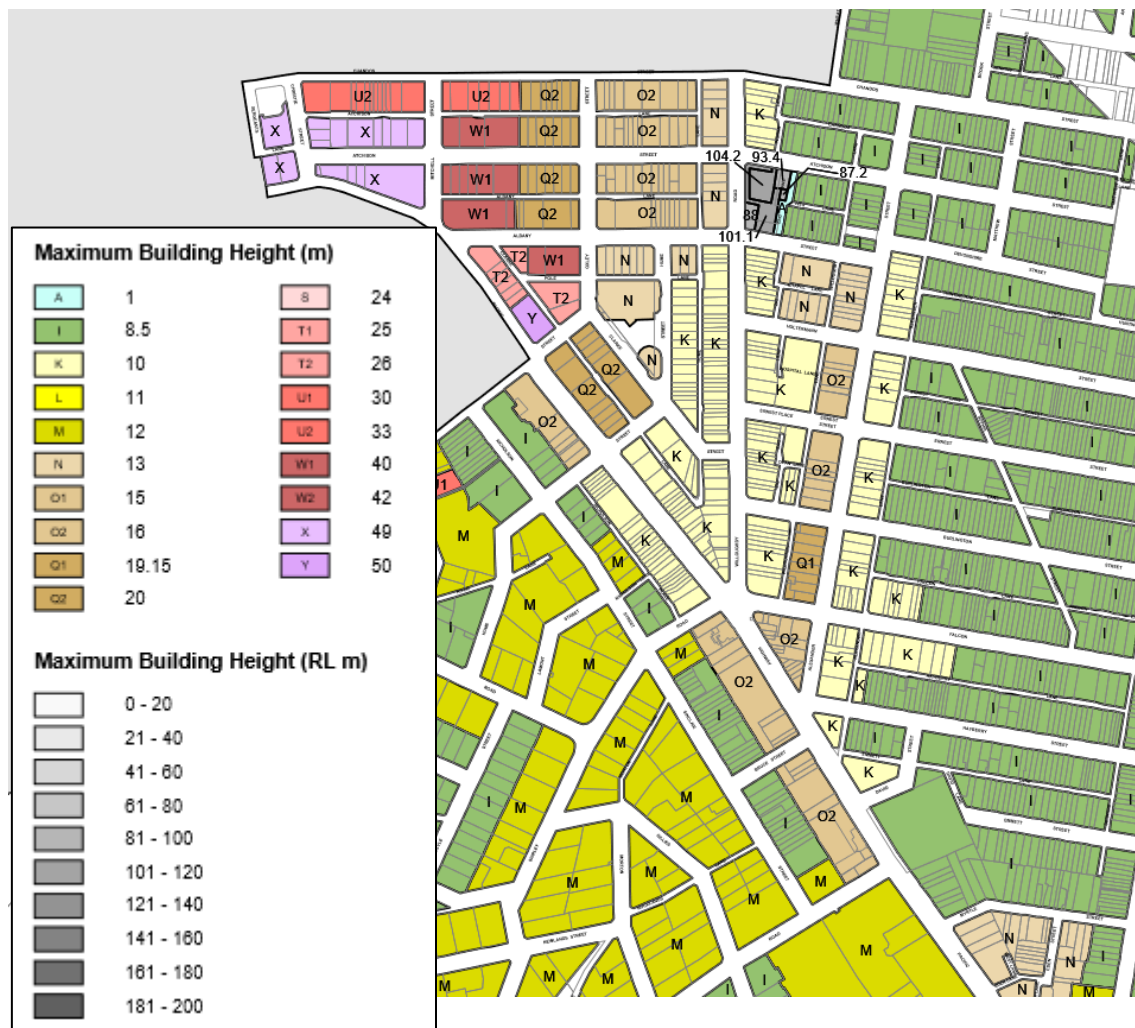
Product Category		Low Density	High Density
0701 Furniture and floor coverings			
0701010201	Bedroom furniture	100%	0%
0701010301	Lounge/dining room furniture	100%	0%
0701010401	Outdoor/garden furniture	100%	0%
0701010501	Other furniture	100%	0%
0701010601	Carpets	100%	0%
0701010701	Floor rugs, mats and matting	100%	0%
0701010801	Vinyl and other sheet floor coverings	100%	0%
0701010901	Floor tiles	100%	0%
0701011001	Other floor coverings	100%	0%
0702 Blankets, household linen and household furnishings			
0702010101	Bed linen	40%	60%
0702010201	Blankets and travelling rugs	40%	60%
0702010301	Bedspreads and continental quilts	40%	60%
0702010401	Pillows and cushions	40%	60%
0702010501	Towels and face washers	40%	60%
0702010601	Table and kitchen linen	40%	60%
0702010701	Curtains	60%	40%
0702010801	Blinds	60%	40%
0702010901	Other household textiles	40%	60%
0702019999	Household linen and furnishings (excluding ornamental) nec	40%	60%
0702020101	Paintings, carvings and sculptures	40%	60%
0702029999	Ornamental furnishings nec	40%	60%
0703 Household appliances			
0703010101	Cooking stoves, ovens, microwaves, hot plates and ranges	50%	50%
0703020101	Refrigerators and freezers	50%	50%
0703020201	Washing machines	50%	50%

0703020301	Air-conditioners	50%	50%
0703020401	Dishwashers	50%	50%
0703020501	Clothes dryers	50%	50%
0703029999	Whitegoods and other electrical appliances nec	50%	50%
0703030101	Non-electrical household appliances	50%	50%
0704	Glassware, tableware, cutlery and household utensils		
0704010101	Tableware	20%	80%
0704010201	Glassware	20%	80%
0704010301	Cutlery	20%	80%
0704010401	Cooking utensils	20%	80%
0704010501	Cleaning utensils	20%	80%
0704019999	Glassware, tableware, cutlery and household utensils nec	20%	80%
0705	Tools and other household durables		
0705010101	Lawnmowers (including electric)	80%	20%
0705010201	Gardening tools	80%	20%
0705010301	Other hand and power tools	80%	20%
0705019901	Mobile phones	5%	95%
0705019902	Telephone handset (purchase)	5%	95%
0705019904	Answering machines	5%	95%
0705019999	Tools and other household durables nec	50%	50%

Source: ABS Household Expenditure Survey 09-10

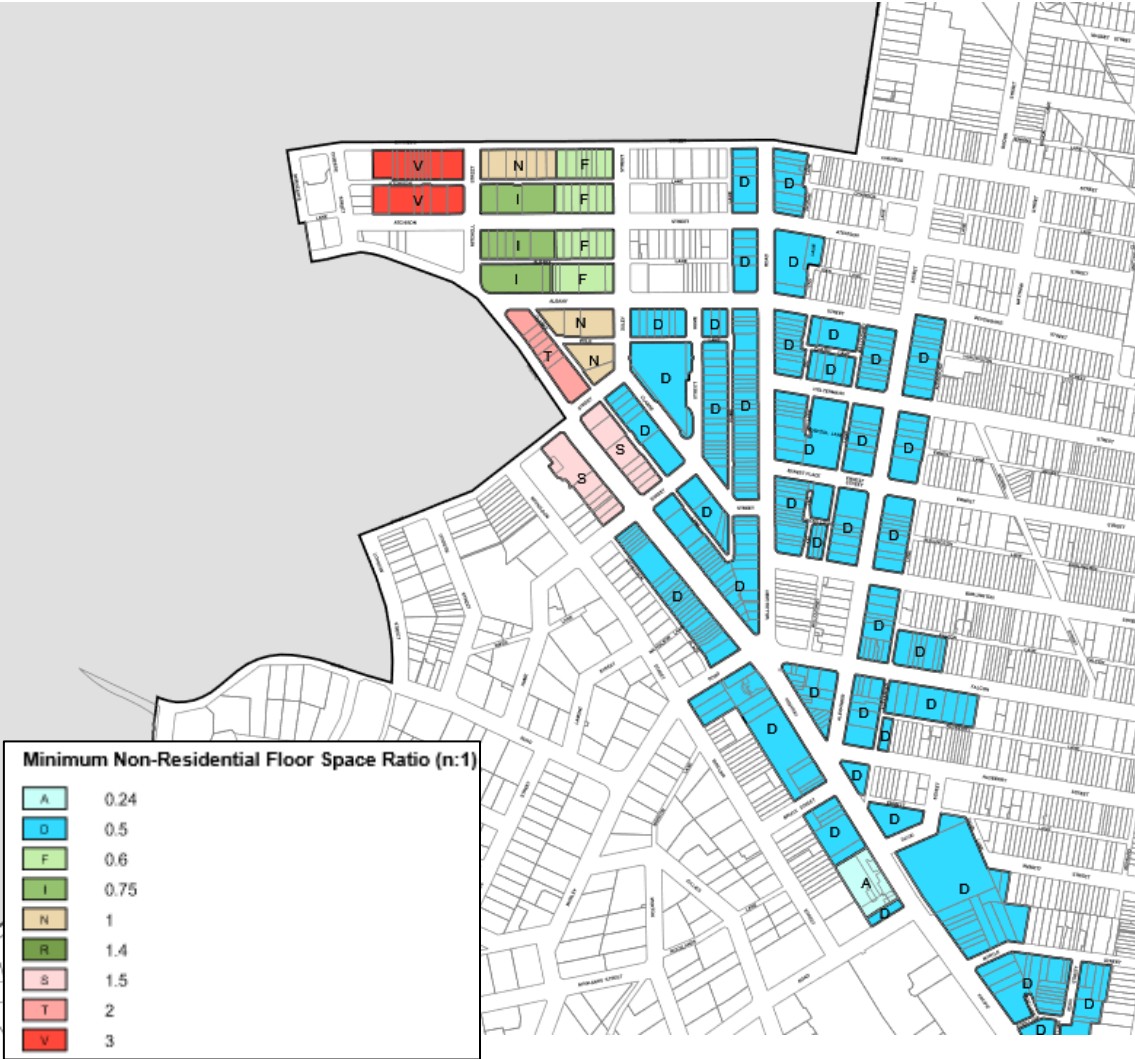
APPENDIX B – LOCAL STATUTORY PLANNING CONTROLS

FIGURE 41 MAXIMUM HEIGHT OF BUILDINGS – NORTH SYDNEY LGA



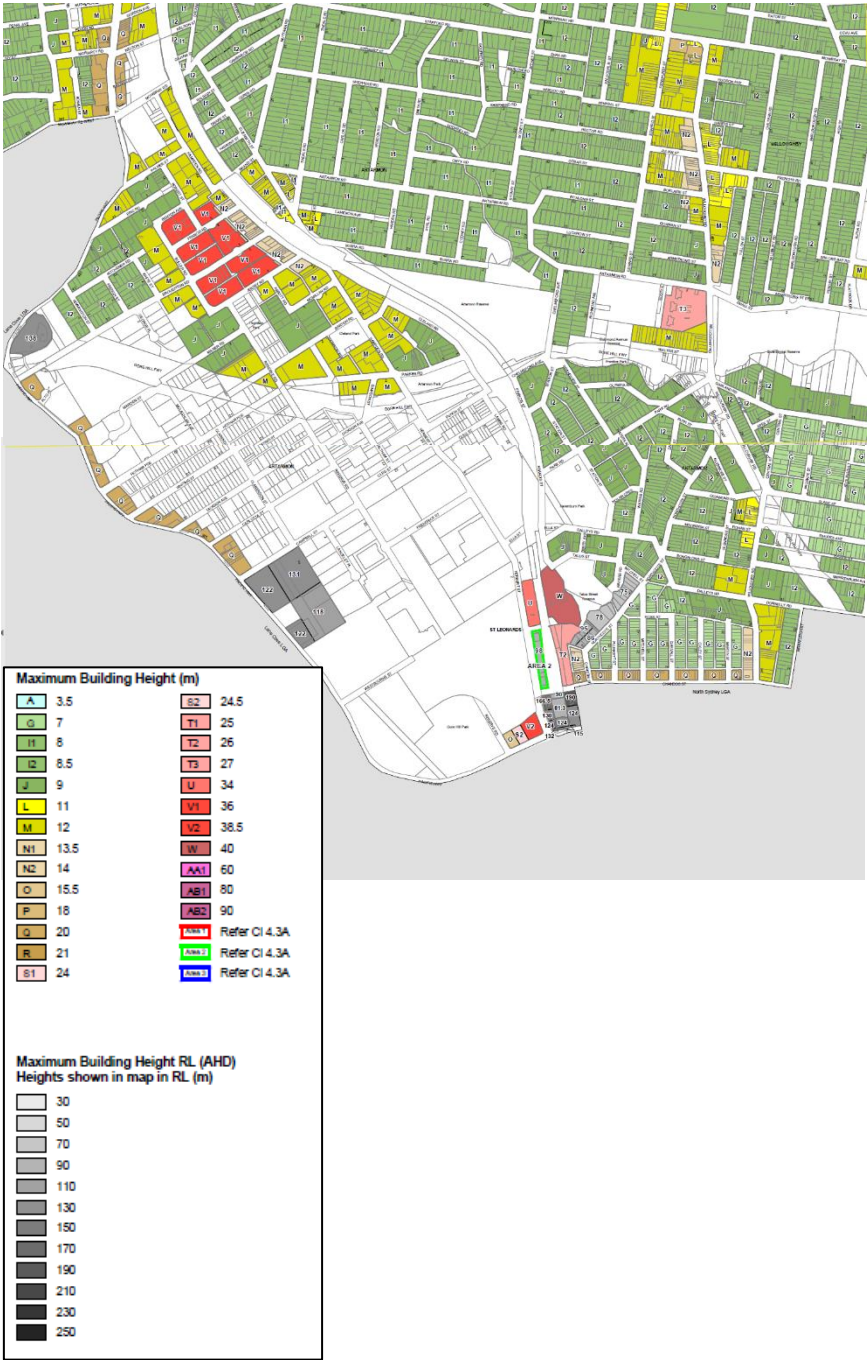
Source: North Sydney Council, 2013

FIGURE 42 MINIMUM NON-RESIDENTIAL FLOORSPACE RATIO IN NORTH SYDNEY LGA



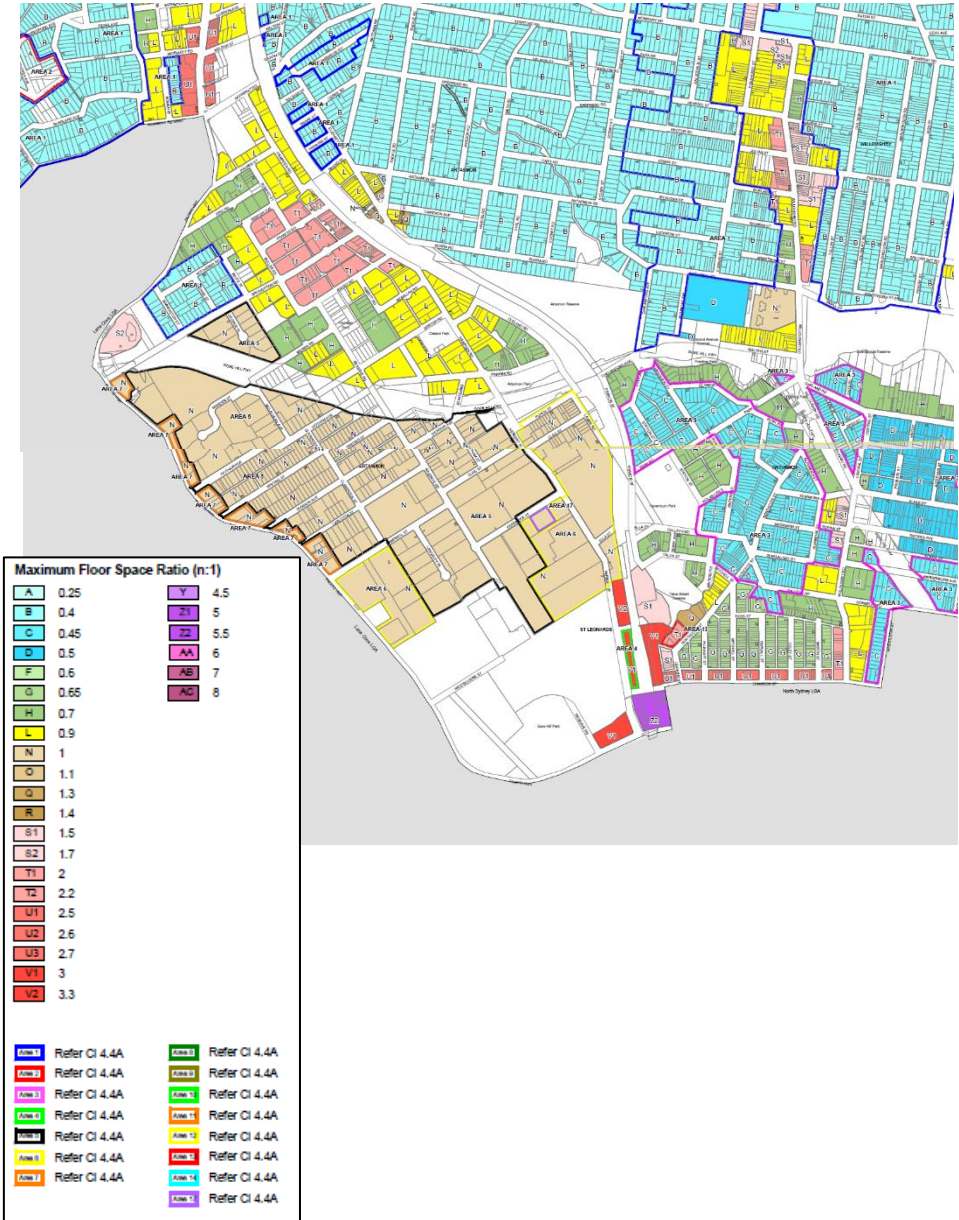
Source: North Sydney Council, 2013

FIGURE 43 MAXIMUM BUILDING HEIGHTS IN THE PRECINCT - WILLOUGHBY



Source: Willoughby City Council, 2016

FIGURE 44 FLOORSPACE RATIO IN THE PRECINCT - WILLOUGHBY



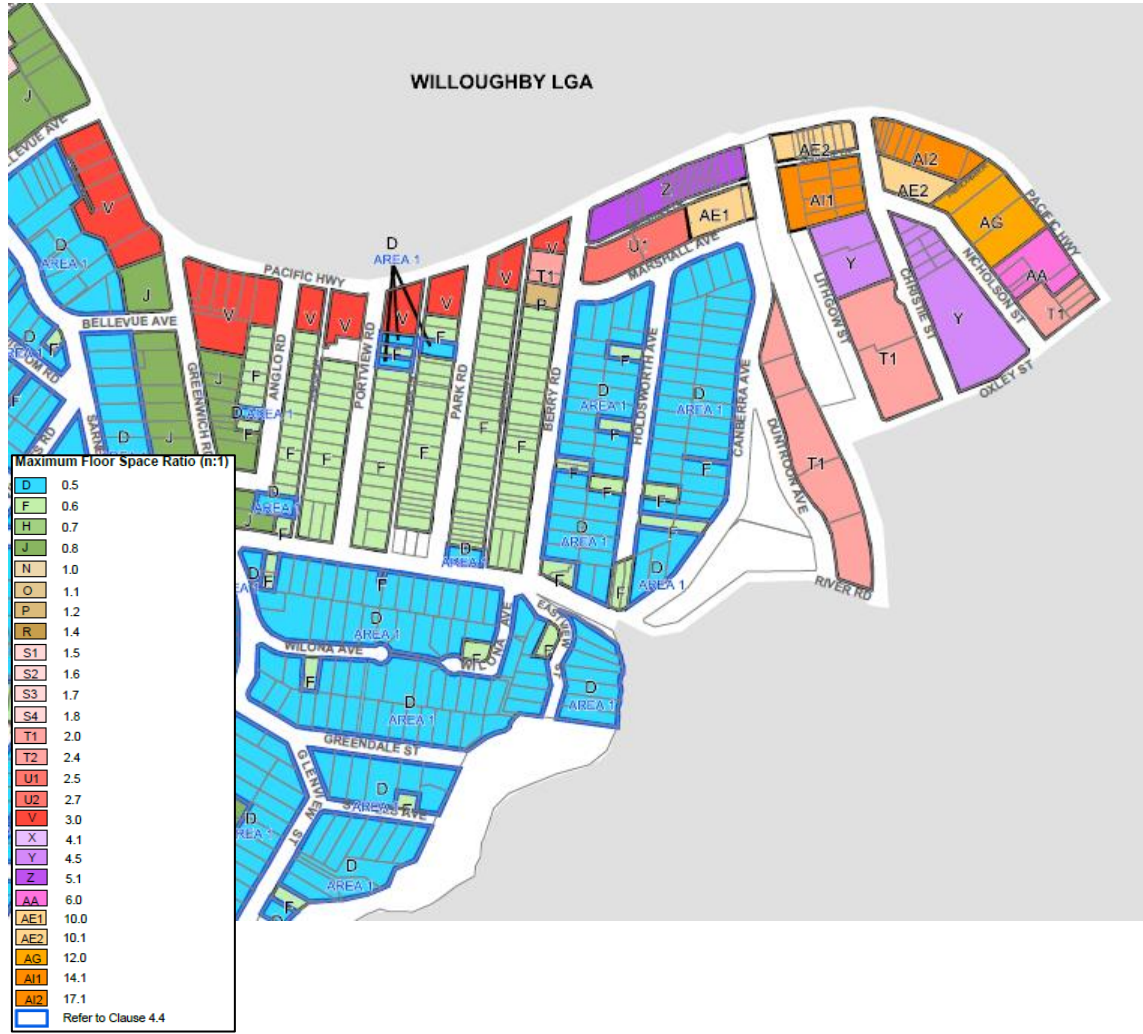
Source: Willoughby City Council, 2016

FIGURE 45 MAXIMUM BUILDING HEIGHTS IN THE PRECINCT – LANE COVE



Source: Lane Cove Council, 2016

FIGURE 46 FLOORSPACE RATIO IN THE PRECINCT – LANE COVE



Source: Lane Cove Council, 2016

APPENDIX C – EMPLOYMENT TO FLOORSPACE FORECAST CALCULATIONS

1. Forecast employment by 2036 across the study area.

	Knowledge Intensive	Population Serving	Health & Education	Industrial	Total
Artarmon	4,296	3,053	559	4,062	11,971
St Leonards	17,321	3,263	3,103		23,687
H&E			15,306		15,306
Crows Nest	4,743	2,909	3,754	816	12,221
Total	26,361	9,226	22,722	4,878	63,186

2. Employment to floorspace ratios by 2036 used to convert employment forecast into floorspace demand. All were derived from the audit with two notable exceptions.

	Knowledge Intensive	Population Serving	Health & Education	Industrial
Artarmon	48.0	61.8	25.6	60.2
St Leonards	23.0	17.9	36.6	
H&E			29.5	
Crows Nest	23.8	38.4	47.3	39.9

3. Floorspace demand by 2036 generated by multiplying (1) and (2).

	Knowledge Intensive	Population Serving	Health & Education	Industrial	Total
Artarmon	206,228	188,705	14,309	244,534	653,776
St Leonards	398,392	58,414	113,559	-	570,365
H&E	-	-	451,690	-	451,690
Crows Nest	112,886	111,694	177,554	32,550	434,684
Total	717,506	358,813	757,112	277,084	2,110,515

4. Existing floorspace supply (2016) revealed by SGS audit.

	Knowledge Intensive	Population Serving	Health & Education	Industrial	Total
Artarmon	179,308	127,500	8,245	263,033	578,085
St Leonards	356,490	38,760	66,555	0	461,805
H&E	0	0	451,690	0	451,690
Crows Nest	128,931	76,245	100,725	29,006	334,908
Total	664,729	242,505	627,215	292,039	1,826,488

5. Subtract (4) from (3), revealing the net floorspace gap that needs to be met by an increased supply of employment floorspace across the study area.

	Knowledge Intensive	Population Serving	Health & Education	Industrial	Total
Artarmon	-26,920	-61,205	-6,064	18,499	-75,691
St Leonards	-41,902	-19,654	-47,004	0	-108,560
H&E	0	0	0	0	0
Crows Nest	16,045	-35,449	-76,829	-3,544	-99,776
Total	-52,777	-116,308	-129,897	14,955	-284,027

APPENDIX D – BUSINESS SURVEY SUMMARY

A survey of select businesses in Artarmon and St Leonards was undertaken in the initial stages of the work to inform the assessment of business trends ‘on the ground’.

Whilst the survey was undertaken in the strictest confidence to avoid identification and discussion of individual businesses in this report, a number of key findings were pertinent to the study, including:

- Businesses with customers and supply chains across Metropolitan Sydney are located in this precinct.
- Industrial businesses in particular, are able to pay what are some of the highest rents for industrial floorspace in Artarmon. Some of these businesses have relocated from other industrial precincts like Hornsby, Alexandria
- An IT cluster has been emerging in and around Herbert Street over the past three to five years, with businesses having client networks across Australia and New Zealand.
- Herbert Street’s proximity to St Leonards Station is fuelling a commercial revitalisation of the area, with walkability for employees an important consideration for business owners
- Many businesses in Artarmon also operate with a combination of office and a warehouse/ manual production facility on the same site
- Uber is emerging as a significant mode of transport for workers that need to commute for day-time meetings in St Leonards.

Contact us

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