NORTHERN BEACHES EMPLOYMENT STUDY – BACKGROUND REPORT

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Prepared for
Northern Beaches Council

Independent insight.

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EXECUTIVE SUMMARY

Northern Beaches Council has commissioned a number of strategic planning studies, including the Northern Beaches Employment Study, to inform the development of the Local Strategic Planning Statement (LSPS) and Economic Development Plan and updates to the Local Environmental Plan (LEP).

The purpose of this first paper is to complete a review of the current policy landscape, socio-economic profile, and general economic trends and drivers to identify a number of challenges and opportunities that will be tested and refined over the course of the study.

The review of the current policy landscape indicates Northern Beaches Health and Education Precinct will be the focus of significant investment for the LGA. The hospital and investments are expected to stimulate the economy and provide a greater number of jobs in the area. Growing local job opportunities and ensuring efficient access to these jobs (creating a 30-minute city) is also a key focal point for other strategic centres in the LGA, including Brookvale-Dee Why, Manly and Mona Vale. Investigating tourism opportunities has also been identified as a key area to leverage. Policy directives are encouraging a mix of land uses for Manly centre. All levels of planning support a 'retain and manage' policy for industrial and urban services lands in the Northern Beaches LGA.

Industrial lands in the North District are of high value to the Greater Sydney region. Brookvale contains the largest general industrial precinct in the North District, and yet the North District has the least amount of industrial and urban services land stock in the Greater Sydney region. These lands are under increasing pressure from non-industrial land uses, such as large format retail, residential, office, gyms and childcare centres. The value of these lands, in performing important functions for cities and populations, needs to be recognised. The provision of jobs and services, such as car repair, close to where people live, and other businesses are critical to the productivity of the North District and Greater Sydney.

Local level planning policy indicates growth that is sensitive to the natural and built environment; supporting local interaction in smaller centres; developing the night-time economy and investigating access to centres via all transport modes is important to the local community. Local businesses have identified that distance is an issue for growth.

Socio-economic profiling indicates the Northern Beaches LGA will experience lower growth rates than the Greater Sydney region, as well as an increasingly ageing population which is generally consistent with Greater Sydney.

Northern Beaches LGA has a higher proportion of people working part-time than Greater Sydney and the North District and this has been growing since 2006. Just over half of the local resident population work locally, and over three quarters of the local jobs are filled by local working residents. Self-containment generally increases moving north in the LGA. A higher share of local residents work in Knowledge Intensive jobs and Population Serving jobs, although there has been a rise in the number of people working in Health and Education. A significant number of people travel out of the LGA, particularly to work in Knowledge Intensive industries, in Sydney CBD, North Sydney and Willoughby, while social assistance, aged care workers and teachers tend to come into the LGA for work. Improving transport connections between Northern Beaches to Greater Sydney will support the journey to work between the LGAs.

There are high rates of private vehicle use to access employment in the Northern Beaches which generally increases moving further north of the LGA. There are strong 30-minute linkages between Frenchs Forest and Brookvale-Dee Why, as well as to Chatswood. Generally, there is strong 30-minute access radiating out of Brookvale-Dee Why to surrounding areas in the LGA. Manly and Mona Vale tend to have a more contained level of access.

The retailing landscape is varied and changing. Online retailing has impacted traditional 'bricks and mortar' retailing and these retailers are having to find new ways to engage and attract customers. Regional shopping centres are becoming more mixed-use centres. The food and dining scene have seen strong success in cafes, some restaurants are building the 'experience' components with other activity to attract diners and food courts are redeveloping to engage with the 'outdoors' and improve amenity. Fine grain retailing has had to compete with the popularity of regional shopping centres in recent years.

With the rise in online retailing, the value of industrial and urban services lands for logistics uses located in close proximity to residential areas has never been more apparent. There has also been growth in creative led land uses in these areas. It will be important to ensure industrial and urban services are retained and provide for local communities and are not overcome by creative-led gentrification and pressure from other land uses such as retail, office or residential.

A number of other trends and drivers requiring consideration include:

- There has been a rise in coworking spaces in Greater Sydney in recent years. Coworking spaces can take many forms and support a variety of working styles.
- There are two components to a night-time economy. The social aspect of bars, clubs and restaurants and the more practical and functional side where services, safety and amenity of centres needs to support late-night workers and shift workers.
- An ageing population will require employment opportunities that support their financial independence later in life; and economic centres and businesses that cater to their essential, social and recreational needs, as well as a built form and transport servicing that supports their mobility. Economic centres must also respond and cater to the rest of the population in the LGA, including those migrating in to the LGA that will help replenish the workforce.
- Arts and culture-based tourism, food and wine centred tourism and nature-based tourism are all strongly represented within the NSW visitor economy. There is potential for these areas to be capitalised upon further in NSW.
- Technological developments and designs could be implemented to support the sustainability agenda.

A number of challenges have been identified for the LGA. Specifically, for centres, this relates to:

- Frenchs Forest Town Centre that suffers from severance which will need to be resolved as the centre grows. A number of precincts in Greater Sydney have been designated as health and education precincts. Frenchs Forest will be directly competing with these other well-established medical and education centres to attract highly skilled workers.
- Brookvale is an ill-defined centre that lacks good amenity and contains a dominant Westfields shopping centre as a central point for the local population. A challenge will be to protect the industrial and urban services land in the centre and balance it with the other major role of Brookvale, as a population serving centre.
- Dee Why centre requires strengthening of its role as a civic and population serving centre that complements Brookvale.
- Manly centre has the potential for land use tension into the future. Policy directives are encouraging a diverse mix of uses as the centre grows but it also suffers low accessibility.
- Mona Vale needs to elevate to fulfil its role as a strategic centre for the north of the LGA. Generally, other challenges for the LGA include protecting the integrity of the industrial precincts; understanding the concept of 'working locally'; ensuring centres can support an increasingly ageing population and attract diversity; and overcoming an overall lack of connectivity within centres and topography issues and high private vehicle use.

Opportunities for the development of the Northern Beaches economic centres includes:

- Improving connectivity in Frenchs Forests to ensure retail, health and education components function together and valuing the presence of the Frenchs Forest business park and supporting a higher commercial (office) function. There is also opportunity develop the place branding of Frenchs Forest to help attract a highly skilled workforce.
- The functionality of Brookvale should be improved by integrating Warringah Mall with surrounding land uses, improving amenity, developing a focal point for the centre and determining the right mix of industrial and urban services uses and protecting and managing these lands.
- The role of Dee Why as a civic and population serving centre, that complements Brookvale, should be elevated through greater amenity improvements and development of its population serving components.
- Manly centre will require a clear vision to reduce future land use conflict, particularly centred around building its tourism role.
- The future of Mona Vale centre will involve development that achieves strategic centre status; in particular it should serve the needs of the northern populations; and it should not complete with other strategic centres in the LGA.

1. PROJECT CONTEXT

1.1 Study Objectives

Northern Beaches Council has commissioned a number of strategic planning studies, including the Northern Beaches Employment Study, to inform the development of the Local Strategic Planning Statement (LSPS), updates to the Local Environmental Plan (LEP) and the Economic Development Plan.

The Northern Beaches Employment Study will assist Council to:

- Understand the current employment and economic context of the Local Government Area (LGA) and its links to the Eastern Economic Corridor and Greater Sydney.
- Understand the macro changes shaping our economy and develop an understanding of how these changes will impact land use activity in employment hubs in the LGA.
- Understand micro drivers of economic activity, particularly job containment, which will be explored through interviews, business and workforce surveys.
- Understand the value proposition of the Northern Beaches for businesses and identify existing and emerging industry clusters across employment hubs to inform growth projections and economic development responses.
- Consider the contribution of economic activity to the local character and identity of 'employment hubs' to encourage an 'employment neighbourhood' perspective.
- Identify existing supply and capacity of employment generating lands under current development controls and develop an understanding of current split of land uses by floorspace, including vacancy rates.
- Assess future demand for employment and economic growth based on population projections to 2036.
- Make planning recommendations to inform the Local Strategic Planning Statement and Local Environmental Plan and non-planning recommendations to inform an Economic Development Plan.

1.2 Paper Structure

The purpose of this first paper is to complete a review of the policy background and economic context and identify a number of challenges and opportunities that will be tested and refined over the course of the study.

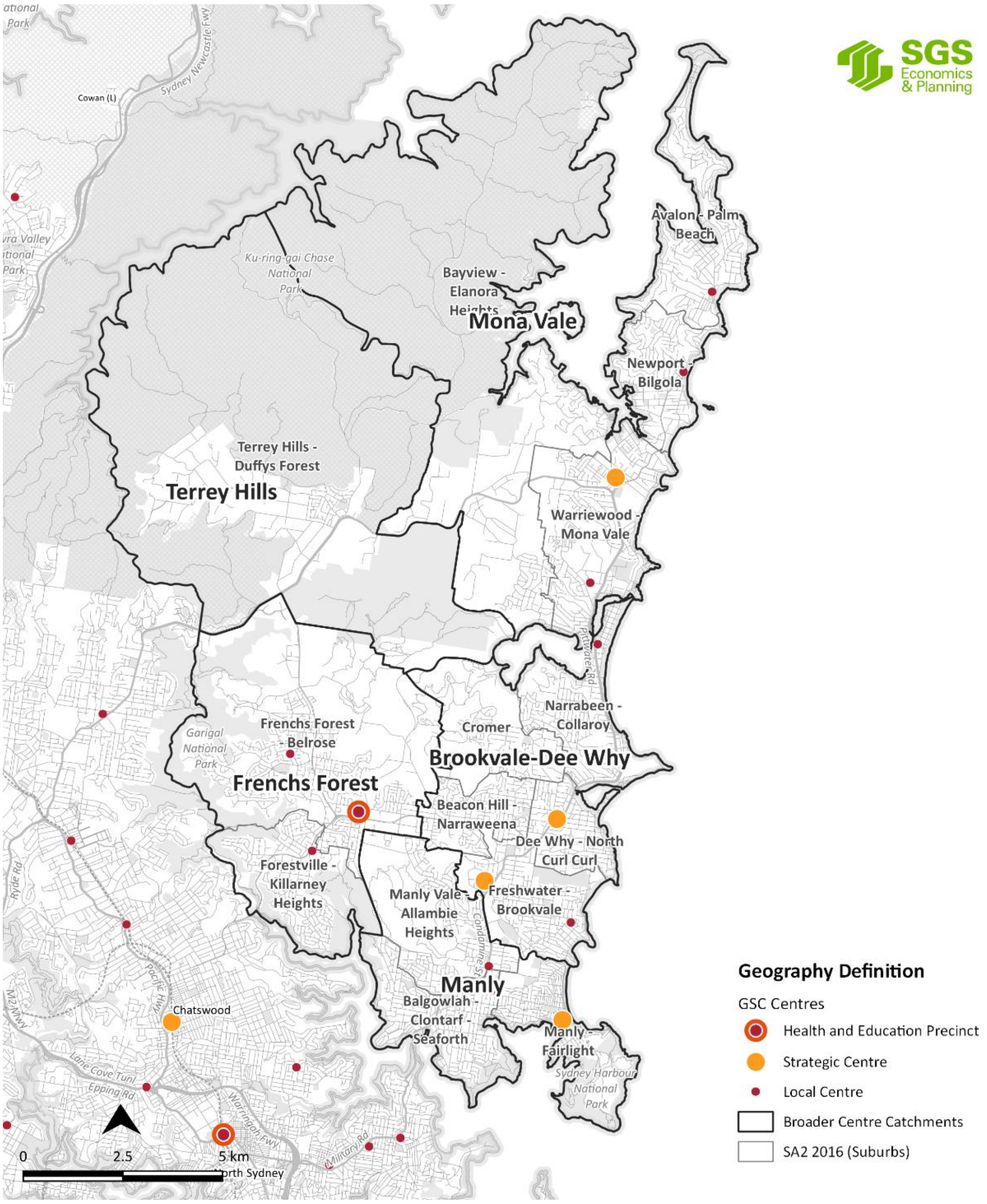
The paper is structured as follows:

- Strategic policy and priority review
- Employment and economic profile
- Trends and drivers
- Challenges and opportunities
- Emerging insights.

1.3 Northern Beaches Context

Northern Beaches Council is a recent amalgamation of Warringah, Manly and Pittwater Councils. Located in the north of Greater Sydney, encompassing Ku-ring-gai National Park in the west and running through to the east coast, Northern Beaches Council contains a number of Greater Sydney Commission (GSC) nominated Strategic Centres, namely French Forest Health and Education Precinct, Brookvale-Dee Why, Manly, Mona Vale, as well as identified local centres including Balgowlah, Manly Vale, Freshwater, Narrabeen, Warriewood, Newport, Avalon, Forestville, Glenrose. These centres contain a mixture of land uses that span population serving, health and education, commercial and industrial industries.

FIGURE 1: NORTHERN BEACHES LGA CONTEXT



Source: SGS Economics & Planning

2. STRATEGIC POLICY AND PRIORITY REVIEW

This chapter provides a strategic policy overview, with a focus on state, local and other strategies and polices that inform the future direction of Northern Beaches economic development.

Strategic plans from the NSW Government and Northern Beaches Council provide the context for future land use in the Northern Beaches LGA. These plans anticipate increases in population and employment and provide guidance about where this growth should occur. The need to accommodate growth must be balanced with land use limitations as land use conflict may occur in places where the most intense development is intended.

2.1 State Policies

Greater Sydney Region Plan (2018)

The Greater Sydney Region Plan (GSRP) is a metropolitan strategy that responds to the current and future planning challenges of the Greater Sydney Region. The aim of the GSRP is to transform Greater Sydney into a metropolis of three cities: The Western Parkland City, the Central River City and the Eastern Harbour City over the next 40-year period. This vision will be progressed via a series of objectives centred on infrastructure, collaboration, liveability, productivity and sustainability.

Northern Beaches Council is in the Northern District. Directions for productivity include developing a well-connected city that supports shorter, localised connections to jobs, schools and services through integrated land use, transport and infrastructure planning; and enhancing productivity through strategic planning that enables jobs and skills growth and investment for LGAs, such the Northern Beaches.

Implications for Employment & Economic Centres

The GSRP includes ***Objective 21: Internationally competitive health, education, research and innovation precincts.*** This objective recognises successful health and education precincts are internationally competitive and are also innovation districts - an active ecosystem that includes health and education assets, medical research institutions, are transit accessible and have a complementary mix of industry tenants, housing and ancillary facilities and services.

Strategies to develop these precincts include conditions for the co-location of health and education facilities; high levels of accessibility; attraction of associated businesses and housing opportunities for students and workers within 30 minutes of the precinct.

Objective 22: Investment and business activity in centres. This objective identifies the role of centre hierarchies in effective strategic planning. Centres play a role in delivering jobs close to home, facilitate an effective public transport system and provide a range of social and economic infrastructure to support local and metropolitan communities.

The GSRP outlines the importance of clear and consistent application of the centre hierarchies to ensure that retail, commercial and other population-serving uses can be effectively distributed to meet the needs of the communities that each centre supports.

Not all centres are the same and the GSRP centre's hierarchy identifies three centre types relevant to Greater Sydney:

- Metropolitan Centres – the focus for Sydney's global economic competitiveness.
- Strategic Centres – to provide access to goods, services and jobs for a range of different communities.
- Local Centres – to support day-to-day access to goods and services.

Objective 22 also identifies the following other types of economic places:

- Health and Education precincts - clustered around a hospital and/or major tertiary education institution.
- Economic Corridor – that include multi-LGA precincts with a high concentration of jobs, often linking multiple centres.

To create a more productive city, the GSRP aims to grow jobs in metropolitan centres, health and education precincts and strategic centres.

Frenchs Forest is classified as a Health and Education precinct. Manly, Mona Vale and Brookvale-Dee Why are classified as Strategic Centres. Employment growth in these areas and public transport access to these centres could create opportunities for redevelopment. Balgowlah, Manly Vale, Freshwater, Narrabeen, Warriewood, Newport, Avalon, Forestville and Glenrose are designated Local Centres.

The GSRP includes ***Objective 23: industrial and urban services land is planned, retained and managed*** which recognises the value of industrial lands within a city where it is not necessarily the number of jobs provided, but the operational role and function industrial lands play that is of importance.

Industrial lands in the Northern Beaches support local businesses and communities. Industrial lands can include a range of activities from major freight and logistics, heavy manufacturing, light industry, to urban services and creative uses.

The principles for managing industrial and urban services land across Greater Sydney, as identified in the GSRP, includes:

- **Retain and manage –** all existing industrial and urban services land should be safeguarded from competing pressures, particularly residential and mixed-use zones.
- **Review and manage** – review all industrial and urban services land under this approach to either confirm its retention or manage uses to allow sites to transition to higher-order employment activities and seek appropriate controls to maximise business and employment outcomes.
- **Plan and manage** – in land release areas identify additional industrial and urban service land.

The Northern Beaches is designated as a 'retain and manage' LGA.

Objective 24: economic sectors are targeted for success identifies several industry sector strategies that facilitate business innovation. For example, mobile business advisors are based in the Northern Beaches this will help to create the conditions for a stronger economy and facilitate job growth in the area.

North District Plan (2018)

The North District Plan (NDP) is a 20-year strategy, linked to the GSRP, that aims to manage growth in the District. The NDP informs local level strategic planning, assessment of planning proposals and gives effect to the GSRP.

Implications for Employment & Economic Centres

Key industrial, strategic centres, collaboration areas and health and education precincts have directives and priorities. The Plan seeks to align job growth services and transport to deliver a well-connected 30-minute city.

Planning Priority N1 – Planning for a city supported by infrastructure: where planning decisions need to support new infrastructure, equitably enhancing local opportunities, inclusion and connections to services. A potential indicator is an increase in 30-minute access to a centre/cluster. This action could include improved east-west bus services from Northern Beaches to Chatswood and the Beaches Link and Western Harbour Tunnel, providing better connectivity to Frenchs Forest Strategic Centre.

Planning Priority N9 - Growing and investing in health and education precincts: the Frenchs Forest Health and Education precinct is led by the NSW Department of Planning and Industry, State agencies, NSW Health and Northern Beaches Council to progress planning. The newly constructed $600 million Northern Beaches Hospital will continue to anchor growth in the North District.

Currently it is estimated 9,300 people work within the Frenchs Forest precinct. The NDP identified potential job targets of approximately 12,000 jobs by 2036 as a baseline and 13,000 as a higher target. One of the key actions is the delivery and implementation of a Place Strategy and Infrastructure Plan for this precinct.

FIGURE 2: FRENCHS FOREST HEALTH AND EDUCATION PRECINCT

Source: Greater Sydney Commission, 2018

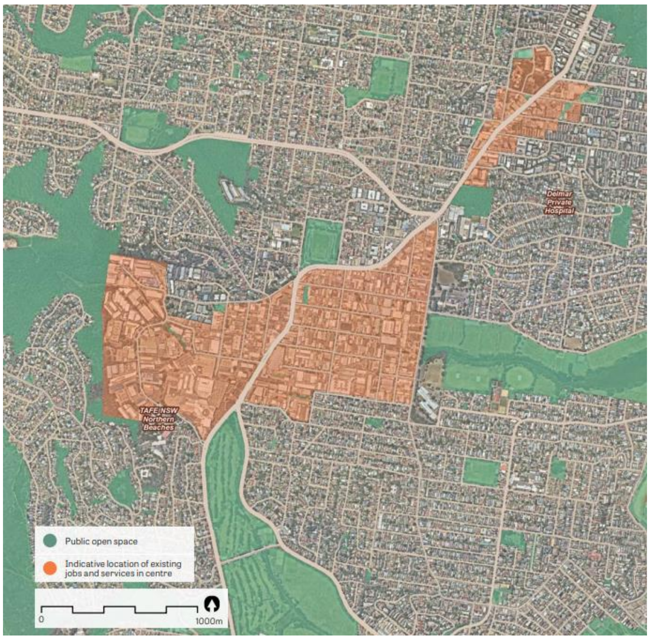
*Planning Priority N10 – Growing investment, business opportunities and jobs in strategic centres: s*trategic centres must make use of jobs, services and public transport connectivity. Specifically, this Planning Priority identifies actions for the District's Strategic Centres. Of relevance to the Northern Beaches LGA is the **Frenchs Forest** strategic centre, see Figure 2, which is also identified as a health and education precinct. Frenchs Forest and the Northern Beaches Hospital will help to create a vibrant strategic centre core which will provide a location for knowledge intensive jobs, innovation and service delivery. The hospital and recent investments into transport will facilitate future development of the area.

Specific employment related actions for Frenchs Forest, as designated by the GSC, include:

- Leverage the investment in the Northern Beaches Hospital to provide a vibrant and well-connected strategic centre.
- Deliver an urban core with a mix of commercial and residential uses, open space and community facilities.

- Attract new, innovative health and medical related commercial premises to support the hospital.
- Reinforce the centre as an employment hub for the Northern Beaches, building on the existing business park east of the Wakehurst Parkway.

FIGURE 3: BROOKVALE-DEE WHY STRATEGIC CENTRE



Source: Greater Sydney Commission, 2018

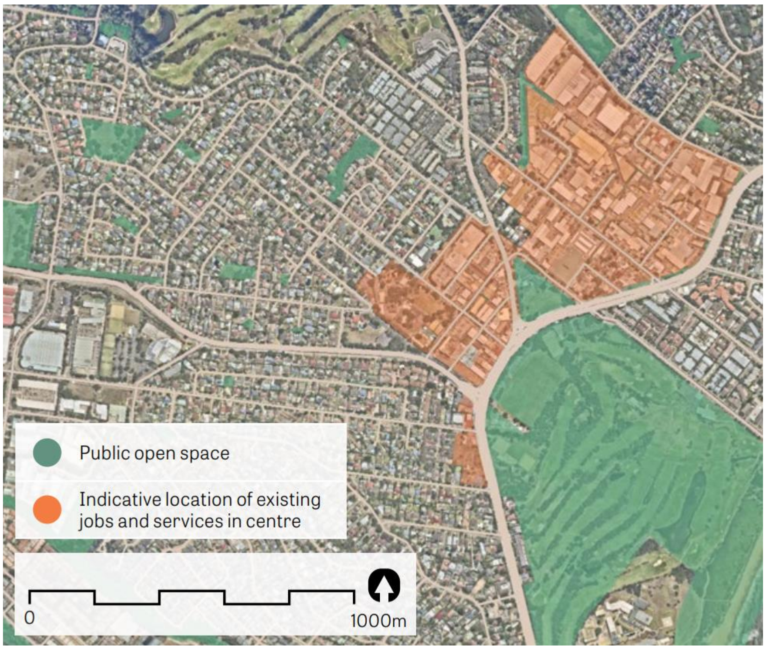
Brookvale-Dee Why is an industrial and mixed-use area supporting niche manufacturing wholesale industries in the day, as well as a local night-time economy, see Figure 3. It contains **Warringah Mall**, one of the largest retail areas in Greater Sydney, as well as a TAFE NSW campus. The 2016 estimate of 20,000 jobs is projected to grow to between **23,000 - 26,000 by 2036**.

Specific employment related actions for Brookvale-Dee Why, as designated by the GSC, include:

- Maintain a mix of uses so that Brookvale-Dee Why continues to perform strongly as a well-balanced, self-sustaining combined centre.
- Encourage and support improvements to Warringah Mall and better integrate it within the fabric and life of Brookvale-Dee Why.
- Recognise and encourage the economic and employment opportunities along Pittwater Road and encourage revitalisation along the commercial strip.
- Promote walking, cycling and public transport to Warringah Mall, the Brookvale industrial area and Dee Why.
- Encourage the establishment of new, innovative and creative industries in the Brookvale industrial area.
- Encourage new lifestyle and entertainment uses to activate local streets in Brookvale-Dee Why.

While these NDP treats Brookvale and Dee-Why as one centre, the actual form and function of these places is distinct and are therefore being treated in this paper as separate, yet complementary centres.

FIGURE 4: MONA VALE STRATEGIC CENTRE



Source: Greater Sydney Commission, 2018

The Northern District Plan also identified **Mona Vale** as a mixed-use strategic centre, see Figure 4. The area provides a range of functions including retail, commercial, community, light industrial and residential uses. The centre is identified as a vibrant centre by day and is identified as a high amenity centre. The introduction of the B line into the area has improved the connectivity of Mona Vale to the CBD. The 2016 estimate of 4,300 jobs is expected to grow to between **5,000 - 6,000 jobs by 2036.**

Specific employment related actions for Mona Vale, as designated by the GSC, include:

- Protect and enhance the commercial and retail function of the centre to provide employment growth and maintain high job containment.
- Ensure sufficient retail and commercial floorspace is provided to meet future demand.
- Leverage Mona Vale's role as a north-south and east-west bus interchange to facilitate a greater diversity of employment and mixed-uses in the centre.
- Retain and manage the industrial precinct to the north of the centre to serve the growing population.

FIGURE 5: MANLY STRATEGIC CENTRE

Source: Greater Sydney Commission, 2018

Manly offers a variety of cultural, tourism and entertainment activities near Manly Beach, one of the most popular beaches in Sydney, see Figure 5. It is well served by public transport and includes a ferry and bus service from the Sydney CBD. The 2016 estimate of 5,000 jobs is projected to grow to between **6,000 - 6,500 by 2036**. This growth could potentially encourage a greater presence of visitors and tourists in the LGA and increase the desirability of living in this location with more local jobs opportunities.

Specific employment related actions for Manly, as designated by the GSC, include:

- Further develop Manly as a cultural, tourist, retail and entertainment precinct.
- Encourage diversified commercial activity to improve economic resilience.
- Encourage eco-tourism around North Head and the Cabbage Tree Aquatic Reserve.

In summary, NDP job targets for the various strategic centres are:

Strategic Centre	2016 Job Estimate	2036 Baseline Job Target (total jobs)	2036 Higher Job Target (total jobs)
Frenchs Forest	9,300	12,000	13,000
Brookvale – Dee Why	20,000	23,000	26,000
Manly	5,000	6,000	6,500
Mona Vale	4,300	5,000	6,000

Other relevant planning priorities contained in the NDP include:

Planning Priority N11 - Retaining and managing industrial and urban services land: the North District has the smallest proportion of industrial and urban services lands in Greater Sydney. The NDP identifies urban services land and industrial lands as critical. These lands support the functioning of the area. The NDP aligns with the GSRP and classifies the lands to be retained and managed.

Planning Priority N13 – Supporting growth of targeted industry sectors: the NDP recognises the importance the tourism and rural industries. For instance, the tourism and visitor economy are identified in the Plan as being central to the productivity of the Northern Beaches LGA. Attractions in the area include several beaches and National Parks. Investments into the Walk and Cycleway to/from Manly to Palm Beach will also facilitate investment in this sector. The North District includes part of the Metropolitan Rural Area, where agricultural processing and export is an important component. This planning priority supports:

- Growth of internationally competitive industry sectors
- Response to changing technologies
- Planning for tourism and visitation activities
- Protection and support of rural industries.

A Metropolis that Works, GSC Thought Leadership Series

The paper responds to Objective 23 of the GSRP that industrial and urban services land be planned, retained and managed and acknowledges the changing nature of industrial and urban services and their spatial requirements and strategic value.

Great cities are acknowledged as also being working cities - more than just residential neighbourhoods where residents have improved travel times but where industrial or employment precincts play an important and equitable role in the day-to-day functioning of a city. Spaces are needed in the city where people can function, make and create.

It is recognised only eight per cent of land across Greater Sydney is zoned for non-residential uses such as industrial and urban services yet, 19 per cent of all jobs across Greater Sydney are classed as industrial.

The paper highlights the sector is evolving from its traditional manufacturing, service, repairs, transport and warehousing association to higher order industrial, technology, creative and logistic uses. It is stated that research indicates there is often a mismatch between businesses operating in the industrial and urban services lands and standard land use definitions.

The paper suggests strategic planners need to plan for a multi-layered city that provides creative interfaces; facilitates 'ordinary' functions; and has space that services future population needs. If change does occur, there is a need to retain ownership of the terms on which those changes are made, and determinations should require no net loss of land or businesses and seek additional allocations relative to population growth.

Land use conflict from mixed use zoning is recognised, as well as certain actions that allow uses such as cafes and restaurants to operate in these precincts. The introduction of such uses can impact the integrity of productive industrial and urban service land by introducing land use conflicts which, in turn, often add operating constraints to businesses.

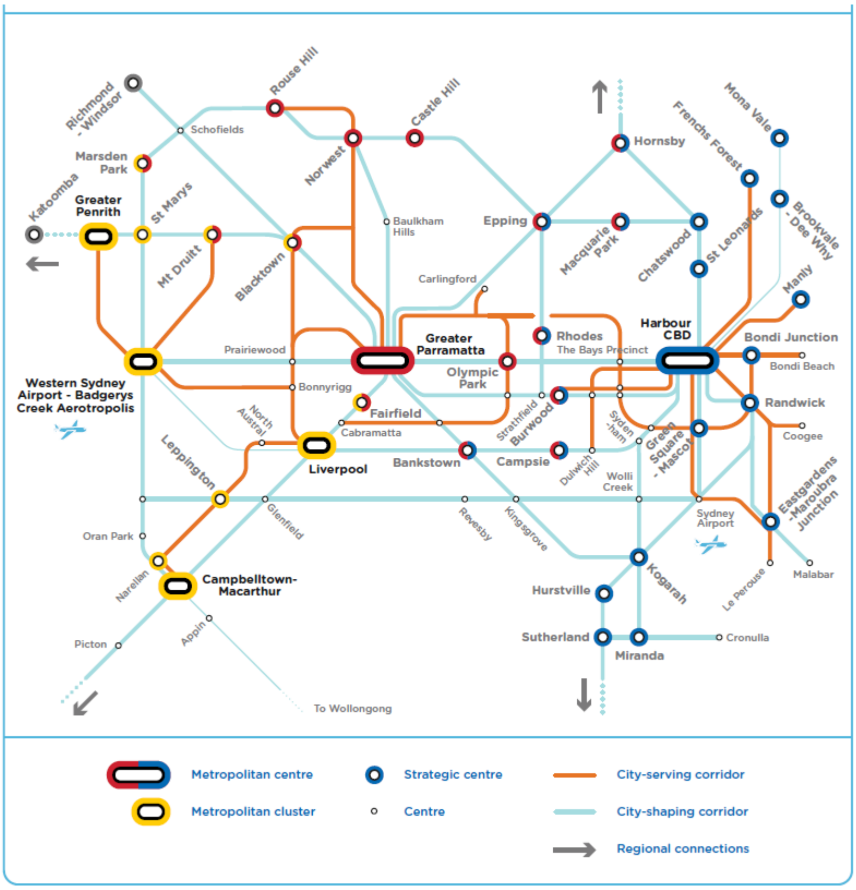
The paper highlights a nuanced approach is needed for the evolving uses of these spaces - how to support the emergence of organic creative enterprises and local networks and avoid the risks of 'creative led' gentrification. This approach is underpinned by a 'no regrets' approach to decision making regarding industrial and urban services land.

It is noted that these lands need better planning and management that is responsive to market and community needs. GSC research indicates the importance of local proximity of industrial lands and urban services land has increased the most for the North District where industrial land value is almost double with rents 50 per cent greater and job density three times the region's average.

Future Transport 2056

Future Transport 2056 is the NSW Government's long-term transport strategy. The *Greater Sydney Services and Infrastructure Plan* provides transport infrastructure priorities and aims to achieve the aspiration of a 30-minute city set out in the GSRP. New and upgraded transport connections are identified for this purpose, as related to Figure 6.

FIGURE 6: CITY-SHAPING AND CITY-SERVING TRANSPORT NETWORKS FOR 2056, WITH SEVERAL NEW TRANSPORT CONNECTIONS THROUGH THE NORTHERN BEACHES LGA



Source: Transport for NSW 2018, Future Transport 2056 Greater Sydney Services and Infrastructure Plan

Implications for Employment & Economic Centres

The future transport infrastructure projects identified in the Northern Beaches LGA are:

Initiatives committed or for investigation (0-10 years):

- Northern Beaches B-line
- Northern Beaches Hospital Road Upgrade
- Improved bus services between Northern Beaches and Chatswood
- Beaches link.
- East-west public transport connection from Mona Vale to Macquarie Park.

Initiatives for investigation (20+ years):

- Further investment in cycling connections within 5km of strategic centres.

2.2 Local Studies

Economic Development – Strategic Foundations Debrief (2019)

Behavioural Architects were engaged by Council to:

- Understand the appetite for Northern Beaches residents to work in the Northern Beaches
- Understand the appetite for businesses to base themselves in the Northern Beaches
- Define the barriers and generating ideas to overcome them.

The study was conducted in three stages: hypotheses development via a workshop and review of past studies; primary research with three focus groups; and a strategic foundations debrief and workshop with Council to prioritise ideas.

Implications for Employment & Economic Centres

Five key insights were determined from conversations with residents and businesses:

- 1. Awareness: there is a lack of awareness by residents and businesses in the Northern Beaches as seeing it as a credible business place, with perceptions anchored to the beaches as a place to relax.
- 2. Perceptions: Subsequently, employees and businesses based in Northern Beaches are perceived to be less serious.
- 3. Anchored to benefits: Residents working outside of Northern Beaches post rationalise their decisions and see significant benefits to working outside the Northern Beaches which they don't want to give up.
- 4. Framing of commute: The commute is famed as an opportunity for more me-time for all, however the possibilities within that time extend beyond admin and listening to podcasts for those who work in the Northern Beaches.
- 5. Habits: Habits are embedded for residents and businesses alike who are simply acting automatically when it comes to work. Life stage, such as having children, can act as an opportunity to change behaviour however outside of this there is little reason to change behaviour.

Three recommendations from the study included:

1. Encourage residents to work from home once a month by anchoring people to the benefits of working from home beyond current practical reasons.
2. Target current businesses and create a sense of community and network to enable business growth within Northern Beaches – framing as a customer retention strategy.
3. Raise awareness of the businesses and workforce based in Northern Beaches to change perceptions and attitudes. Targeting CFO's and CEO's with responsibility for planning office locations is key to changing behaviour.

Brookvale-Dee Why Transport Management and Accessibility Plan (2019)

The Brookvale-Dee Why Transport Management and Accessibility Plan is currently being completed.

The appropriate amount of growth in housing and jobs in Brookvale is dependent on the transport system. Council has engaged consultants to prepare a plan for the future operation and management of the road and transport network to ensure that growth in Brookvale does not exceed network capacity and that any necessary improvements are identified and prioritised.

The study will take stock of changes in development, population, travel patterns, roads and public transport and test scenarios for the future. It is Council's view that options for growth in employment and housing must be carefully considered on balance with traffic and transport constraints and that any growth in the area be supported by an appropriate level of infrastructure provision.

Shape 2028 Northern Beaches Community Strategic Plan – Northern Beaches Council (2018)

The Northern Beaches Council Community Strategic Plan is a 10-year strategic plan which sets the whole of council strategic direction. The plan includes vision, goals and objectives that provide direction for the growth and development of the council.

Community consultation formed the basis of the plan, the vision was formed out of 2,000 people's responses. The overarching vision is ***"Northern Beaches – a safe, inclusive and connected community that lives in balance with our extraordinary coastal and bushland environment".***

From the vision, the plan also articulates community outcomes which include:

1. Protection of the Environment
2. Places for People
3. Vibrant Local economy
    a. Low unemployment rate
    b. Well educated and highly skilled work force.
    c. Lack of key local workers.
    d. Lack of education and training opportunities.
4. Good governance.

In addition to this, extensive consultation revealed the LGA was concerned with taking care of the environment, traffic congestion, car dependency and a lack of public transport.

Implications for Employment & Economic Centres

The community strategic plan identifies several strategies that have implications for employment, these are consistent with the directives and actions that are contained in the GSRP and the Northern District Plan. The relevant strategies are listed below:

- Council has embedded a strategy in its community strategic plan to ensure that employment lands are retained and cater for a diverse range of businesses and industry
- Facilitate innovative environments and hubs where start-up businesses, entrepreneurs and innovators are supported and connected
- The Council seeks to facilitate local education
- The Council also supports telecommuting
- Activate urban centres and strategic centres to increase economic activity
- Provide a platform for diversified job growth and locate job growth and industry clusters in villages, strategic and district centres
- The Council also commits to improving public transport options and improving parking options in centres, villages and place.
- One of the goals is to ensure the community is stimulated through a range of creative activities including safe nightlife opportunities.

Placescore Community Insights Report – Northern Beaches Town Centres and Villages Centres (2018)

In 2018, 3261 people across the LGA engaged in a 'Placescore' survey which asked which place attributes were most important to in their ideal town centre.

Placescore included two data collection tools:

- Care factor that captures what attributes a community value
- PX assessment that captures how the community rates each attribute.

Together these two data sets identify priorities for a community.

Implications for Employment & Economic Centres

Key findings for the Northern Beaches Town and Village Centres included:

- For local residents, workers and visitors - the aspects they ranked in order of importance for town centres (in rank order) included: elements of the natural environment (72%); cleanliness of public space (65%); outdoor restaurant, café and/or bar seating (58%); vegetation and natural elements (56%); and overall visual character of the area (54%).

- Main streets were performing at a score of 66 out of 100. The strongest place attributes were: welcoming to all people, sense of safety and interaction with locals. The weakest place attributes included public art, light features; unusual or unique buildings/design; and amenities and facilities.

- Priorities across the LGA, in order of priority, included: things to do in the evening, vegetation and natural elements, maintenance of public spaces and street furniture; elements of the natural environment, general condition of vegetation, street trees and other planting, and cleanliness of public spaces.

Community ideas for change largely centres around transport and increasing car accessibility and parking, facilitating active modes of transport and improving roads and traffic. Activation of public spaces was important and including more places to play, gather and relax. For the business realm, it was identified that more and better commercial diversity and local shops are needed, including in relation to bars, restaurants and cafes.

In relation to particular centres, notable features that were identified as important included:

Mona Vale	Car accessibility and parking
Dee Why	Walking paths that connect to other places
Brookvale	Car accessibility and parking
Manly	Evidence of public events happening; and active transport and public transport options
Avalon	Interaction with locals and other people in the area; businesses that reflect the local community and values
Newport	Businesses that reflect the local community and values; grocery and fresh food businesses; interaction with locals and other people in the area
North Narrabeen	Walking paths that connect to other places; active transport and public transport options
Narrabeen	Walking paths that connect to other places; active and public transport options
Collaroy	Walking paths that connect to other places; local history, heritage buildings or features; active transport or public transport options
Freshwater	Interaction with locals and other people on the area; grocery and fresh food businesses
Balgowlah	Local history, heritage buildings or features; walking paths that connect to other places

Seaforth	Service businesses; groceries and fresh food businesses
Forestville	Car accessibility and parking; grocery and fresh food businesses.

Frenchs Forest Planned Precinct (2018)

The report by MacroPlan 2018 provides advice on the likely retail and non-retail change that will occur in the Frenchs Forest Planned Precinct (FFPP) as a result of the Northern Beaches Hospital (NBH).

Overall, it was found that the FFPP had a demand for retail uses. Part 2 of the research conducted by MacroPlan considers alternate scenarios of development that are expected to follow from the NBH which is classified as a level five hospital. A Level 5 Hospital has a full-time director, experienced medical officers and staff on site 24 hours. The hospital also has undergraduate teaching and undertakes research[1].

The Hospital Precinct Structure Plan (HPSP) was adopted by Council in August 2017 and provides a 20-year vision for the development of Frenchs Forest as a Strategic Centre, with the development of a town centre and approximately 5,360 residential dwellings across three phases. The centrally located town centre, connected to the Northern Beaches Hospital, will be zoned B4 Mixed Use. There will potentially be 2,300 jobs.

Traffic modelling has indicated that in the short term, the precinct road network can support up to 3,000 dwellings concentrated around the town centre site with specific road and intersection upgrades. This is encompassed by Phase 1 of the HPSP, for which planning controls are currently being prepared. Phases 2 and 3 are dependent on delivery of major infrastructure works, including the Beaches Link Tunnel and an east-west bus rapid transit system from Dee Why to Chatswood, via Frenchs Forest.

The phasing strategy is indicated in Figure 7.

FIGURE 7: PHASING STRATEGY – HOSPITAL PRECINCT STRUCTURE PLAN

Legend

B1	Neighbourhood Centre	R2+	Low Density Residential plus additional land uses	R3+	Medium Density Residential plus additional land uses
B4	Mixed Use	R3	Medium Density Residential	SP2	Infrastructure
Phase 1 (Immediately)		Phase 2 (10 years)		Phase 3 (10 years +)	
Proposed new road					

Source: https://yoursay.northernbeaches.nsw.gov.au/5402/documents/60675

[1] Australian Bureau of Statistics, 2010, viewed 15/04/19, <https://www.abs.gov.au/ausstats/abs@.nsf/Products/4390.0~2008-09~Glossary~Glossary>

Implications for Employment & Economic Centres

- Retail uses in the area are expected to increase. The main trade area population is estimated to grow from 51,730 people (2017) to 70,430 by 2036. The key retail catchment is expected to experience a total of 13,400 people by 2036.
- An additional 5,300 - 5,400 dwellings in the Northern Beaches Structure Plan catchment is expected to drive growth in the primary sector.
- The worker population is expected to grow from 10,000 people (2018) to 14,000 people by 2036.
- The FFPP should provide additional retail floor space to serve the primary trade area needs.
- The NBH level 5 hospital will be supported by its related and necessary services within the hospital building.
- The level 5 hospital will encourage the growth of non-retail health floor space in the area.
- The 60-hectare Frenchs Forest Business Park performs a local employment role. Findings suggest that the Business Park is currently underutilised, therefore the development of the hospital will help to stimulate growth in this underused area.
- Approximately 2,300 new jobs as indicated in the HPSP.

Northern Beaches Hospital - Planned Precinct Part Three Report Precinct Employment Strategy (2018)

The study by MacroPlanDimasi (2018) assessed the need for **retail and non-ancillary retail floorspace** at the NBH Town Centre Area. The study outlines the appropriate scale and time of such facilities and the potential economic impact that would result from retail development at the subject site. The Town Centre is planned to be a Mixed-Use urban core. The proposed town centre will be located at the currently occupied Frenchs Forest High School.

It is expected that some demand particularly for small scale retail facilities will be provided at the hospital, but these facilities will be limited. This means that demand from hospital workers, patients and visits could be captured by the NBH town centre subject site. The strategic location of the centre at the nexus of three main roads, including Warringah Road, will create additional demand from passing motorists.

Implications for Employment & Economic Centres

The study found the subject site could support:

- 22,5000 sqm of retail floorspace
- 5,000 sqm for ancillary uses.

The study also identified an undersupply of supermarket floorspace in the main trade area, thus recommendations suggest that an **additional supermarket** would be feasible in the area. The precinct will help to retain retail expenditure within the area that is currently leaking from the main trade area. This could minimise possible car trips for workers and reinforce the locality as a strategic centre. A retail development within the NBH Structure Plan precinct will help to facilitate the GSRPs and NDPs directives to establish the Precinct as a strategic centre.

In relation to Manly and Mona Vale Hospitals, it is noted that Northern Beaches Hospital will supersede these facilities for arrangements with universities and clinical/training schools. The Northern Beaches Hospital will include about 870 sqm of internal floorspace dedicated to teaching, training and research (to also be used by medical professionals undertaking vocational training). It is noted that unless another teaching affiliation is formed beyond University of Sydney, it is unlikely any additional health-related teaching space will be required immediately to service Northern Beaches Hospital.

Draft Brookvale Structure Plan (2018)

The Draft Brookvale Structure Plan 2018 informs the future growth of Brookvale. The Plan aligns with the GSRP and the North District Plan (NDP) by identifying Brookvale as a strategic centre for employment and growth. Extensive community consultation and subsequent engagement outcomes shaped the Draft Brookvale Structure Plan. Community consultation helped to identify issues and the vision for the centre's future. The plan also identified aspirations, development principles, development scenarios and a growth assessment to guide the development of the strategic centre. The aspirations of the community were used to guide the vision for the future town centre.

The aspirations that were identified are:

1. Secure and strengthen economic performance of Brookvale Strategic Centre
2. Achieve a self-sustaining centre
3. Create an integrated activity cluster
4. Shift away from car dependency
5. Enhance Brookvale's identity
6. Bring life to the streets
7. Link the beach to the bush
8. Upskill Brookvale.

A key principle of the Draft Plan is to recognise the importance of Brookvale's employment lands to the Northern Beaches which includes protecting industrial zoned land, whilst also responding to future changes in industry and encouraging additional employment generating uses. Increased residential potential is only to be considered in locations that will not diminish employment opportunities, will support existing commercial functions, and will be accessible to the B-Line.

The focus of the Draft Plan is to promote the growth and revitalisation of Brookvale as an employment focussed Strategic Centre.

Implications for Employment & Economic Centres

The Draft Plan identified the need to facilitate further development of the mixed-use town centre along Pittwater Road as a support area to surrounding employment lands in Brookvale. The focus of Warringah Mall as a retail core coupled with employment growth and residential growth was identified as the most viable and productive way to ensure sustainable growth and economic development in the centre.

Residential development is only envisaged within the traditional town centre either side of Pittwater Road between Powells and Windbourne Roads to revitalise the town centre as a support area to the surrounding employment lands. The aim of the Draft Plan is to achieve appropriate balance between growth in jobs and housing, in line with identified traffic constraints.

Specifically, Scenario Three was identified as the most feasible balance of residential and jobs growth (40/60 split) to promote revitalisation of the town centre and its continued function supporting the surrounding industrial and urban services land. Its viability is centred on the fact that residential and commercial development will be co-located. The vision and aspirations of the plan broadly align with the vision of the GSRP and the NDP. While many of the actions relate to Council operations, the Plan works towards securing a mixed-use area as well as a vibrant night-time economy.

The Draft Plan was developed prior to the directives of the Greater Sydney Commission to 'retain and manage' industrial and urban services lands (Objective 23 Greater Sydney Region Plan). This Draft Plan has been placed on hold awaiting direction from this employment study.

Macro-Economic and Demographic Factors Shaping Job Growth (2016)

The study by SGS Economics and Planning (2018) provides an overview of macroeconomic and demographic factors shaping job growth. SGS Economics and Planning analysed key factors and industries which included globalisation, the rise of Asia, domestic economic and demographic factors, domestic policy and regulation, technological improvements, online retail trade, education, industrial and freight and logistics and proportion of footloose jobs. The study provides broad trends and information on the implications these factors have on industries and their role in shaping job growth.

Implications for Employment & Economic Centres

- The health sector is experiencing growth – the Northern Beaches Hospital at Frenchs Forest materialises this fact as the government continues to heavily invest in the health sector.
- Population is increasing across NSW. This trend can be seen in the Northern Beaches LGA.
- Footloose jobs are increasing as ICT and digital technologies improve.
- International student rates have increased dramatically in recent years.
- Like the GSRP and the NDP the study stresses the importance of retaining and managing industrial lands. The study acknowledged that there has been increasing pressure on employment lands from residential development as there is an intense demand for housing sites. This means that industrial and urban services lands in the Northern beaches should in fact be retained and viewed as important resources for the city.

Pittwater Marine Industry – Demographic and Economic Study (2016)

The study by Hill PDA (2016) analysed the economic impact and contribution of marine industries on the Pittwater waterway catchment. The purpose of the study was to educate the Council and the community on the marine industries role within the local economy. The study also provided commentary on the pressures that the marine industry will face in the future. The study found that the demographics of the area will lead to marine industry demand increases, this is due to both an ageing and affluent LGA.

Implications for Employment & Economic Centres

The study found that:

- Marine industry workers spent an estimated $2.4 million on surrounding services during the week.
- In 2011, 4,000 people worked within the tourism industry. Pittwater Council collected $255,000 within the 2014/15 financial year from dinghy storage.
- Boat ownership levels are projected to increase by 8,850 boats (+82 per cent) over a 26-year period to 2041.

Evidence suggests that the Pittwater Marine industry plays a role in the local economy and will continue to in the future. It is imperative that Council continues to support and facilitate the growth of the marine industry sector.

Strategic Centres – Enabling Economic Growth and Productivity (2015)

The study was commissioned by the Department of Planning and Environment to identify the key barriers to economic growth in metropolitan Sydney and their centres. Of relevance to the Northern Beaches Council are the centres which include the Northern Beaches Hospital Precinct and Brookvale-Dee Why centre. This study was used to guide the GSRP plans and therefore is aligned with the key objectives and directives of the plan.

Implications for Employment & Economic Centres

The study identified key elements that support economic development in centres which include:

1. Its accessibility
2. Its desirability
3. Its availability and viability.

The two identified employment centres must represent these three key elements to be economically sustainable in the future, this will facilitate and support continued growth.

Economic Impact Assessment Balgowlah Industrial Estate (2015)

The report assesses the economic impacts that are associated with the proposed rezoning of 5.8 hectares of IN2 Light Industrial Land at Balgowlah Industrial Estate to B6 Enterprise Corridor, see Figure 8. The study found that rezoning the land to B6 enterprise corridor would be feasible and it would facilitate a diverse employment capacity and therefore increase employment.

FIGURE 8: BALGOWLAH INDUSTRIAL ESTATE

Source: Urbis, 2015

Implications for Employment & Economic Centres

An analysis of industrial lands suggest that the area is tightly held and has low vacancy rates. Evidence recommends that employment lands should be retained to ensure that there is enough capacity for future growth. The study found that it was imperative that Council retain the industrial and urban services land at Balgowlah. Rezoning the areas from IN2 to B6 Enterprise Corridor would increase the capacity for a variety of industrial uses. This would be achieved by ensuring that all existing IN2 uses would be retained under B6 zoning.

Warringah Council Business Survey: Summary Report (2015)

In 2015, Warringah Council undertook its first LGA-wide business survey to better understand the diversity and structure of businesses in the local area; what are the challenges; and how local council and other stakeholders can assist local businesses to grow and prosper.

A total of 410 local businesses completed the survey and included a broad spread of industries. Majority of respondents were micro-businesses or non-employing and home-based businesses. Nearly 40 per cent of the businesses surveyed were home-based businesses. There was a comparable split between respondents that owned their premises and those that rented. About two-thirds of businesses had more than half their revenue from outside of Warringah LGA area. Many businesses had been in operation for 21 years or more or 10 to 20 years.

The top 20 challenges as cited by businesses included:

- Traffic and congestion
- Distance
- Public transport
- Internet speed
- Availability and cost of property
- Parking
- Attracting and retaining staff
- No major challenge
- Competition from other centres
- Amenity and vibrancy
- Affordable housing for staff
- Council processes
- Major works
- Demographic change
- Loading zones and truck access
- Impact of residential development
- Conference and shared office space
- Business support and mentoring
- Crime and perceptions of safety
- Seasonal trade.

The most frequently cited challenges for the local business community were related to distance (for customers, clients, suppliers and staff); heavy traffic and congestion; limited public transport options and parking; poor internet connection. These challenges impact the businesses ability to expand and attract new customers and retain staff. Respondents also cited the provision of affordable housing to help business attract and retain staff as a key challenge.

For specific centres, it was noted that Brookvale and Frenchs Forest employment hubs had difficulty attracting and retaining staff, Dee Why town centre was noted as having a lack of vibrancy and facilities and poor amenity.

The lack of Council communication and understanding of business needs was also cited as a concern to local businesses.

Implications for Employment & Economic Centres

The survey identified five core work streams for Council:

- Information and collaboration – greater business advice and mentoring, networking and research of local economic trends
- Advocacy – particularly to State and Federal Government on infrastructure provision
- Urban design and local infrastructure improvements – public domain and parking provision
- Marketing and promotion – identifying key industries and locations to promote, business awards and events
- Council process improvements.

Warringah Employment Study (2013)

The employment study by SGS Economics and Planning analysed and reviewed economic trends and opportunities in the Warringah LGA. At the time of the study the Warringah Council was identified as one of the four councils which was within the Shore Regional Organisation of Council (SHROC). This organisation created a partnership between Manly, Mosman, Warringah and Pittwater Councils.

In 2013, Warringah was recorded to have the highest number of jobs in employment lands with around 45, 540 jobs which represented 60 per cent of all jobs in the subregion. The study also found that Warringah and the North East subregion had a high level of employment and self-containment.

Implications for Employment & Economic Centres

The study provided council with quantitative evidence to guide the future employment in Warringah. The study created several actions that had implication for employment. For instance, the study recommended that the Council should:

- Restrict subdivision and strata titling of industrial lots to prevent fragmentation
- Commit to sustaining the employment lands – retain and manage industrial lands
- Preserve IN1 General Industrial Zone in Cromer and Brookvale Industrial West.

Pittwater Economic Development Plan (2011)

The former Pittwater Economic Development Plan was made up of a series of discussion papers addressing topics relating to the area's economic challenges and opportunities for economic development and business growth.

These included:

1. Council economic role and function analysis
2. Towns and villages
3. The importance of business infrastructure and networks
4. The Pittwater Economy and Infrastructure
5. Strengthening the Local Economy
6. Pittwater in the Broader Economic and Geographical Context
7. Emerging Business Issues and Opportunities.

Implications for Employment & Economic Centres

Each discussion paper identified opportunity areas which have informed economic development actions within the subsequent Pittwater Operational Plans. Generally, it was found that Pittwater had natural environmental advantages which create a strong opportunity for education and tourism. The discussion papers recognised the need for greater tourism investment in Pittwater, for instance the visitation of tourist numbers particularly in village centres was low. The study found that the tourism sector in Pittwater is underdeveloped, this was attributed to a lack of Council promotion.

Warringah Economic Development Plan (2011)

The plan seeks to secure a growing economy in the region. The plan identifies four overarching themes which include:

1. Growing employment opportunities
    - Developing a strong local economy which promotes innovations, builds a skilled and educated workforce and contributes to a high quality of life for the community.
2. Council providing information, support and advice
    - Could will provide support to increase business engagement and awareness of the contribution of business, build business capability and promote and strengthen the areas competitiveness.
3. Advocate for local and regional initiatives
    - Recognising the importance for local and regional economies associated with decision projects such as transport, jobs and infrastructure, which supports economic development.
4. Connectivity, engagement and communication

- Installing and fostering business networks, partnerships and other mechanisms to connect, promote and grow business.

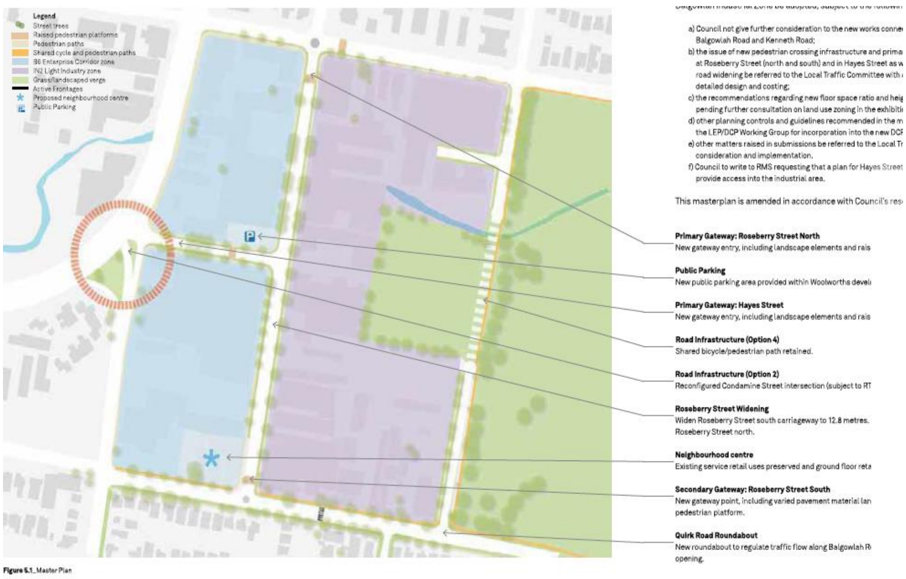
Implications for Employment & Economic Centres

- Capitalise on the natural assets and stimulate growth in the tourist economy.
- Support a range of local/regional business clusters.
- Focus on activating the strategic centre of Brookvale – Dee Why as a distinctive and attractive business location in the Northern Beaches.

Manly Industrial Zone – Masterplan (2011)

HASSELL was commissioned by the Council in 2011 to restructure the Manly Industrial Park. The new plan worked towards improving urban design. The plan sought to address issues that were associated with poor movement, land use structure, pedestrian amenity and the streetscape of the industrial park, as related to Figure 9.

FIGURE 9: MANLY INDUSTRIAL ZONE MASTERPLAN



Source: Hassell, 2013

Implications for Employment & Economic Centres

- Permitting the B6 Enterprise and the IN2 Industry Zones in the park to encourage growth and diversity within the precinct.
- The masterplan provided a cohesive approach to the development of Manly Industrial Park. The focus was to retain the important industrial and urban services land.
- Improvements to the internal movement, linkages, built form and amenity of the industrial park worked towards facilitating growth and development in the industrial park.

SHOROC Employment Lands Addendum

A report by HillPDA analysed the employment lands of the SHROC region and provides detailed analysis on future forecasts for growing job sectors. The study also provides numerical data on the amount of retail, commercial and industrial floor space that will be required in the area by 2031.

Implications for Employment & Economic Centres

- Forecasted an **additional 22,170 jobs** within the SHOROC region between 2011 – 2031.

- Industries representing the highest growth include health care and social assistance with 5761 jobs and Professional, Scientific and Technical Services jobs with 5,442 additional jobs.
- Of relevance to the Northern Beaches council is the **Manly LGA** which is expected to have an additional **2,316 jobs by 2031**. The study found that most of this growth will occur in Health Care and Social Assistance and Education and Training.
- The **Pittwater** LGA is expected to have an additional **5,076 jobs by 2032**. Most of this job growth will occur in the Health Care and Social Assistance and Professional, Scientific and Technical services.
- **Warringah** is estimated to experience a job increase of **12,816 jobs** which represents a 22 per cent increase. Interestingly growth will be concentrated around Professional Scientific and Technical services job and retail trade jobs. Health Care and Social Assistance in this instance has the third highest growth with an additional 2750 jobs.

SHOROCC Visitor Economy Opportunities Paper

The paper provides guidance on the potential for expanding the visitor economy of the Northern beaches. The study provides an analysis of the barriers to achieving economic growth in the Manly LGA. Of note is the missed opportunities that have been identified in the tourism industry.

Implications for Employment & Economic Centres

This high-level study found that:

- The Northern Beaches offers an **attractive holiday destination** with several beaches, walking trails and cycling trails. The area also offers a range of recreational uses.
- There is a clear focus to strengthen the use of the National Parks and Harbour Foreshore areas for outdoor base infrastructure and recreational experiences.
- The study found that accessibility to the Northern Beaches is compromised by a congested road network.
- Manly is identified as a traditional tourism hub, however, the centre is compromised by accessibility issues.
- The region was also found to lack commercial short-term accommodation facilitates. Anecdotal evidence suggest that such development would be opposed as the nimby concern is prevalent within the LGA.
- Opportunity to ease traffic congestion by investigating travel by water. It is suggested that the area could capitalise on the existing marine infrastructure in the area.
- The study also found that current trails and areas could capitalise and promote the heritage walking trails.
- There is a lack of car parking facilities – it should be a priority to expand carpark facilities in the area.
- The study revealed that there is tension within the LGA about tourism growth. This should be investigated in the future.
- Night-time activity should be investigated, activation at night could be facilitate by smaller scale family night-time events.

Manly 2015 Masterplan Economic Assessment (2013)

The Hill PDA Discussion Paper investigated the Manly Precinct Plan (2015) and worked towards quantifying the economic benefits of the proposed masterplan. The economic assessment recognises the need for revitalisation within the Manly Town Centre and found that this could stimulate the local economy. The plan proposed a variety of key elements (see Figure 10) which worked towards increasing public amenity, calming traffic, increasing the opportunity for active transport, revitalising Manly laneways (which were identified as being unsafe at night) and increasing carparking capacity.

FIGURE 10: MANLY MASTERPLAN

Source: Hill PDA Architects, 2013

Implications for Employment & Economic Centres

The study quantified and highlighted the economic benefits that the 2015 Masterplan would bring to the Council. The study found that issues such as accessibility, safety and traffic congestion could be remedied by investing in urban design improvements and supporting infrastructure development such as car parking to increase accessibility. The study helped to facilitate future growth and development within the Manly area. Key findings indicate the economic impact that the Masterplan would have on the town centre. It was found that the Manly Oval underground car park and the Whistler street carpark and developments within close proximity would contribute positively to the local economy in Manly where:

- Incorporating parking into the Manly oval would attract $15 million of retail expenditure.
- The redevelopment of Whistler Street Car Park would:
  - Create 50 new residential dwellings for locals leading to an additional $1.6million in retail expenditure per annum.
  - Close to $15million of construction works leading to the direct generation of 42 jobs per year.

2.3 Statutory Planning Context

Six main planning instruments apply to the Northern Beaches LGA. Statutory requirements are largely set out in the Manly Local Environmental Plan (2013), Pittwater LEP (2014), and the Warringah LEP (2011). The statutory planning context aligns with the strategic planning framework for the Northern Beaches.

Manly Local Environmental Plan (2013)

The LEP establishes statutory requirements for development. Land use controls identify what types of development are permissible. The aim of the plan seeks to foster economic, environmental and social welfare so that Manly continues to develop as an accessible, sustainable, prosperous and safe place to live, work or visit. The aims of the plans identify the importance of providing diverse affordable housing, high-quality built form outcomes. Tourism is also specifically recognised, and it addresses issues such as minimising car dependency.

Implications for Employment & Economic Centres

The LEP supports the growth and development of tourism and broadly aims to increase economic activity particularly in the Manly centre.

Manly Development Control Plan

The Manly Development Control Plan identifies a range of special character areas and sites which include specific design requirements. The plan identifies the importance of quality design and activation. Central to the plan is also the identification of local character which is set to be retained.

Implications for Employment & Economic Centres

- The plan identifies the need to facilitate growth particularly in B6 Corridors.
- Creates controls and parameters to ensure that development is economically sustainable.
- The plan identifies Manly as the predominant town centre in the area.
- Other lower scale neighbourhood centres include Balgowlah, Fairlight and Seaforth. These areas are identified by a unique townscape character that is to be retained in the future. These centres provide personal services and rely on convenience retailing.

Pittwater Local Environmental Plan (2014)

The Pittwater LEP includes the following objectives:

- To promote development in Pittwater that is economically, environmentally and socially sustainable
- To ensure development is consistent with the desired character of Pittwater's localities
- To support a range of mixed-use centres that adequately provide for the needs of the Pittwater community
- To retain and enhance land used for employment purposes that is needed to meet the economic and employment needs of the community both now and in the future
- To improve access throughout Pittwater, facilitate the use of public transport and encourage walking and cycling
- To encourage a range of housing in appropriate locations that provides for the needs of the community both now and in the future
- To protect and enhance Pittwater's natural environment and recreation areas,
- To conserve Pittwater's European and Aboriginal heritage
- To minimise risks to the community in areas subject to environmental hazards including climate change
- To protect and promote the health and well-being of current and future residents of Pittwater.

Implications for Employment & Economic Centres

- The Pittwater development control plan identifies and supports a range of mixed-use centres.
- The plan also identifies the need to retain and enhance land use for employment purposes.
- The plan supports and promotes sustainable economic development.

Pittwater Development Control Plan

The Pittwater Development Control Plan (2013) provides planning and design requirements to retain the character of areas and to guide new development in areas. The plan aligns with the Pittwater Local Environmental Plan (2014) and identifies several centres which are identified for being important places within the LGA where people live work, and play,

Implications for Employment & Economic Centres

The Pittwater Development Control Plan (2013) identifies 16 localities. Broadly, the localities are made up by small neighbourhood village type centres. Despite this, the plan identifies the Mona Vale centre as the main commercial centre for the Pittwater area. This aligns with the GSRP which identifies Mona Vale as a strategic centre. The DCP supports the economic growth in Pittwater. For instance, the heights in the local centre were increased to facilitate the development of the local economy.

The DCP encourages a mix of employment. Villages/localities such as Bilgola and Newport are recognised for their low-density village feel and community focus which is set to be retained. Mixed land uses are encouraged in these village centres which supports the co-location of services, employment and housing in local settings.

Warringah Local Environmental Plan (2011)

The Warringah LEP includes the following objectives:

- To create a land use framework for controlling development in Warringah that allows detailed provisions to be made in any development control plan made by the Council
- To recognise the role of Dee Why and Brookvale as the major centres and employment areas for the sub-region
- To maintain and enhance the existing amenity and quality of life of the local community by providing for a balance of development that caters for the housing, employment, entertainment, cultural, welfare and recreational needs of residents and visitors
- Protect and enhance the residential use and amenity of existing residential environments
- Promote development that is compatible with neighbouring development in terms of bulk, scale and appearance
- Increase the availability and variety of dwellings to enable population growth without having adverse effects on the character and amenity of Warringah.

In relation to non-residential development to:

- Ensure that non-residential development does not have an adverse effect on the amenity of residential properties and public places
- Maintain a diversity of employment, services, cultural and recreational facilities.

In relation to environmental quality to:

- Achieve development outcomes of quality urban design
- Encourage development that demonstrates efficient and sustainable use of energy and resources
- Achieve land use relationships that promote the efficient use of infrastructure
- ensure that development does not have an adverse effect on streetscapes and vistas, public places, areas visible from navigable waters or the natural environment
- Protect, conserve and manage biodiversity and the natural environment
- Manage environmental constraints to development including acid sulphate soils, land slip risk, flood and tidal inundation, coastal erosion and biodiversity.

In relation to environmental heritage:

- To recognise, protect and conserve items and areas of natural, indigenous and built heritage that contribute to the environmental and cultural heritage of Warringah.

In relation to community well-being to:

- Ensure good management of public assets and promote opportunities for social cultural and community activities
- Ensure that the social and economic effects of development are appropriate.

Implications for Employment & Economic Centres

- Identifies the need to support the diversification of employment.
- Similarly, to the GSRP and the NDP, WLEP (2011) identifies the role of **Dee Why and Brookvale** as major centres and employment areas for the region.

Warringah Development Control Plan (2011)

The Warringah Development Control Plan 2011 defines the desired future character of the LGA and provides specific controls for key centres such as the Dee Why Centre, Warringah Mall and the Freshwater village.

Implications for Employment & Economic Centres

- The plan identifies **Dee Why** as a mixed-use area. The plan recognises the importance of Dee Why as a main centre for the LGA which broadly aligns with the objectives and directives of the GSRP and the NDP.
- **Warringah Mall** is also identified specifically in the Development Control Plan. The objectives are mainly focusing on ensuring that the development does not detract from the amenity of the area. This is achieved through design quality and excellence-built form outcomes.
- **Freshwater** is identified as a local centre which has a focus on community life where people can easily go about their daily activities. This smaller type centre provides retail and community facilities.

2.4 Key Findings

Northern Beaches Health and Education Precinct

Significant investment into the Northern Beaches Hospital Precinct will secure its role as a strategic centre. Policy directions recognise the need to plan for and grow this precinct strategically to ensure that the LGA can expand these industries through innovations. The hospital and investments are expected to stimulate the economy and provide a greater number of jobs in the area.

Employment growth

Growing local job opportunities and ensuring efficient access to these jobs is also a key focal point. The strategic centres are the main locations for job growth in the LGA and include the Northern Beaches Health and Education Precinct, Brookvale – Dee Why, Manly and Mona Vale.

Supporting growth that is well designed and sensitive to the natural and built environment

Smaller localities are identified as having strong local character which should be retained. Any increases in density and expansion need to ensure high-quality built environment results, therefore improving amenity and increasing safety and vibrancy. For local residents, workers and visitors, elements of the natural environment and maintenance of public spaces are highly valued.

Supporting local interaction, accessibility via all modes and access to fresh food in smaller, local centres

The community identified that interaction with local and other people in the area; access to groceries and fresh food businesses; walking paths that connect to other places; as well as car accessibility and parking and public/active transport access are all important and valued to the community.

Strategic focus on job accessibility

Land use planning policy broadly supports urban redevelopment of increased densities to create a 30-minute city.

Investigate tourism growth

The Northern Beaches LGA contains a variety of beautiful natural assets. Policy recognises the need to investigate the tourism industry as it presents as a key opportunity for economic growth.

Policy focus on the protection of industrial lands

Regional policy identifies the importance of industrial lands, because of this, industrial precincts around the LGA will be retained and managed. A key focus is ensuring that the uses of these areas are diversified to encourage a greater capacity of employment and facilitate a range of employment opportunities.

Investigate the tension between car parking and public transport in areas that are centred around public transport nodes

Various measures have been suggested for carparking in Manly Town Centre, as well as separate discussion to increase density around public transport nodes. Further policy should work towards facilitating and encouraging public transport usage, particularly in areas that are well serviced by ferry and rapid bus services. This will also help to manage and ameliorate traffic congestion issues that are experienced throughout the LGA as employment centres grow.

Facilitate innovative environments and hubs where start-up businesses, entrepreneurs and innovators are supported and connected

The rise of footloose jobs and digital technologies has been recognised, alongside the need to support local job growth and develop a strong local economy that promotes innovation and fosters business networks.

Distance

The issue of distance to suppliers, clients, staff and customers was a key concern for local businesses in the area. This has been compounded by traffic congestion and a lack of public transport options and parking in centres.

Support development of the night-time economy

Feedback from the community indicates having a range of night-time activities in a safe environment is a priority for the community and also a goal of Council. Ensuring the economic activity centres, in relation to urban design, business offerings and programs and activities in the LGA to support this will be key.

Awareness, perception and habits impact business development in the Northern Beaches

Residents and businesses are not aware of the business, workforce and professional environment of the Northern Beaches. The area is largely perceived as a place to relax and spend downtime and local residents and businesses tend to act automatically when it comes to work (ie: place of work is considered outside of the Northern Beaches). It has been identified there is a need to create a better sense of network within the business community, change perceptions and attitudes and encourage residents to work from home.

3. SOCIO-ECONOMIC PROFILE

This chapter provides an overview of relevant socio-economic census data and identifies key insights that will inform the development of the employment and centres strategy. Data has been drawn from the Northern Beaches Demographic Analysis Study also completed by SGS Economics & Planning, alongside some additional employment analysis[2].

3.1 Population

The population section profiles the residents of the Northern Beaches LGA across a number of social and economic indicators.

Population

Population is an important consideration in the development of an economic strategy, as population growth is closely tied to the need for future population serving jobs such as retail, health and education.

Northern Beaches LGA has had:

- Growth of 15,235 people between the years 2011-2016 with most growth occurring in the Brookvale-Dee Why catchment (+7,090). This was nearly twice as high as the Mona Vale (+3,272) and Manly (+3,122) catchments, see Table 1.
- The five-year growth rate between the 2006 and 2016 was 5.99 per cent for the LGA which was lower than Greater Sydney (8.47 per cent) and slightly higher than the North District (5.35 per cent), see Table 2.
- Population density per square kilometre has increased across the LGA by 6.09 per cent between 2011-2016. Population density growth was highest in the Brookvale-Dee Why catchment at 8.21 per cent, followed by Manly at 5.63 per cent and then Frenchs Forest and Mona Vale at 4.69 and 4.63 per cent respectively, see Table 3.
- Comparative population density suggests the Northern Beaches is similar to Greater Sydney at 2,675 and 2,623 persons per square kilometre respectively in 2016, see Table 3.

TABLE 1: BROADER CATCHMENTS POPULATION TOTALS AND GROWTH RATES (2011-2016)

Geography	2011	2016	Growth	CAGR (5-yr %)
Mona Vale	57,170	60,442	3,272	5.72%
Terrey Hills	3,531	3,653	122	3.46%
Frenchs Forest	36,387	37,998	1,611	4.43%
Brookvale-Dee Why	84,987	92,077	7,090	8.34%
Manly	55,620	58,742	3,122	5.61%
Total	*237,641*	*252,876*	*15,235*	*6.40%*

Source: ABS Census 2011 and 2016 (TableBuilder Pro)

[2] Appendix 2 includes explanation notes about data analysis.

TABLE 2: COMPARATIVE POPULATION TOTALS AND GROWTH RATES (2006-2016)

Geography	2006	2011	2016	Growth	CAGR (5-yr %)
Greater Sydney	3,821,233	4,079,432	4,496,184	674,951	8.47%
North District	766,240	808,651	850,382	84,142	5.35%
Northern Beaches	225,109	237,641	252,876	27,767	5.99%

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

TABLE 3: BROADER CATCHMENTS POPULATION DENSITY (PER KM²) TOTALS AND GROWTH RATES (2011-2016)

Geography	2011	2016	Growth (%)
Mona Vale	1,942	2,032	4.63%
Terrey Hills	350	362	3.46%
Frenchs Forest	1,788	1,872	4.69%
Brookvale-Dee Why	3,962	4,287	8.21%
Manly	4,302	4,544	5.63%
Total	*2,521*	*2,675*	*6.09%*

Source: ABS Census 2011 and 2016 (TableBuilder Pro), DPE - Standard Instrument Local Environmental Plan (LEP) - Land Use Zoning (LZN), 2018

The Northern Beaches LGA is forecast to have lower growth rates than the Greater Sydney region and the North District. Transport for NSW and the Department of Planning & Environment expect an increase of 26,015 people between 2021 and 2036 for the LGA which represents an additional 3.16 per cent each five years. Greater Sydney and the North District is forecasted at 7.94 and 4.91 per cent respectively.

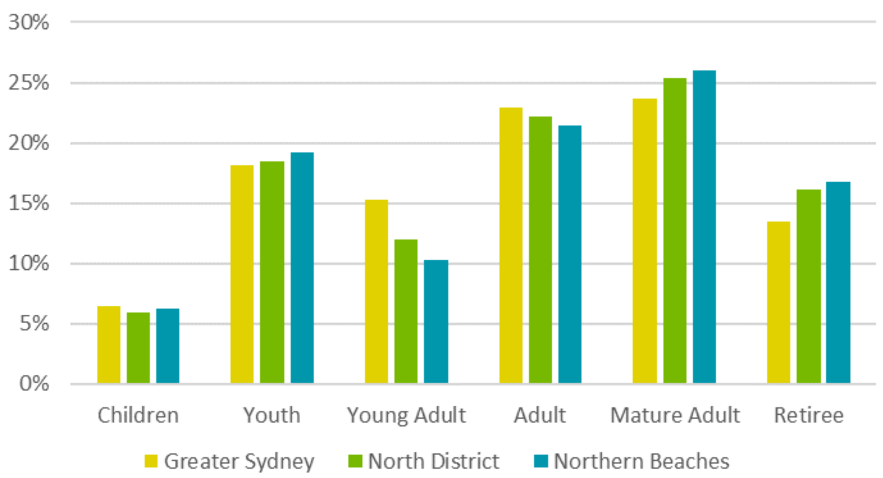
Age Profile & Migration

Age profile reports the breakdown of the age of the population by range. While not an economic indicator, age profile is an important consideration in the development of an economic strategy as population growth is closely tied to the need for future population serving, health and social infrastructure related services.

Northern Beaches LGA:

- Has an increasingly ageing population, where retirees (+65 years) have a compound annual growth rate at 12.31 per cent between 2006 and 2016 that is higher than growth rates for youth (5-20 years) and mature adults (45-65 years) at 9.39 per cent and 8.53 per cent respectively.
- Slightly more retirees are located in the Mona Vale, Terrey Hills and Frenchs Forest catchment areas, whereas Brookvale-Dee Why and Manly catchments tend to have higher proportions of mature adults, adults and youth.
- Has a larger proportion of retirees, mature adults and youth compared to Greater Sydney and the North District and a smaller proportion of young adults (20-30 years) and adults (30-45 years), see Figure 11.
- Into the future, forecasts predict a continued increase in the number of retirees, mature adults and young adults, while youth will stagnate.

FIGURE 11: COMPARATIVE AGE PROFILE STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

Majority of people moving to the Northern Beaches are coming from other parts of Australia – mostly Sydney. There are, however, larger numbers of overseas migrants locating in Manly and Brookvale-Dee Why. Overseas migrants tend to have a higher proportion of Adults and Young Adults. If these trends persevere, the workforce in Northern Beaches will be largely derived from overseas migrants.

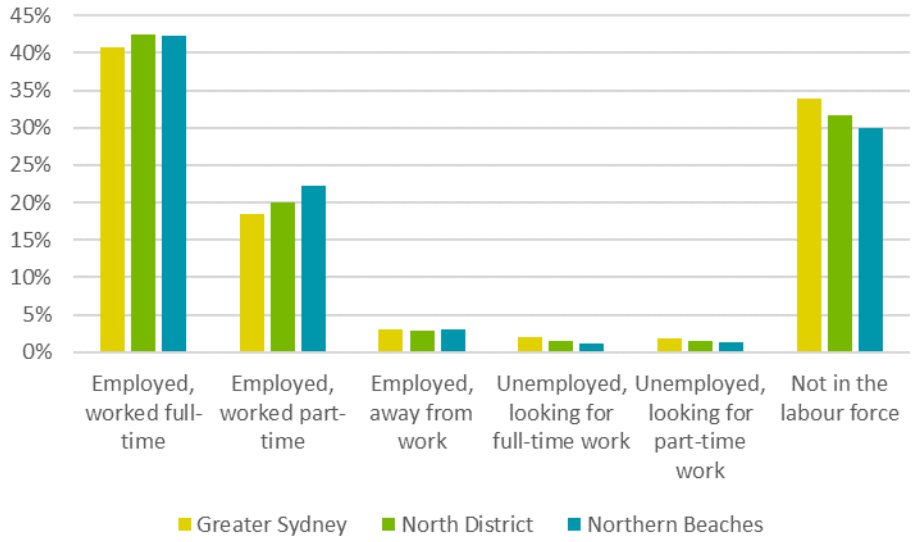
Labour Force Status (PUR – resident workers)

The labour force status (Place of Usual Residence) indicator reports the employment profile of Northern Beaches resident population.

Northern Beaches LGA has:

- A similar proportion of people employed in full-time jobs as Greater Sydney and the North District, at approximately 42 per cent of the labour force.
- More people are employed part-time at approximately 23 per cent and less people that are not in the labour force at 30 per cent when compared to Greater Sydney and the North District, see Figure 12.
- Between 2006 and 2016 there has been an increase in persons employed part-time and decreases in those persons employed full-time and not in the labour force, see Figure 13.

FIGURE 12: COMPARATIVE LABOUR FORCE STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 13: COMPARATIVE PROPORTIONAL CHANGE IN LABOUR FORCE STRUCTURE (2006-2016)

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

Industry of Employment (PUR – resident workers)

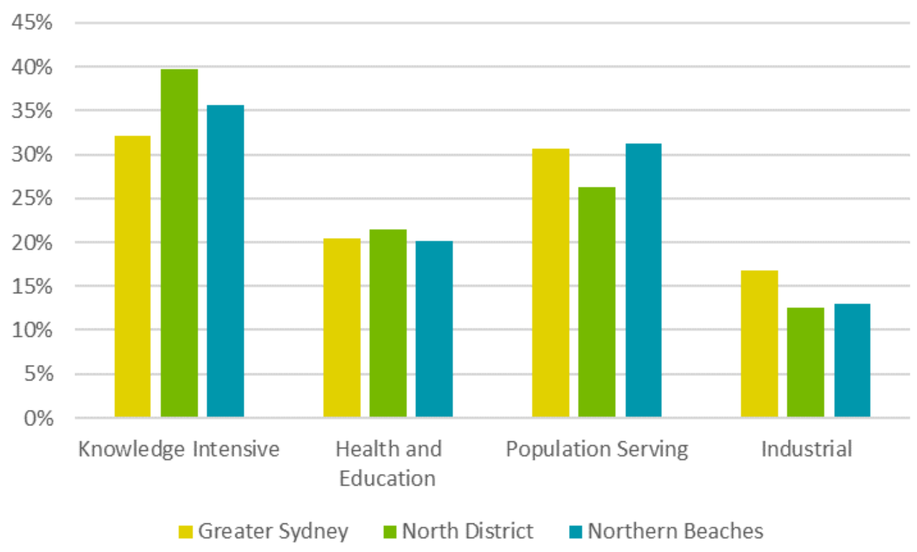
The industry of employment (Place of Usual Residence) indicator reports the industries that residents work in. Industries have been aggregated to four Broad Industry Categories (BICs), as defined by the Greater Sydney Commission. The BICs are an aggregation of the various 1-digit ANZSIC categories that define industries within the economy.

Northern Beaches LGA:

- Most residents work in knowledge intensive industries and population servicing industries at approximately 32 and 31 per cent. Industrial jobs are lower than Greater Sydney, see Figure 14.
- Between 2006 and 2016, the proportion of knowledge intensive and health and education jobs held by local residents has increased in the LGA, whereas population serving jobs only experienced a small increase and industrial jobs undertaken by residents decreased, see Figure 15.

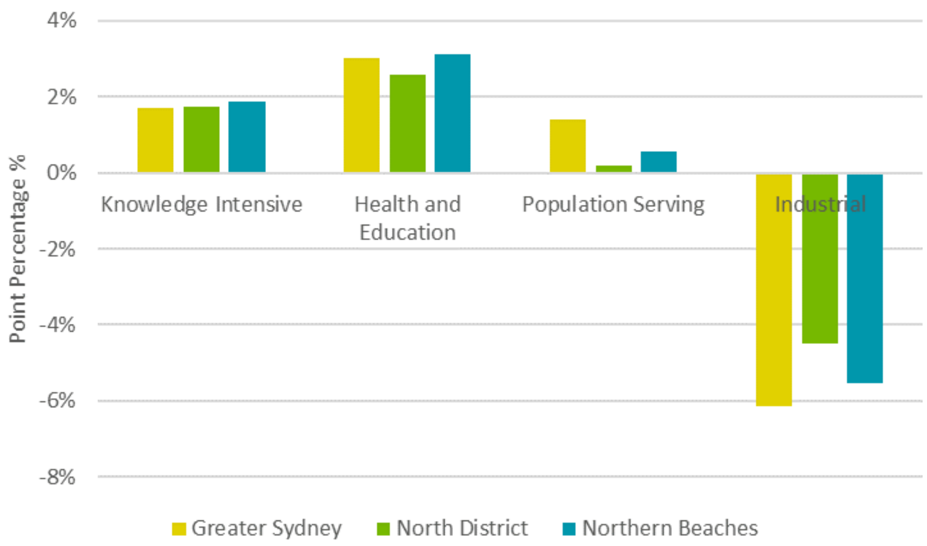
- Residents in the Manly catchment have a higher share of knowledge related jobs and less population serving jobs when compared to the rest of the LGA; residents working in health and education jobs are generally equally distributed across the LGA, see Table 4.

FIGURE 14: COMPARATIVE INDUSTRY OF EMPLOYMENT (PUR) STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 15: COMPARATIVE PROPORTIONAL CHANGE IN INDUSTRY OF EMPLOYMENT (PUR) STRUCTURE (2006-2016)



Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

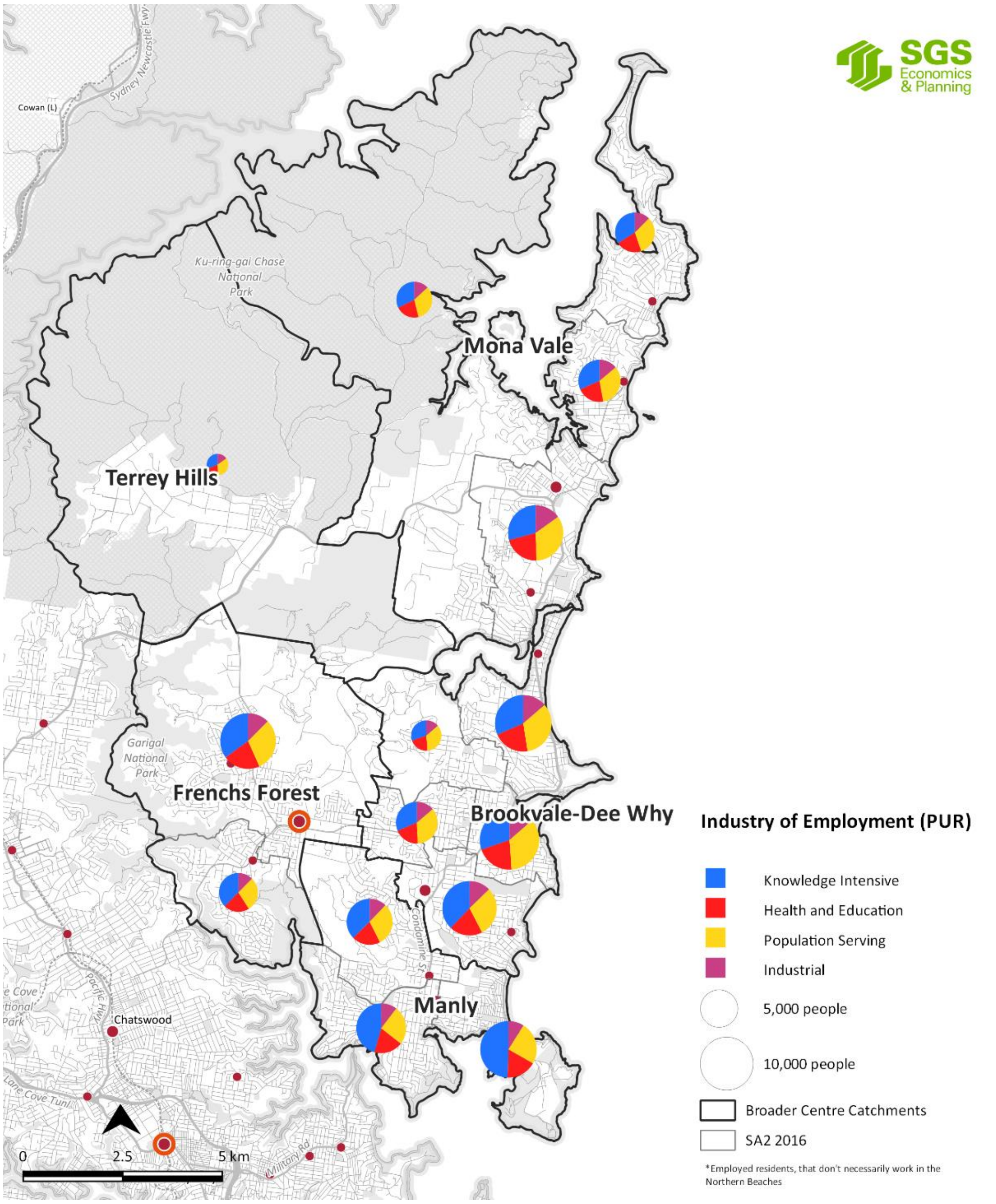
TABLE 4: BROADER CATCHMENTS INDUSTRY OF EMPLOYMENT (PUR) PROPORTIONS (2016)

Geography	Knowledge Intensive	Health and Education	Population Serving	Industrial
Mona Vale	31%	21%	34%	14%
Terrey Hills	31%	19%	34%	15%
Frenchs Forest	36%	22%	30%	12%

Brookvale-Dee Why	33%	20%	34%	13%
Manly	45%	19%	26%	10%
Total	*36%*	*20%*	*31%*	*13%*

Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 16: BROADER CATCHMENTS INDUSTRY OF EMPLOYMENT (PUR) – MAP (2016)



Source: ABS Census 2016 (TableBuilder Pro)

The most common occupations amongst Northern Beaches residents are in the *Professionals,* and *Managers* categories. High ratios of these residents are located in the suburbs of *Manly-Fairlight, Balgowlah-Clontarf-Seaforth,* with higher rates elsewhere in the LGA as well (e.g. *Frenchs Forest* broader catchment, *Brookvale-Freshwater*)

Areas such as *Beacon Hill-Narraweena* and *Dee Why-North Curl* have higher ratios of industrial workers (*Technicians and Trades Workers, Labourers* and *Machinery Operators and Drivers)* while suburbs with major retail outlets have larger numbers of *Sales Workers* (*Warriewood-Mona Vale* and *Freshwater-Brookvale).*

TABLE 5: BROADER CATCHMENTS OCCUPATION (PUR) TOTALS (2016)

Year	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrativ e Workers	Sales Workers	Machinery Operators and Drivers	Labourers
Mona Vale	5,628	8,046	3,852	2,869	4,167	2,839	786	1,465
Terrey Hills	354	436	262	155	267	149	47	108
Frenchs Forest	3,513	5,357	1,752	1,553	2,624	1,719	453	815
Brookvale-Dee Why	8,018	12,504	6,437	5,066	6,751	4,533	1,752	3,144
Manly	6,557	10,747	2,404	2,588	3,677	2,558	522	1,093
Total	*24,080*	*37,085*	*14,707*	*12,241*	*17,482*	*11,801*	*3,557*	*6,621*

Source: ABS Census 2016 (TableBuilder Pro)

TABLE 6: BROADER CATCHMENTS OCCUPATION (PUR) TOTALS (2016)

Year	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrativ e Workers	Sales Workers	Machinery Operators and Drivers	Labourers
Mona Vale	19%	27%	13%	10%	14%	10%	3%	5%
Terrey Hills	20%	25%	15%	9%	15%	8%	3%	6%
Frenchs Forest	20%	30%	10%	9%	15%	10%	3%	5%
Brookvale-Dee Why	17%	26%	13%	11%	14%	9%	4%	7%
Manly	22%	36%	8%	9%	12%	8%	2%	4%
Total	*19%*	*29%*	*12%*	*10%*	*14%*	*9%*	*3%*	*5%*

Source: ABS Census 2016 (TableBuilder Pro)

Between 2006 and 2016, the largest increase has occurred in the *Professionals, Managers* and *Community and Personal Service Workers* occupations. All other occupations have either remained relatively stagnant or experienced a decline, in particular the *Clerical and Administrative Workers* group.

TABLE 7: LOCAL OCCUPATION (PUR) TOTALS AND GROWTH RATES (2006-2016)

Year	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers
2016	24,080	37,085	14,707	12,241	17,482	11,801	3,557	6,621
2011	21,075	34,207	14,461	10,702	18,191	11,352	3,516	6,148
2006	19,403	30,720	14,235	9,470	18,137	11,391	3,629	6,589
Growth (Total)	*4,677*	*6,365*	*472*	*2,771*	*-655*	*410*	*-72*	*32*
CAGR (5-yr %)	*11.40%*	*9.87%*	*1.64%*	*13.69%*	*-1.82%*	*1.78%*	*-1.00%*	*0.24%*

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

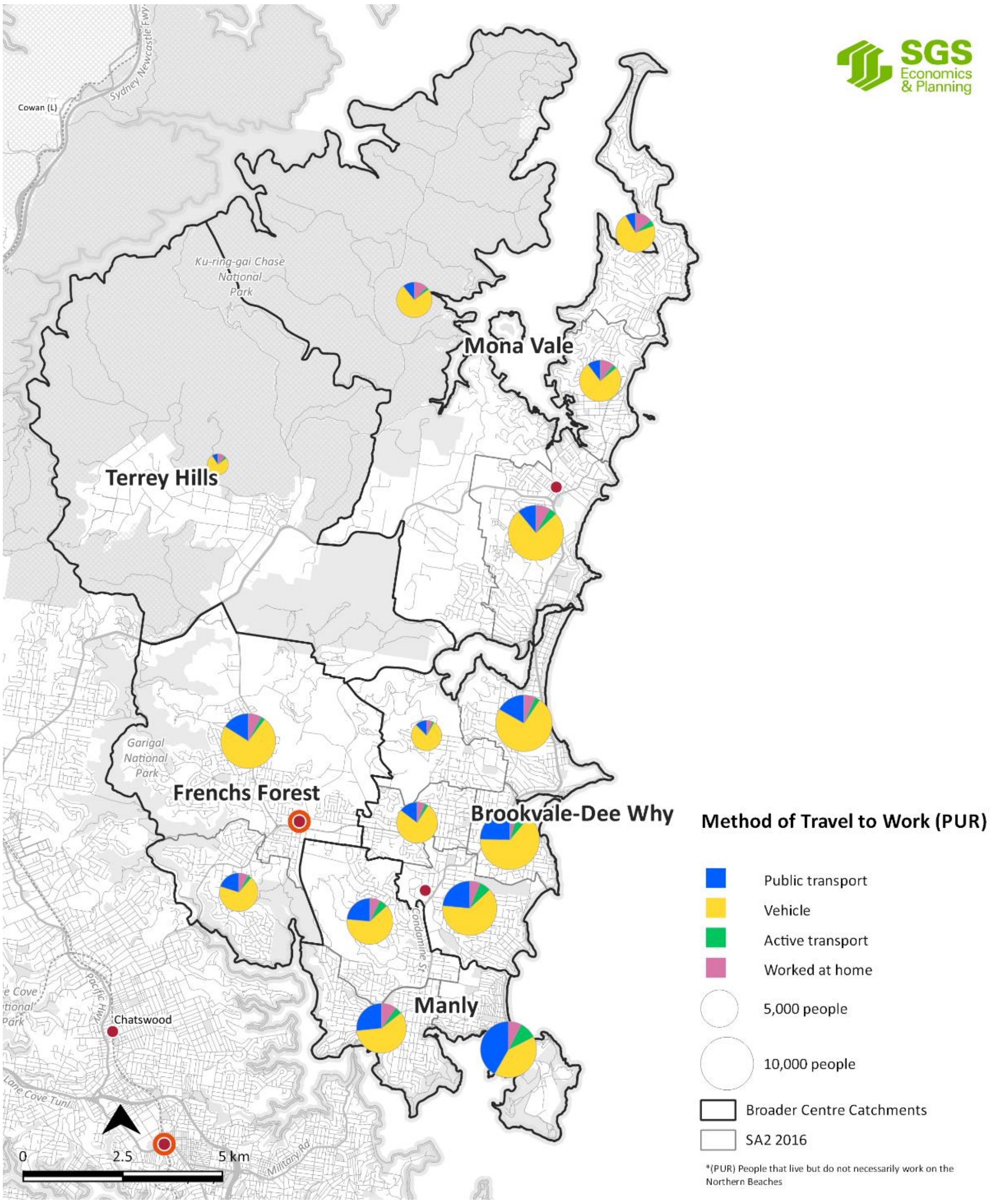
Method of Travel to Work (PUR – resident workers)

The method of travel to work (Place of Usual Residence) indicator reports how residents access their jobs.

For Northern Beaches LGA:

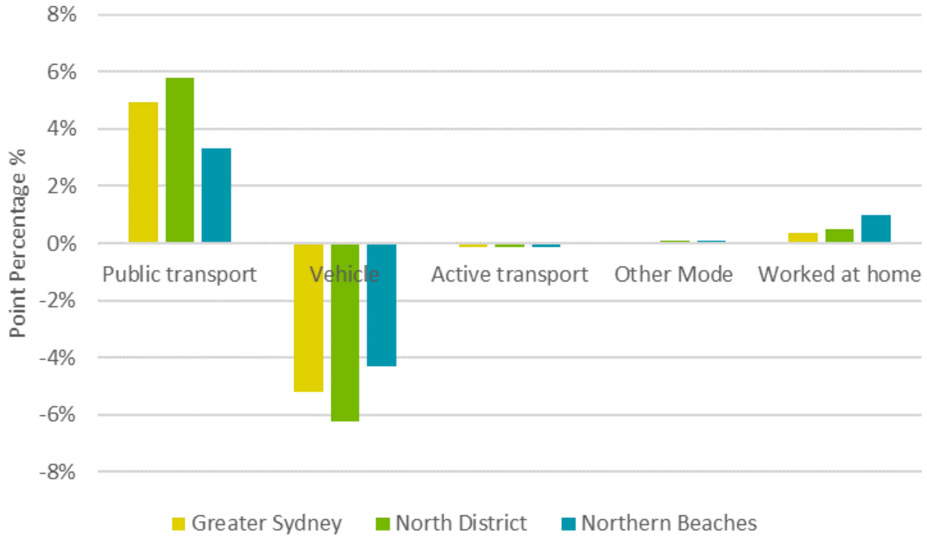
- Majority of residents use vehicles to travel to work at approximately 77 per cent, whereas only 20 per cent of residents use public transport to access work.
- Figure 17 highlights how different catchments in the LGA travel to work. Around Manly there is greater public transport use. Vehicle use increases moving further north of the LGA.
- Public transport use to access work has increased by approximately three per cent between 2006-2016 and vehicle use has decreased by approximately four per cent.
- Working from home has increased slightly during the period 2006-2016 at about one per cent, see Figure 18.

FIGURE 17: BROADER CATCHMENTS METHOD OF TRAVEL TO WORK (PUR) – MAP (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 18: COMPARATIVE PROPORTIONAL CHANGE IN METHOD OF TRAVEL TO WORK (PUR) STRUCTURE (2006-2016)



Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

3.2 Employment

The employment section profiles the jobs that locate in Northern Beaches LGA.

Employment (POW)

Between the 2011 and 2016 Census periods, Place of Work statistics show an additional 5,993 jobs have been generated on the Northern Beaches, with the Manly catchment having the highest growth rate, almost double of any other catchment. The Brookvale-Dee Why catchment is the major employment area.

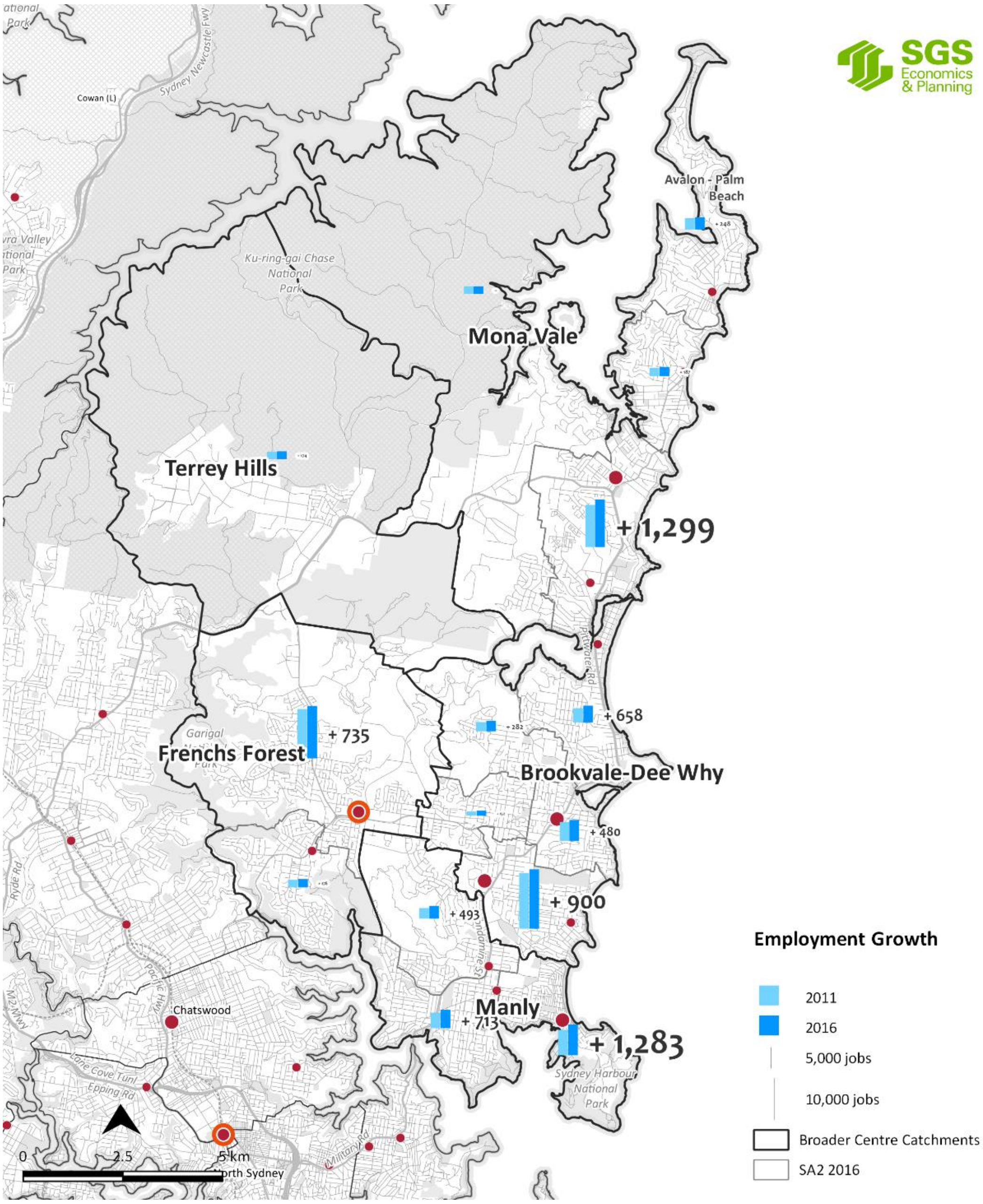
Figure 19 illustrates these employment growth findings (note the growth figure in Table 8 is related to the spatial area of 'Broader Centre Catchment' and the numeric growth figure in Figure 19 is related spatially to 'SA2s').

TABLE 8: BROADER CATCHMENTS EMPLOYMENT TOTALS AND GROWTH RATES (2011-2016)

Geography	2011	2016	Growth	CAGR (5-yr %)
Mona Vale	16,901	18,693	1,792	10.60%
Terrey Hills	1,854	2,028	174	9.39%
Frenchs Forest	13,844	14,757	913	6.59%
Brookvale-Dee Why	25,020	27,492	2,472	9.88%
Manly	12,563	15,052	2,489	19.81%
Total	*76,715*	*82,708*	*5,993*	*7.81%*

Source: ABS Census 2011 and 2016 (TableBuilder Pro)

FIGURE 19: EMPLOYMENT GROWTH 2011-2016 BY SA2



Source : SGS, 2019

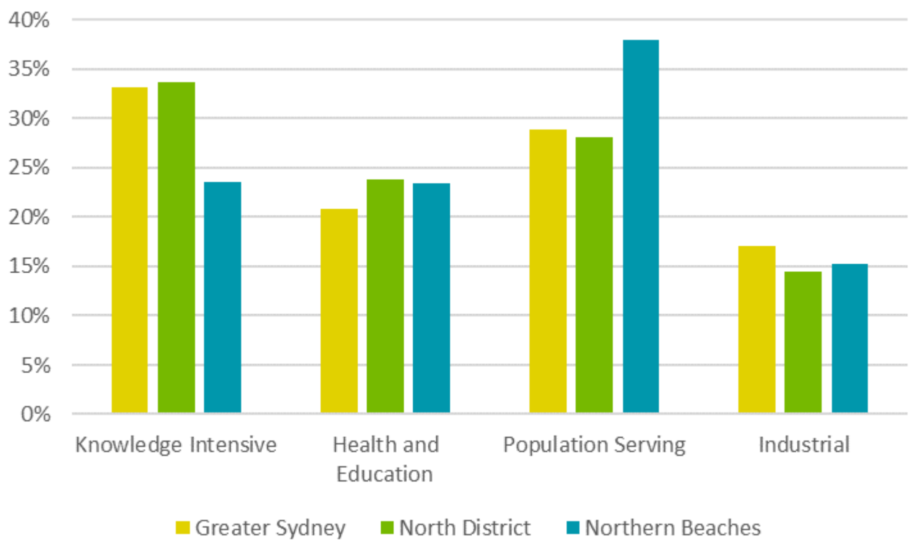
Industry of Employment (POW)

The industry of employment (Place of Work) indicator highlights the profile of jobs that are located in the LGA, regardless of whether the jobs are filled by local residents or people from outside the LGA.

Northern Beaches LGA:

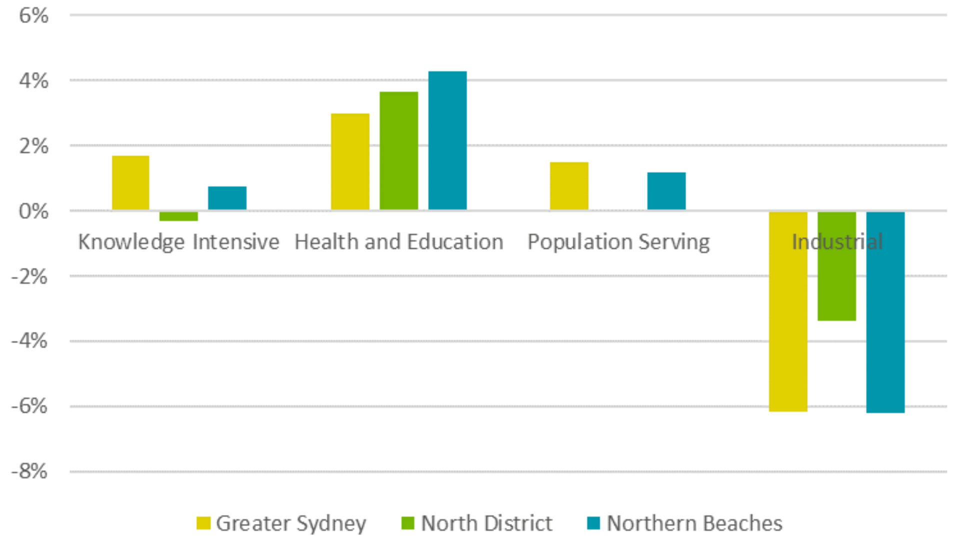
- Has a strong presence of population serving industries compared to Greater Sydney and the North District and a slightly higher proportion of health and education workers than Greater Sydney. There is significantly less knowledge intensive workers located in the LGA than compared to Greater Sydney and the North District, see Figure 20.
- Has experienced growth in health and education industries, higher than Greater Sydney and the North District. Industrial industries are in decline in the LGA, a similar occurrence seen across Greater Sydney and the North District, see Figure 21.

FIGURE 20: COMPARATIVE INDUSTRY OF EMPLOYMENT (POW) STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 21: COMPARATIVE PROPORTIONAL CHANGE IN INDUSTRY OF EMPLOYMENT (POW) STRUCTURE (2006-2016)



Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

Occupation (POW)

The occupation (Place of Work) indicator reports the types of jobs people work within the LGA.

Northern Beaches LGA has:

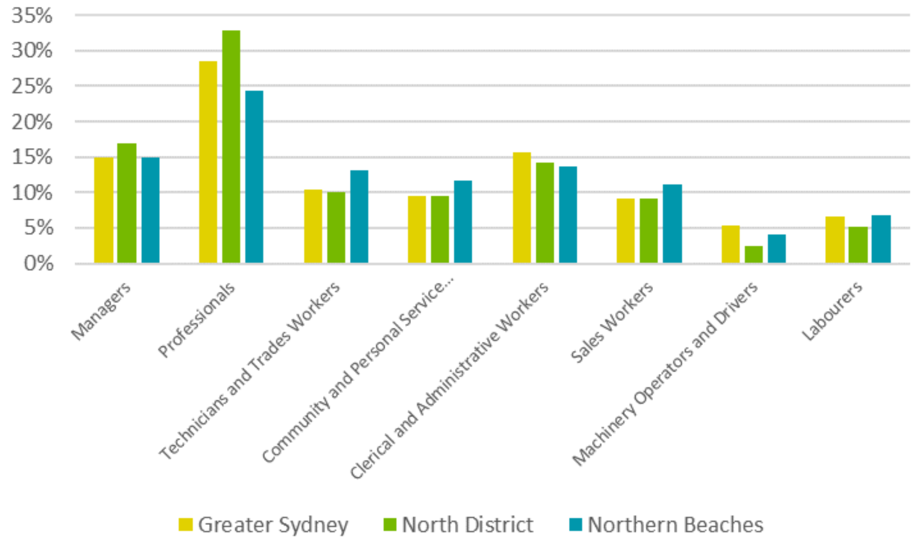
- Slightly more professional jobs located in Manly and Frenchs Forest catchment; a slightly higher proportion of technician and trade jobs and machinery operator and driver jobs located in Terrey Hills catchment; and a slightly higher proportion of sales workers in the Mona Vale, Brookvale-Dee Why and Manly catchments, see Table 9.
- A relatively similar occupation structure to Greater Sydney and the North District but noticeably lesser proportion of professional and higher levels of technicians and trades workers, community and personal service workers and sales workers, see Figure 22.
- Experienced an increase in the proportion of professionals and community and personal services workers. Growth of community and personal services workers was higher than Greater Sydney and the North District. There has been a decline in clerical and administrative workers and sales workers, see Figure 23.

TABLE 9: BROADER CATCHMENTS OCCUPATION (POW) PROPORTIONS (2016)

Year	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers
Mona Vale	15%	24%	15%	11%	14%	11%	4%	7%
Terrey Hills	14%	19%	19%	13%	10%	5%	10%	10%
Frenchs Forest	17%	28%	10%	10%	15%	9%	4%	6%
Brookvale-Dee Why	14%	20%	15%	11%	14%	13%	6%	8%
Manly	14%	29%	11%	16%	11%	11%	2%	7%
Total	*15%*	*24%*	*13%*	*12%*	*14%*	*11%*	*4%*	*7%*

Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 22: COMPARATIVE OCCUPATION (POW) STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 23: COMPARATIVE PROPORTIONAL CHANGE IN OCCUPATION (POW) STRUCTURE (2006-2016)

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

Resident Workforce and Local Jobs

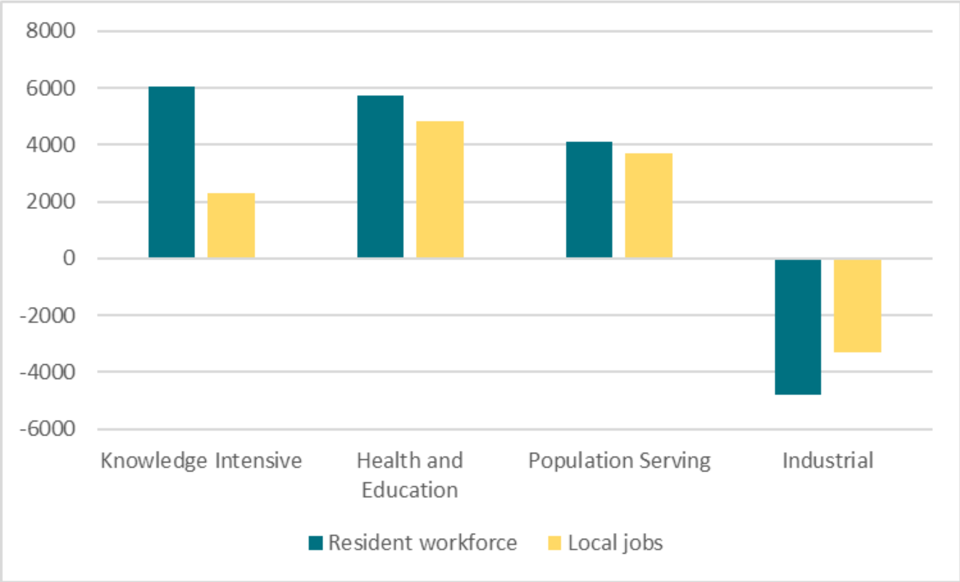
Figure 24 analyses the growth total of employment across the four Broad Industry Classifications between the resident workforce of the Northern Beaches and the local jobs that have been generated over the 10 years between 2006-16.

It shows that the number of Knowledge Intensive workers (6,035) has increased significantly more than the number of Knowledge Intensive jobs that have been generated locally in the region (2,292).

Furthermore, it shows a comparatively similar increase in the number of resident workers in Health and Education (5,742) to local jobs (4,836). A similar story can be said for Population Serving (4,103 compared to 3,683 local jobs).

The number of resident Industrial workers has decreased significantly more than the number of Industrial jobs in the Northern Beaches.

FIGURE 24: NORTHERN BEACHES COMPARATIVE GROWTH TOTAL EMPLOYMENT CHANGE 2006-16



Source: ABS, 2006, 2011, 2016

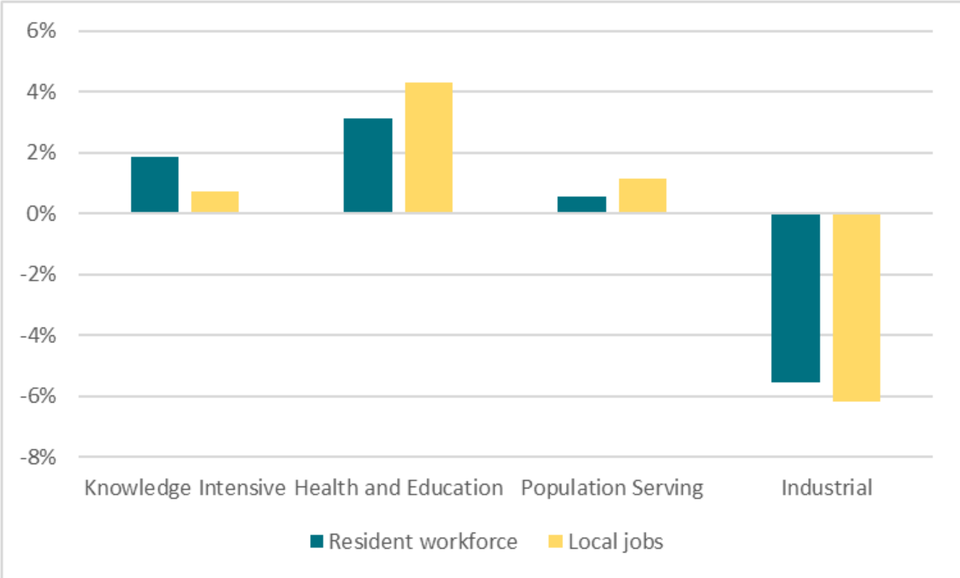
Figure 25 analyses the proportional change of employment across the four Broad Industry Classifications in the Northern Beaches LGA between the resident workforce and local jobs over the 10 years between 2006-16.

It shows that Knowledge Intensive workers have increased as a greater proportion of the Northern Beaches' resident workers than the proportion of local Knowledge Intensive jobs (+1.86% compared to +0.74%).

Health and Education and Population Serving show opposite trends. The proportion of Health and Education resident workers (+3.11%) has not kept up with the proportional increase of local jobs (+4.30%). The same can be said for Population Serving (+0.57% compared to +1.17%).

The proportion of local Industrial jobs has decreased at a faster rate than the proportion of Industrial resident workers (-6.2% compared to -5.53%).

FIGURE 25: NORTHERN BEACHES COMPARATIVE PROPORTIONAL CHANGE OF EMPLOYMENT DIVERSITY 2006-16



Source: ABS, 2006, 2011, 2016

What does this mean?

The self-containment of the Knowledge Intensive industry may have declined over the 10 years between 2006-16 given that the number of Knowledge Intensive workers living in the Northern Beaches has increased significantly higher than the number of local Knowledge Intensive jobs. This likely to be due to Knowledge Intensive workers moving to the Northern Beaches but choosing to commute to the Sydney CBD and North Sydney for work. Proportionately speaking, the share of Knowledge Intensive jobs in the LGA has increased at a slower rate than the share of Knowledge Intensive resident workers.

Industry Specialisation (Location Quotient)

Location Quotient analysis is a measure of relative industry specialisation of a local economy compared with a larger area. In this case, the Northern Beaches industry profile is measured against Greater Sydney to ascertain whether there are certain industries that are relatively more specialised.

Of most importance are the two right hand quadrants. The location quotient score directly compares the proportional size of the industry in the Northern Beaches to Greater Sydney. For example, an LQ 2.0 means that the Northern Beaches is twice as specialised as Greater Sydney, or an LQ of 0.5 meaning that it is half as specialised.

The top right quadrant shows industries that are both specialised and growing while the bottom right shows specialised industries that are contracting. This is shown below in Figure 26 (some outlying industries may have been excluded).

For the Northern Beaches LGA, analysis shows:

- There are a number of industries in the Northern Beaches that are relatively specialised and growing, reflecting diversity in economic performance.
- While no industry in the Northern Beaches has significant specialisation, the most specialised industries are Retail Trade, Accommodation and Food Services and Construction.
- While Professional, Scientific and Technical Services has grown by two per cent since 2011 and is one of the largest Industries in the LGA, it is not as specialised when compared to Greater Sydney. Professional, Scientific and Technical Services can include employment in Finance, Insurance and Legal Services. As data above has indicated, a

large number of resident workers leave the LGA to work in Knowledge Intensive jobs elsewhere in Greater Sydney. This highlights a difference between the skills of local residents and the industry specialisation of the LGA.

- Contraction in non-specialised industries is typically associated with industrial precincts such as wholesale trade and manufacturing.
- While other Knowledge Intensive industries are emerging (Information, Media and Telecommunications and Public. Admin and Safety), they are not as specialised as other industries in the top right quadrant.
- Health Care and Social Assistance and Education and Training are two of the larger industries in the top right quadrant of Established and Growing industries, despite not being the most specialised.

The next stage of the study includes precinct level profiles and analysis.

FIGURE 26: NORTHERN BEACHES LOCATION QUOTIENT ANALYSIS, 2011-2016

Source: ABS, 2011,2016

Employment Multiplier

The Input-Output (I-O) Model is a tool which quantifies the linkages of all sectors in a given economy. A region-specific model for the Northern Beaches LGA was generated to assess economic impacts in the Northern Beaches LGA and current activities on-site.

I-O models measure the relationships and inter-dependence between industries in the economy. The model identifies the buyer and supplier linkages in the local economy, highlighting those industries that have the greatest economic 'multipliers'. Multipliers are measures of the total impact on all industries in an economy arising from changes in the output of a particular industry. For example, an increase in output of the construction industry (i.e. more houses) would have a flow-on effect to industries related to construction. The I-O model framework enables identification of those industries that have the biggest 'bang for the buck' – in terms of value add and employment per additional unit of output.

Table 10 shows the I-O employment multiplier for industries within the Northern Beaches LGA at the 1-digit ANZSIC level, with the industries that have the largest effects to the overall economy of the Northern Beaches. These effects are highlighted in the conditionally formatted colour scale (green being the highest, red being the lowest) for each multiplier. The multiplier can be interpreted as: employment multipliers – at present each $1 million increase in output in Public Administration and Safety, 12 jobs will be generated.

Table 10 also shows output and value added multipliers which can be interpreted as follows:

- Output Multiplier- for every additional dollar earned in Construction, the level of regional output increases by $1.82
- Value Added Multipliers- for every extra dollar of output generated in the Education and Training industry, total regional income and gross operating surplus will increase by $1.14

TABLE 10: NORTHERN BEACHES EMPLOYMENT MULTIPLIERS (2016)

Industry of Employment	Output Multiplier	Employment Multiplier	Value Added Multipliers
Agriculture, Forestry and Fishing	1.58	4	0.71
Mining	1.41	2	0.85
Manufacturing	1.43	3	0.61
Electricity, Gas, Water and Waste Services	1.46	2	0.92
Construction	1.82	4	0.73
Wholesale Trade	1.61	4	0.92
Retail Trade	1.63	10	1.07
Accommodation and Food Services	1.57	10	0.93
Transport, Postal and Warehousing	1.54	5	0.87
Information Media and Telecommunications	1.50	3	0.86
Financial and Insurance Services	1.55	3	1.06
Rental, Hiring and Real Estate Services	1.40	2	0.95
Professional, Scientific and Technical Services	1.73	6	1.01
Administrative and Support Services	1.75	6	1.04
Public Administration and Safety	1.73	12	1.10
Education and Training	1.60	5	1.14
Health Care and Social Assistance	1.57	9	1.12
Arts and Recreation Services	1.51	7	0.76
Other Services	1.47	8	0.77

Source: SGS Economics and Planning 2019

The most efficient generators of employment are the Public Admin. and Safety, Retail Trade, Accomm. and Food Services, and Health Care and Social Assistance classifications. Comparatively, Rental, Hiring and Real Estate Services, Mining and Electricity, Gas, Water and Waste Services classifications are diminutive in their effects.

Skills Leakage

This section examines the origin and destinations pairs to illustrate the outward and inward migration of workers in relation to the Northern Beaches LGA.

Key points of interest for the Northern Beaches LGA are:

- **A self-containment rate of approximately 54 per cent,** meaning over half of the resident workforce also work locally. The Demographic Study identified self-containment generally increased moving further north in the LGA (Manly 41 per cent; Frenchs Forest 43 per cent; Brookvale-Dee Why 55 per cent; Mona Vale 61 per cent).
- Leakage of Knowledge Intensive workers from the Northern Beaches to Sydney mostly in but not limited to Banking, Finance and Investment, Legal and Insurance Services (5,231 workers in total). This may be due to the lack of major commercial centres in the LGA, an ageing population, and lack of tertiary education employment opportunities.

- Significant leakage of Higher Education workers travelling to Sydney (526 compared to 109 working locally).
- Leakage of Managers to Sydney most prevalent amongst ICT Managers (790 compared to 290 local workers) and Finance Managers (612 compared to 356 local workers).
- Leakage of Professionals to Sydney, most prevalent amongst Solicitors (644 compared to 246 local workers), HR Professionals (528 compared to 285) and Financial Dealers (397 compared to 76 local workers).
- **A self-sufficiency rate of approximately 77 per cent,** meaning over three quarters of the local jobs available are filled by working residents of the Northern Beaches.
- Inward movement of workers to Northern Beaches LGA from other LGA, while miniscule, is mostly coming from surrounding LGAs including Ku-ring-gai, Hornsby and North Sydney.
- Notable subsets of the Knowledge Intensive and Health and Education Industries coming into the Northern Beaches include Computer System Design and Related Services (166 spread across the three aforementioned LGAs), Other Social Assistance Services (204), Aged Care Residential Services (161), and Primary Education (156).
- Some notable subsets of the Occupations coming into the Northern Beaches include Accountants (155), Primary School Teachers (148), Secondary School Teachers (148), Retail Managers (147) and Advertising, Public Relations and Sales Managers (127).

Outward migration of workers

Table 11 details the outward migration of Northern Beaches working residents by industry type. The Northern Beaches **self-containment rate is 54 per cent**, meaning over half of the resident workforce work locally in the LGA.

Data indicates there is a slightly larger number of Northern Beaches Knowledge Intensive workers commuting to Sydney than working locally in the LGA, and strong numbers in surrounding employment centres at North Sydney and Willoughby. Computer System Design and Related Services (1,200-1,400) and Accounting Services (900-1,000) are fairly spread across Sydney and the Northern Beaches. However, there is a significant skill leakage of Banking (2,207 travelling to Sydney compared to 332 working locally), Other Auxiliary Finance and Investment Services (1,240 compared to 560), Legal Services (1,045 compared to 519) and General Insurance (739 compared to 154) [3].

Sydney is also a popular employment destination for Health and Education work outside of the Northern Beaches, however, self-containment of the LGA's Health and Education resident workforce is significantly high. Primary Education, Aged Care Residential Services, Hospitals, Other Social Assistance, Secondary Education and Child Care Services workers contain the highest totals and are fairly self-contained, while there is a skill leakage towards Sydney of Northern Beaches residents working in the Higher Education sector (526 compared to 109 working locally)[4].

Population Serving industries are also significantly self-contained, however, there are also strong numbers travelling to Sydney, North Sydney and Willoughby. Interestingly, there are approximately 3,000 people that work in the Population Serving sector with No Fixed Address living in the Northern Beaches, mostly in the Construction Industry[4]. Industrial workers are also fairly self-contained, with strong numbers travelling to Sydney, Ryde and Botany Bay.

[3] As a result of further cross-tabulation of ABS Census 2016 data
[4] As a result of further cross-tabulation of ABS Census 2016 data

TABLE 11: PLACE OF WORK FOR NORTHERN BEACHES' WORKING RESIDENTS BASED ON INDUSTRY TYPE (2016)

Geography	Knowledge Intensive	Health and Education	Population Serving	Industrial
Northern Beaches (A)	**15,675**	**15,075**	**24,710**	**8,413**
Sydney (C)	**16,659**	**2,013**	**3,251**	**1,344**
North Sydney (A)	**3,691**	1,029	1,139	568
Willoughby (C)	1,859	1,643	1,498	652
No Fixed Address (NSW)	1,307	670	**2,988**	509
Ryde (C)	1,197	618	513	**1,177**
Ku-ring-gai (A)	364	1,103	477	117
Mosman (A)	382	469	779	50
Parramatta (C)	529	256	322	394
Botany Bay (C)	120	18	167	**758**

Source: ABS Census 2016 (TableBuilder Pro)

Table 12 details the outward migration of Northern Beaches working residents by Occupation type. It shows there is a significantly high proportion of Northern Beaches working residents employed as Managers working locally or in Sydney (9,500 and 6,500 people respectively). Advertising, Public Relations and Sales Managers have strong numbers across both LGAs, Retail, Construction and Café and Restaurant Managers are more self-contained, and a greater share of Northern Beaches ICT Managers (790 compared to 290 working locally) and Finance Managers (612 compared to 356 working locally) are travelling to Sydney for work[5].

The majority of Northern Beaches' Professionals are working locally or travelling to Sydney. Accounting (800-900) and Advertising and Marketing Professionals (730-760) are the largest Professional subsets fairly spread across both LGAs. Early Childhood, Primary and Secondary School Teachers, Registered Nurses and Private Tutors are significantly self-contained (combined total of 4,249 workers), while Northern Beaches' Solicitors (644 compared to 246 working locally), Human Resource Professionals (528 compared to 285), and Financial Dealers (397 compared to 76) are largely travelling to Sydney for work[6].

[5] As a result of further cross-tabulation of ABS Census 2016 data
[6] As a result of further cross-tabulation of ABS Census 2016 data

TABLE 12:PLACE OF WORK FOR NORTHERN BEACHES' WORKING RESIDENTS BASED ON OCCUPATION TYPE (2016)

Geography	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers
Northern Beaches (A)	**9,464**	**15,537**	8,343	8,313	**9,819**	7,785	2,693	4,529
Sydney (C)	**6,448**	**10,170**	1,025	878	**3,475**	1,397	87	222
North Sydney (A)	1,790	2,483	381	384	947	477	43	90
Willoughby (C)	1,078	2,049	517	457	924	558	95	144
No Fixed Address (NSW)	432	731	**2,253**	561	186	240	253	**1,021**
Ryde (C)	1,161	1,407	244	95	440	201	27	27
Ku-ring-gai (A)	334	808	208	294	266	128	9	59
Mosman (A)	255	397	262	300	213	200	17	73
Parramatta (C)	445	505	144	92	212	85	34	34
Botany Bay (C)	224	266	123	223	81	66	64	25

Source: ABS Census 2016 (TableBuilder Pro)

Inward migration of workers

Table 13 details the inward migration of workers commuting to the Northern Beaches LGA from elsewhere, in addition to Northern Beaches working residents that commute locally within the LGA, by industry type.

As can be seen, the majority of jobs across all four BICs are significantly self-contained, culminating in a **self-sufficiency rate of approximately 77 per cent.** Outside workers are travelling from surrounding LGAs including Ku-ring-gai, Hornsby and North Sydney.

Further examination of the Knowledge Intensive Industry reveals that the Northern Beaches is significantly self-contained across all subsets, with some of the largest totals being Computer System Design and Related Services (1,460), Real Estate Services (1,241), Accounting Services (1,078), and Local Government Administration (974). Of the outside workers that are travelling to the Northern Beaches for employment, the majority are also working in Computer System Design and Related Services (166 spread Ku-ring-gai, Hornsby and North Sydney LGAs) [7].

Further examination of the Health and Education Industry reveals that the Northern Beaches is significantly self-contained across all subsets, with most of the outside workers travelling to the LGA to work in Other Social Assistance Services (204), Aged Care Residential Services (161), and Primary Education (156) [8].

The Population Serving sector in the Northern Beaches is also significantly self-contained, with the majority of local workers employed in Cafes and Restaurants (2,476), Supermarket and Grocery Stores (1,743), Takeaway Food Services (1,259), Clothing Retailing (948) and Club Hospitality (880) [9].

[7] As a result of further cross-tabulation of ABS Census 2016 data
[8] As a result of further cross-tabulation of ABS Census 2016 data
[9] As a result of further cross-tabulation of ABS Census 2016 data

TABLE 13: INWARD MIGRATION OF WORKERS BASED ON INDUSTRY TYPE (2016)

Geography	Knowledge Intensive	Health and Education	Population Serving	Industrial
Northern Beaches (A)	15,675	15,075	24,710	8,413
Ku-ring-gai (A)	454	709	707	496
Hornsby (A)	340	390	580	450
North Sydney (A)	237	386	441	244
Central Coast (C) (NSW)	248	171	493	282
Willoughby (C)	217	340	382	238
Ryde (C)	185	214	354	238
Sydney (C)	178	228	423	160
Parramatta (C)	191	180	312	226
Inner West (A)	165	177	283	152

Source: ABS Census 2016 (TableBuilder Pro)

Table 14 details the inward migration of workers commuting to the Northern Beaches LGA from elsewhere, in addition to Northern Beaches' working residents that commute within the LGA, by Occupation type. It still shows a significant level of self-sufficiency in the LGA.

Outside of the Northern Beaches LGA, the majority of Professionals commuting to the Northern Beaches are coming from Ku-ring-gai, Hornsby and North Sydney. While the Occupation is largely self-contained, there are a number of Accountants (155), Primary School Teachers (137) and Secondary School Teachers (148) travelling from the three aforementioned LGAs[10].

Similarly, for Managers, while the Occupation is largely self-contained, workers from Ku-ring-gai, Hornsby and North Sydney are largely coming to work as Retail Managers (147), and Advertising, Public Relations and Sales Managers (127) [11].

[10] As a result of further cross-tabulation of ABS Census 2016 data
[11] As a result of further cross-tabulation of ABS Census 2016 data

TABLE 14: PLACE OF USUAL RESIDENCE OF WORKERS BASED ON OCCUPATION TYPE (2016)

Geography	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers
Northern Beaches (A)	**9,464**	**15,537**	8,343	8,313	**9,819**	7,785	2,693	4,529
Ku-ring-gai (A)	462	**835**	215	233	275	225	80	111
Hornsby (A)	323	487	283	174	190	127	101	136
North Sydney (A)	274	445	151	115	132	126	44	58
Central Coast (C) (NSW)	187	163	**356**	114	121	80	116	104
Willoughby (C)	199	**379**	170	102	134	114	47	67
Ryde (C)	172	310	157	90	115	87	53	66
Sydney (C)	159	324	154	148	76	78	16	84
Parramatta (C)	127	253	161	74	99	76	53	86
Inner West (A)	123	233	145	69	61	72	29	68

Source: ABS Census 2016 (TableBuilder Pro)

Market Trends - Floorspace Vacancies

SGS undertook a broad desktop review of relevant market indicators covering retail, commercial and industrial markets within and surrounding the Northern Beaches LGA. The employment market vacancies results were largely taken from Real Commercial[12].

A limitation of the broad desktop review was the inability to obtain real price data on every property for lease without directly contacting the real estate agencies. Of 420 properties that SGS gathered data on regarding Northern Beaches vacancies in April 2019, 287 had lease prices readily available.

The analysis found a concentration of vacancies in centres across the LGA, namely Frenchs Forest, Belrose-Terrey Hills, Manly, Brookvale, Dee Why, Cromer-Collaroy, Narrabeen, Mona Vale and Newport.

The key findings were:

- Manly appears to have the highest average price per sqm ($797) for retail and commercial vacancies, while Frenchs Forest has the lowest.
- Industrial properties cost less per sqm when compared to retail and commercial properties, with Brookvale containing the highest average price ($294 per sqm), and Cromer-Collaroy having the lowest ($207 per sqm).

[12] RealCommercial.com.au

TABLE 15: COMMERCIAL AND RETAIL VACANCIES (APRIL 2019) *

Centre	Average Price ($ per sqm)	Median Price ($ per sqm)	Minimum Price ($ per sqm)	Maximum Price ($ per sqm)
Frenchs Forest	$338	$363	$92	$681
Belrose-Terrey Hills	$391	$310	$208	$770
Manly	$797	$673	$358	$2,273
Brookvale	$459	$352	$85	$851
Dee Why	$441	$357	$107	$1,210
Cromer-Collaroy	$679	$588	$292	$1,144
Narrabeen	$573	$440	$228	$1,746
Mona Vale	$469	$380	$219	$910
Newport	$641	$585	$268	$1,180

SGS Economics and Planning 2019 using Real Commercial

*Commercial and Retail Vacancies have been combined as many are listed as both

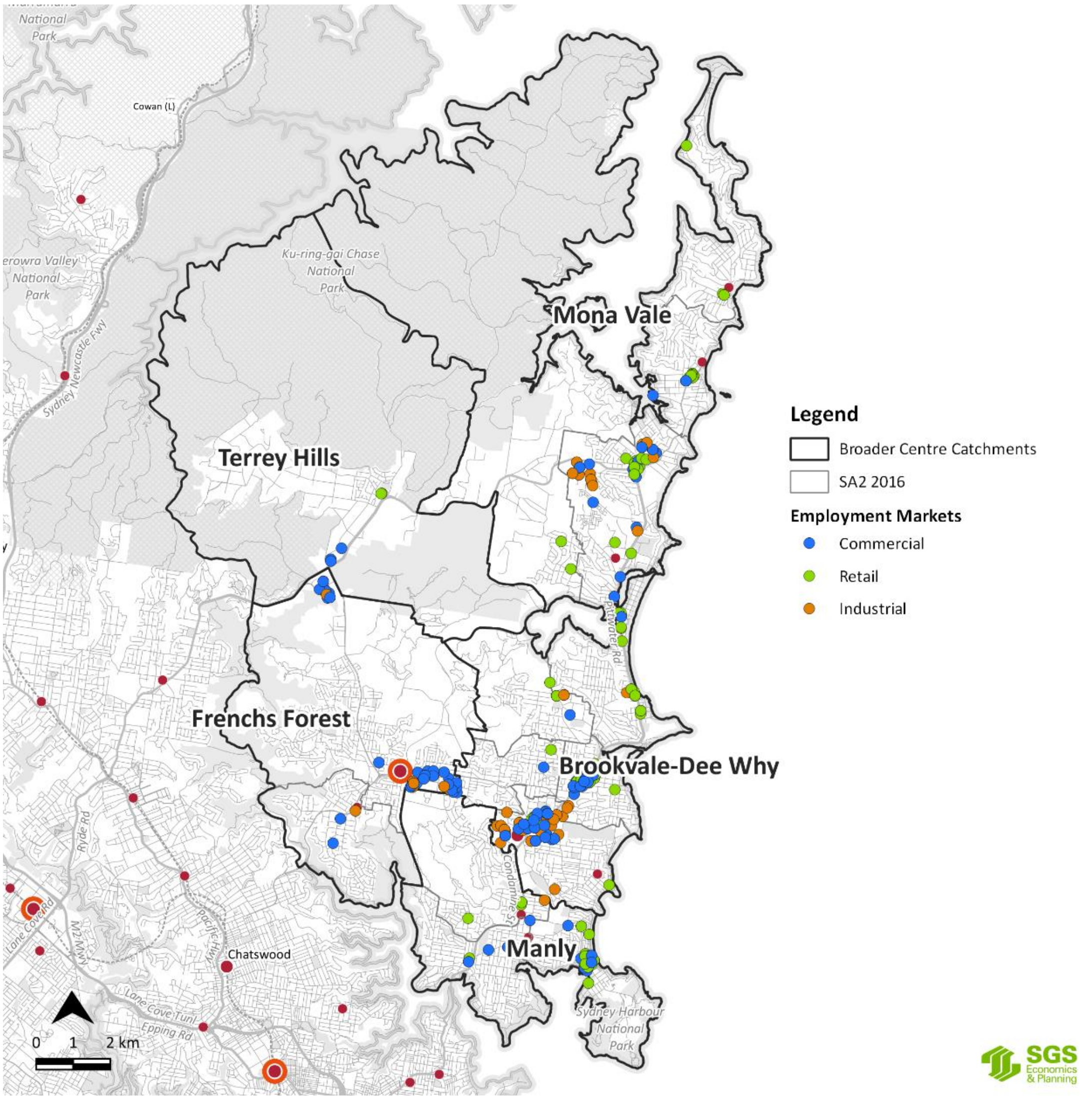
TABLE 16: INDUSTRIAL VACANCIES (APRIL 2019)

Centre	Average Price ($ per sqm)	Median Price ($ per sqm)	Minimum Price ($ per sqm)	Maximum Price ($ per sqm)
Frenchs Forest	$270	$362	$53	$364
Belrose-Terrey Hills	$233	$234	$192	$275
Manly	$282	$282	$244	$321
Brookvale	$294	$351	$116	$660
Cromer-Collaroy	$207	$203	$153	$252
Narrabeen	$224	$218	$156	$280
Mona Vale	$258	$271	$185	$356

SGS Economics and Planning 2019 using Real Commercial

Figure 27 depicts the distribution of retail, commercial and industrial vacancies within the Northern Beaches LGA.

FIGURE 27: EMPLOYMENT MARKET VACANCIES (APRIL 2019)



SOURCE: SGS ECONOMICS AND PLANNING 2019 USING REAL COMMERCIAL

Historical Sales

SGS also undertook an analysis of historical commercial and business sales in the Northern Beaches using RP Data[13]. Where appropriate and possible, SGS also cross-checked RP's data with other commercial data sources to minimise the inaccuracies recorded online. This was particularly useful when trying to determine the floor area of each property that had been sold.

The analysis shows a more consistent and stable trend across the centres for sales in comparison employment market vacancies shown previous, which showed a larger disparity of prices across centres.

The key findings were:

- The average price for a commercial/business property ranged from $5,000 - $7,000 per sqm (November 2018 to May 2019).
- Manly had the highest average price of $12,181 per sqm.
- Belrose-Terrey Hills was the least expensive with an average price of $4,254 per sqm.

[13] https://www.corelogic.com.au/

TABLE 17: NORTHERN BEACHES HISTORICAL COMMERCIAL SALES (NOVEMBER 2018 – MAY 2019)

Centre	Average Price ($ per sqm)	Median Price ($ per sqm)	Minimum Price ($ per sqm)	Maximum Price ($ per sqm)
Frenchs Forest	$5,571	$3,000	$2,933	$13,350
Belrose-Terrey Hills	$4,254	$4,354	$3,750	$4,557
Manly*	-	-	-	-
Brookvale	$5,186	$5,011	$1,407	$8,861
Dee Why	$5,051	$4,398	$2,500	$10,438
Cromer-Collaroy	$6,771	$6,684	$6,564	$7,067
Narrabeen	$6,764	$7,798	$1,977	$10,516
Mona Vale	$6,060	$5,955	$5,580	$6,646
Newport	$10,875	$10,540	$6,471	$17,917

SGS Economics and Planning 2019 using RP Data

*Only one commercial property listed as sold in the last six months- for $12,181 per sqm.

Method of Travel to Work (POW)

The method of travel to work (Place of Work) indicator reports how those who work in the LGA travel to work.

For Northern Beaches LGA:

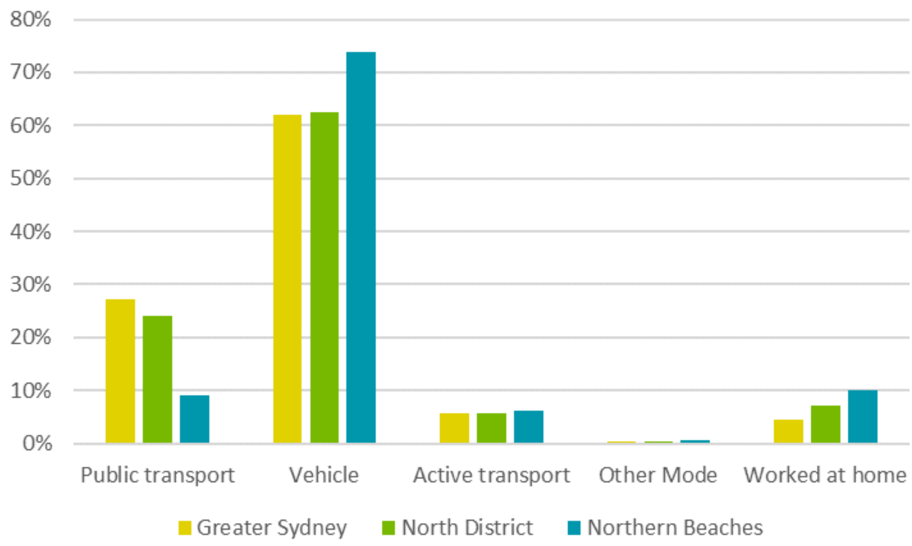
- Most workers originate in the LGA, at about 82 per cent, see Table 18.
- Majority of workers use vehicles to access work which is higher than Greater Sydney and the North District, Figure 28.
- Between 2006 and 2016, there was a slight increase in the proportion of people using public transport to access work and concurrently a drop in those using vehicles. However, both these figures were far less than the proportion seen in Greater Sydney and the North District, see Figure 29.

TABLE 18: ORIGIN OF WORKERS EMPLOYED ON THE NORTHERN BEACHES (2016)

Geography (POW)	2016	%
Northern Beaches	67,575	81.60%
Ku-ring-gai	2,478	2.99%
Hornsby	1,853	2.24%
North Sydney	1,358	1.64%
Central Coast	1,272	1.54%
Willoughby	1,234	1.49%
Sydney	1,058	1.28%
Ryde	1,057	1.28%
Parramatta	960	1.16%
Inner West	815	0.98%

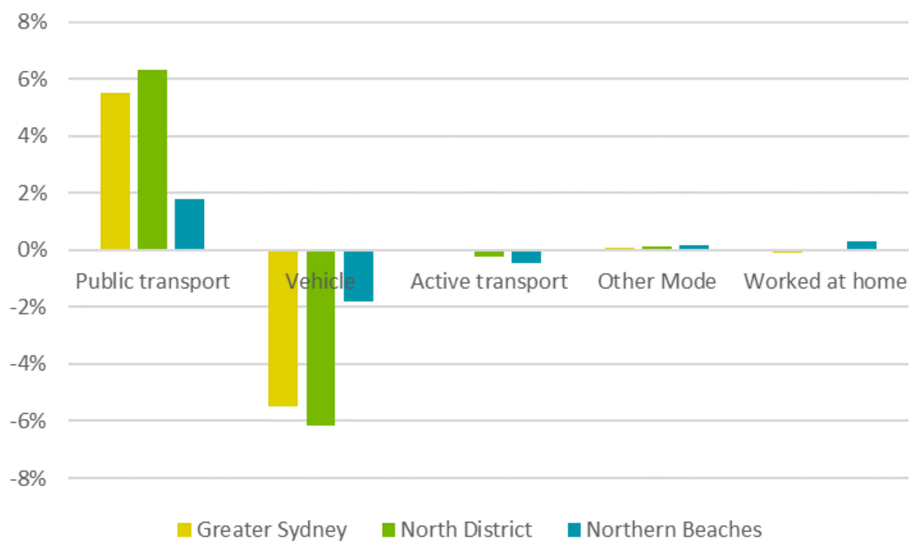
Source: ABS Census 2016 (Tablebuilder Pro)

FIGURE 28: COMPARATIVE METHOD OF TRAVEL TO WORK (POW) STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

FIGURE 29: COMPARATIVE PROPORTIONAL CHANGE IN METHOD OF TRAVEL TO WORK (POW) STRUCTURE (2006-2016)



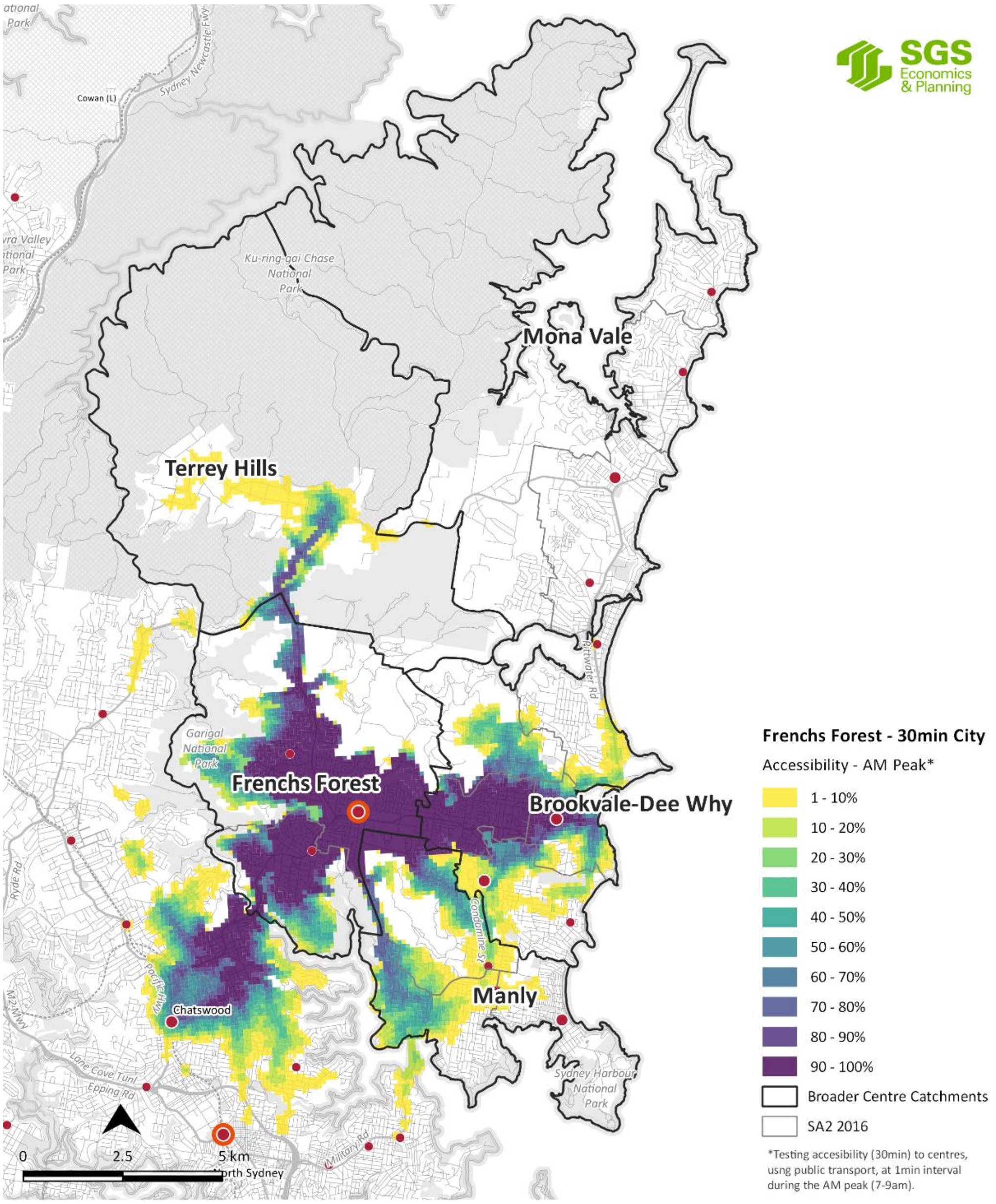
Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

Employment Centre Accessibility

In keeping with the Greater Sydney Commission's focus on the 30-minute city, the following series of maps indicate accessibility within 30-minutes to a centre in the Northern Beaches LGA via public transport during the AM peak (7am-9am).

Frenchs Forest has broad 30-minute coverage but low densities. Thirty-minute accessibility to the Frenchs Forest centre is generally focussed east-west within the LGA with strong access between Frenchs Forest and Brookvale-Dee Why. Frenchs Forest centre is also accessible in 30-minutes north to Terrey Hills. There is also good access between Frenchs Forest and Chatswood, see Figure 30. A challenge for Frenchs Forest centre maybe the lack of workers in direct vicinity of the centre given the low densities. This may change with the town centre and Hospital development.

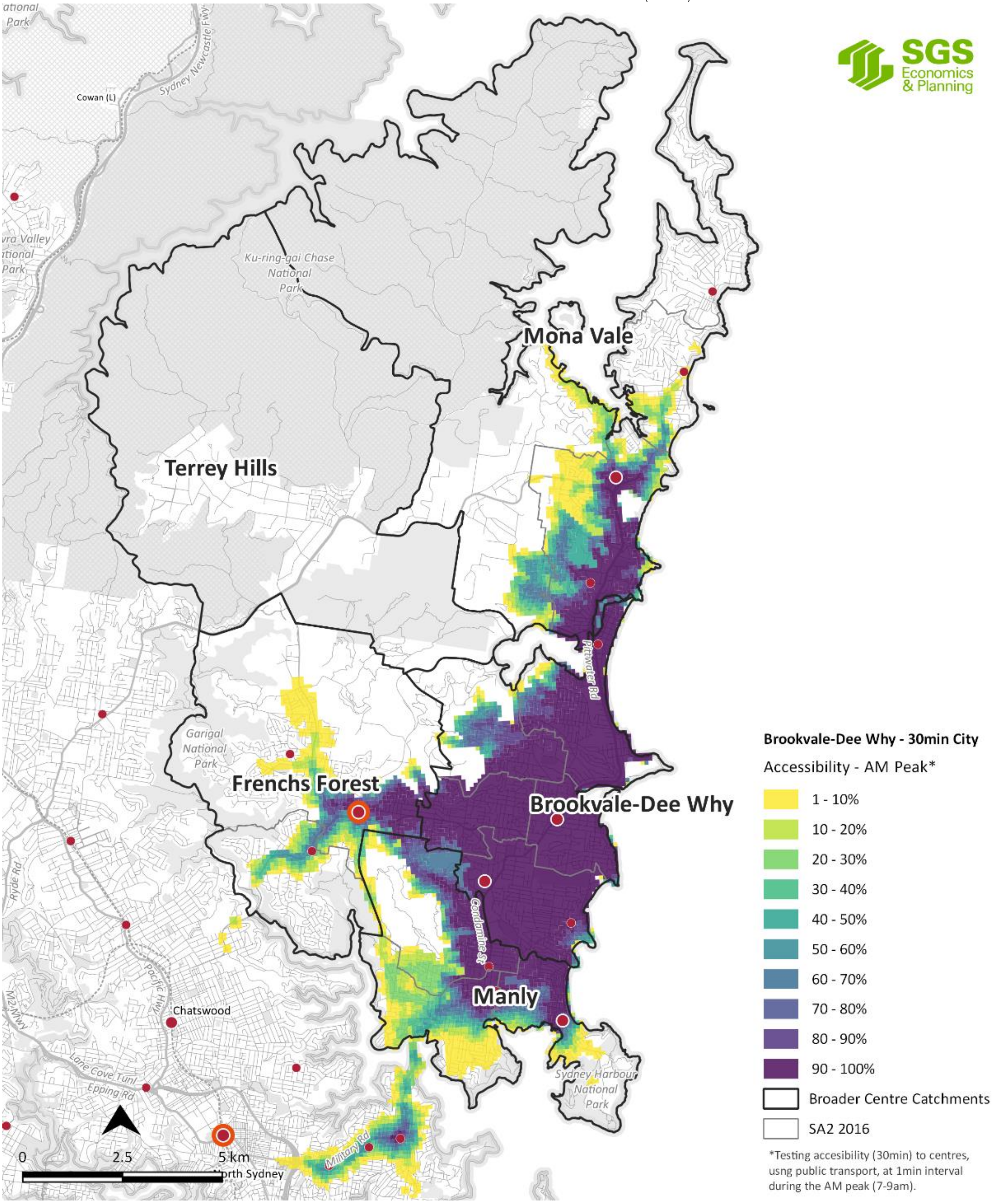
FIGURE 30: 30MIN ACCESSIBILITY TO FRENCHS FOREST DURING AM PEAK– MAP (2019)



Source: SGS Economics and Planning 2019 and Open Data NSW - General Transit Feed Specification (GTFS) 2019

Thirty-minute accessibility in the AM peak to Brookvale-Dee Why is widespread across the LGA. The strongest level of access (90-100 per cent) reaches other town centres as far north as Warriewood and south to Manly and west to Frenchs Forest, see Figure 31.

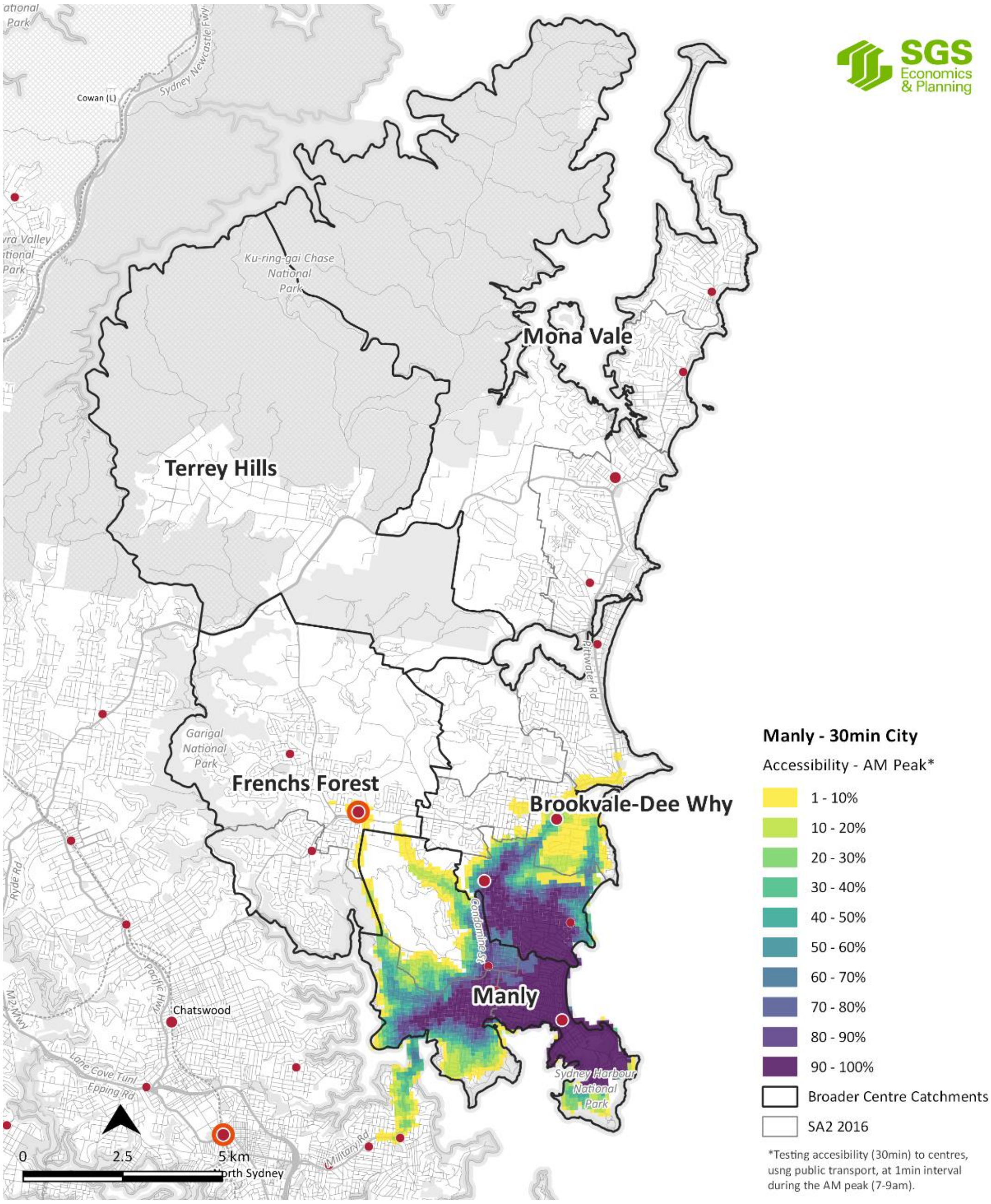
FIGURE 31: 30MIN ACCESSIBILITY TO BROOKVALE-DEE WHY DURING AM PEAK– MAP (2019)



Source: SGS Economics and Planning 2019 and Open Data NSW - General Transit Feed Specification (GTFS) 2019

Accessibility to Manly town centre in 30-minutes is much more contained in the AM peak. The strongest level is access is centred around suburbs to Manly town centre such as Manly Vale, Queenscliff and Balgowah and would be indicative of lower public transport offerings around this centre, see Figure 32.

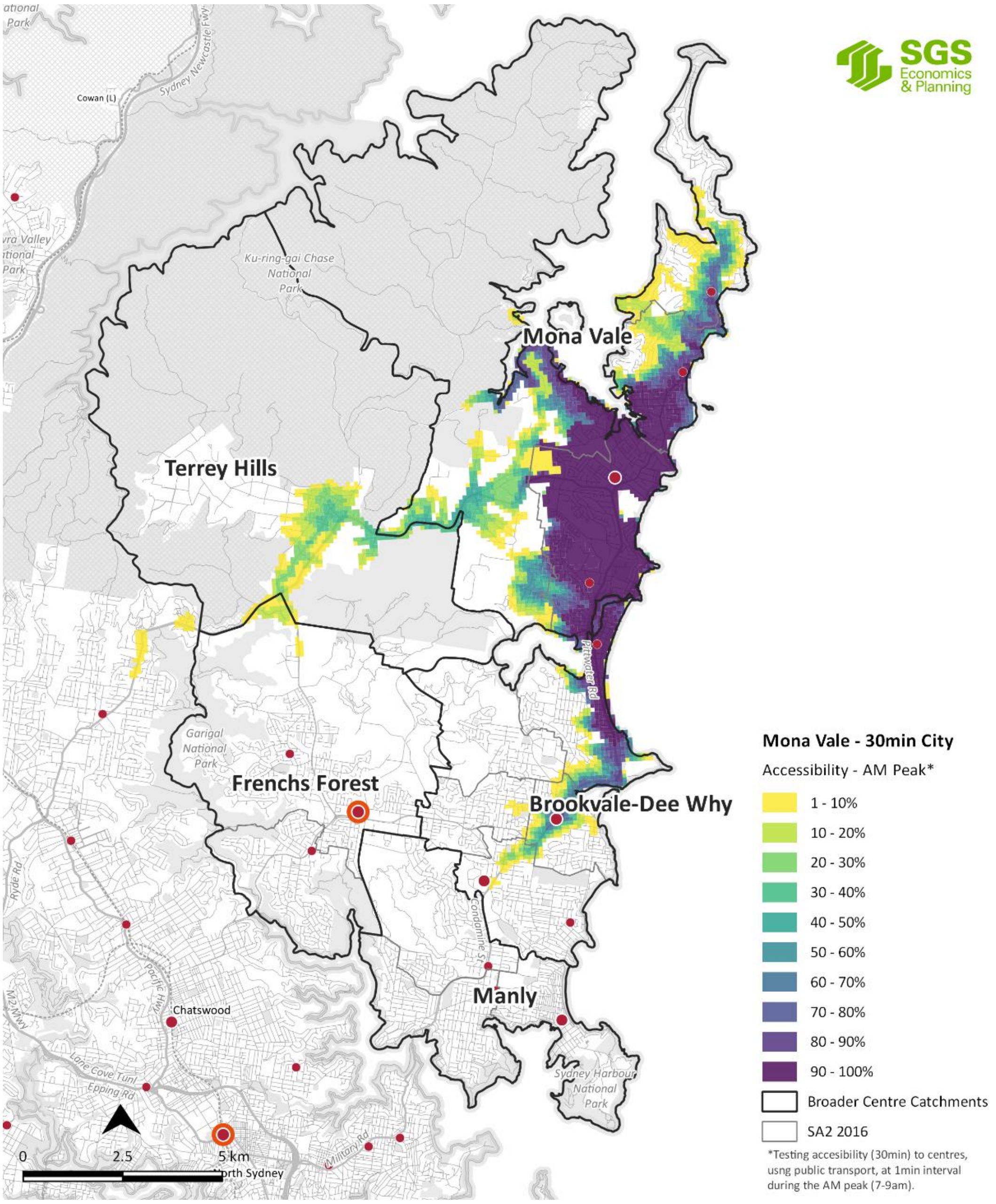
FIGURE 32: 30MIN ACCESSIBILITY TO MANLY DURING AM PEAK– MAP (2019)



Source: SGS Economics and Planning 2019 and Open Data NSW - General Transit Feed Specification (GTFS) 2019

Accessibility to/from Mona Vale by public transport in the AM peak is contained to the northern portion of the LGA, see Figure 33. As noted in the Demographic study, Mona Vale has low densities, high private vehicle use for the journey to work and the largest number of workers with alternate working arrangements (eg: Working from Home), therefore tailored solutions to this mode of employment would need to be investigated and accessibility to the rest of the LGA would need to be supported.

FIGURE 33: 30MIN ACCESSIBILITY TO MOVA VALE DURING AM PEAK– MAP (2019)



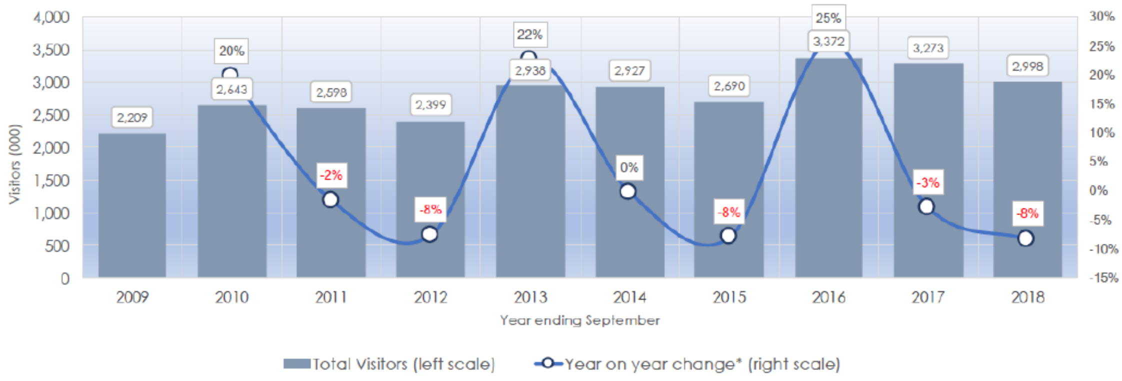
Source: SGS Economics and Planning 2019 and Open Data NSW - General Transit Feed Specification (GTFS) 2019

3.3 Tourism

For the year ending March 2018, Destination NSW estimates the total number of international visitors to Manly (those who stayed overnight and those who visited on a day trip) was 1.1 million. This was a quarter of all international visitors to NSW. The total number of international visitors that stayed overnight was 62,600 persons. The top activities that they undertook in Manly were eating in restaurants and cafes (96 per cent), visited the beach (90 per cent), sightseeing (87 per cent), shopping for pleasure (82 per cent), and visited national/state park (66 per cent).

On the domestic visitor front, there was 901,200 domestic overnight visitors in the year ending March 2018 (including those who stayed overnight elsewhere). This accounted for three per cent of all domestic visitors to NSW. They mainly travelled to Manly to visit family and friends and mostly came from regional NSW. The top activities they engaged in were eating out (88 per cent), visiting family and friends (55 per cent), going to the beach (51 per cent) and sightseeing (33 per cent).

FIGURE 34: TOTAL VISITORS NORTHERN BEACHES LGA

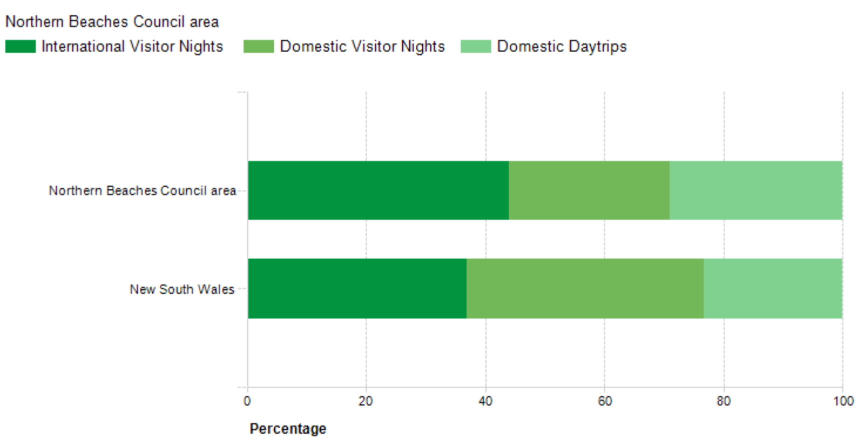


Source: Northern Beaches Destination Management Plan, 2019

For total visitors to the LGA, long term trends (2009-2018) suggest visitors have been variable overtime, see Figure 34, rising to a peak in 2016 of 3,372,000 visitors and falling slightly to 2,998,000 by 2018.

In 2017/18, it was estimated that Northern Beaches LGA on average had a higher proportion of international visitor nights and domestic day trippers than NSW as a whole, see Figure 35.

FIGURE 35: NORTHERN BEACHES LGA, BREAKDOWN OF VISITOR NIGHTS 2017/18



Source: Economy ID, https://economy.id.com.au/northern-beaches/tourism-visitor-summary, date accessed: 04/06/2019

Tourism and hospitality contributed to 9,500 direct and 4,380 indirect employment jobs in the LGA. Most employees were aged between 25 to 44 years (39 per cent) and 15 to 24 years (36 per cent)[14].

Five-year data analysis (2013/14 - 2017/18) suggests domestic overnight visitors tended to stay in the LGA between two to four days. Visiting friends and family was the major reason for visitation at 54.3 per cent. For international visitors, the average length of stay was between 15 to 21 day for reasons of holiday. Some visitors stayed up to 95 days for reasons of education and employment, see Figure 36.

FIGURE 36: VISITOR DATA FOR NORTHERN BEACHES

Main Reason for Trip 5 year total: 2013/14 – 2017/18	DOMESTIC OVERNIGHT				INTERNATIONAL			
	Visitors	Visitor Nights	% Visitors[1]	Av. Length of Stay (days)[1]	Visitors	Visitor Nights	% Visitors[1]	Av. Length of Stay (days)[1]
Visiting friends and relatives	1,317,444	4,139,579	54.3%	3.1	174,905	2,753,160	35.8%	15.7
Holiday	636,445	1,856,091	26.2%	2.9	175,560	3,678,900	36.0%	21.0
Business	344,200	978,417	14.2%	2.8	27,222	298,350	5.6%	11.0
Education					27,969	2,466,336	5.7%	88.2
Employment					13,666	1,280,909	2.8%	93.7
Other reason	132,695	566,839	5.5%	4.3	68,652	1,542,227	14.1%	22.5
TOTAL	**2,426,159**	**7,540,927**	**100%**	**3.1**	**487,977**	**12,019,884**	**100%**	**24.6**

Note 1: Green = higher than for NSW; **Orange** = equal to or near all of NSW; **Red** = Lower than for NSW

Source: Northern Beaches Destination Management Plan, 2019

[14] Northern Beaches Destination Management Plan, 2019, p. 23.

3.4 Key Findings

Low population growth rates and an ageing population

Northern Beaches LGA will have lower growth rates than the Greater Sydney region and the North District, as well as an increasingly ageing population which is generally consistent with Greater Sydney. There may be a rise in the 20 to 30-year old 'young adult' age bracket as the youth group transitions. Overseas migrants are locating in Northern Beaches LGA and tend to be of working age. They would replenish the workforce. Economic centres, businesses, planning and policy will have to respond to the trend of an ageing population and attempt to maintain diversity in the community by catering to the needs of all age groups.

A part-time and highly self-contained workforce

Northern Beaches LGA has a higher proportion of people working part-time than Greater Sydney and the North District and this has been growing since 2006. Just over half of the local resident population work locally, and over three quarters of the local jobs are filled by local working residents. Self-containment generally increases moving north in the LGA.

A higher share of local residents work in knowledge intensive jobs and population serving jobs, although there has been a rise in the number of people working in health and education. Residents working in industrial industries has decreased over time. The lack of affordable housing may be linked to the decrease of residents working in industrial industries and the high number of workers coming to the LGA working in healthcare related jobs.

Knowledge Intensive and Population Serving jobs are well represented in the LGA, Health and Education jobs have experienced the most growth

Most local residents are employed in knowledge intensive related jobs (about 32 per cent) and population serving related jobs (about 31 per cent). Between 2006 and 2016, the proportion of knowledge intensive and health and education jobs held by local residents increased in the LGA, whereas population serving jobs only experienced a small increase and industrial jobs undertaken by residents decreased by about -6 per cent.

Residents in the Manly catchment have a higher share of knowledge related jobs and less population serving jobs when compared to the rest of the LGA; residents working in health and education jobs are generally equally distributed across the LGA.

Professional and managers are the most common occupations for local residents

Professionals and managers living in the LGA tend to be located in the suburbs of Manly-Fairlight, Balgowlah-Clontarf-Seaforth; whereas industrial workers in the LGA tend to be located around Beacon Hill-Narraweena and Dee Why-North Curl. Suburbs with major retail outlets had a greater presence of sales workers.

Growth rates indicate all occupations held by local residents in the LGA have remained stagnant or declined between 2006 and 2016, except professionals and managers, and community and personal services which have significantly risen. The growth in community and personal services occupations is likely to be linked to growth in health and education jobs overall and an ageing population.

Employment has grown in Manly

An additional 5,993 jobs have been generated in the LGA between 2011 and 2016 with the majority of these located in the Manly catchment with +2,489 jobs and a growth rate of 20 per cent. Brookvale-Dee Why catchment also exhibited a strong rise in jobs at +2,472 jobs and a growth rate of 10 per cent.

Increased proportion of professional services and community and personal services jobs available in the LGA

In relation to the types of jobs people work within in the LGA, data indicates there has been an increase in the proportion of professional services and community and personal services jobs. There has been a decline in clerical and administrative workers and sales workers. There are slightly more professional jobs located in Manly and Frenchs Forest; slightly more sales related jobs in Mona Vale, Brookvale-Dee Why and Manly; and slightly more technician and trade jobs in the Terrey Hills catchment.

Resident workforce compared to local job offerings is more balanced for health and education and population serving industries than knowledge intensive industries

The number of knowledge intensive workers living the LGA (6,035) has increased more than the number of knowledge intensive jobs that exist in the LGA (2,292). Whereas, the number of resident workers to local jobs for health and education (5,742 resident workers to 4,836 local jobs) and population serving (4,103 resident workers to 3,683 local jobs) industries is more balanced.

High rates of private vehicle use to access employment

Private vehicle use for the journey to work is extremely high in the Northern Beaches LGA and above the level of vehicle use for Greater Sydney and the North District. Private vehicle use generally increases moving north of the LGA. High vehicle use could be attributed to the lack of public transport options, and distance, to employment centres outside of the LGA but also within the LGA, given the high rate of job self-containment. The proportion of people using public transport has grown in the LGA, albeit at a much lower level when compared to Greater Sydney and the North District. Around Manly there is greater public transport use compared to the rest of the LGA.

Employment Centre Accessibility

There are strong 30-minute linkages between Frenchs Forest and Brookvale-Dee Why, as well as to Chatswood. Generally, there is strong 30-minute access radiating out of Brookvale-Dee Why to surrounding areas in the LGA. Manly and Mona Vale centres have contained 30-minute accessibility in the AM peak. Low densities around centres, in particular Frenchs Forest and Mona Vale impacts the availability of workers within the 30-minute radius.

Strong presence of population serving jobs and health and education jobs in the LGA

Northern Beaches LGA has a higher percentage of population serving jobs than when compared to Greater Sydney and the North District. Health and Education jobs have increased in the LGA in the decade 2006-2016. The LGA shows specialisation in both these industries when compared to Greater Sydney. While Knowledge Intensive industries are emerging (Information, Media and Telecommunications and Public. Admin and Safety), they are not as specialised as other industries in the LGA, most likely due to their preference to locate in larger commercial centres such as the CBD.

Social assistance, aged care, primary and secondary school teachers and workers are coming to Northern Beaches LGA to work

In relation to the aged care workers, this may increase as the population ages and Northern Beaches residents continue to be employed in other industries. This may be linked to the lack of affordable housing for key workers in the LGA.

High numbers of Knowledge Intensive workers leave the LGA for jobs

Approximately 16,659 residents leave the Northern Beaches LGA to travel to Sydney CBD for jobs in Knowledge Intensive industries. This is slightly more than the number of residents who remain working in Knowledge Intensive industries within the LGA, at about 15,675. Approximately 3,691 and 1,307 residents travel to North Sydney and Willoughby respectively to work in Knowledge Intensive industries. This could be jobs related to Banking, Finance and Investment, Legal and Insurance Services. There are also a notable number of residents travelling to Sydney CBD for jobs in Health and Education, Population Serving and Industrial industries at 2,013, 3,261 and 1,344 persons respectively.

Potential tension with Manly centre

The Manly catchment has exhibited the highest growth rate in employment between 2011-2016. Place of work data indicates the Manly catchment has a high share of professional related jobs. Policy directives for the centre encourage a diverse mix of uses in tourism, retail and entertainment components of the centre, as well as diversifying commercial activity, while the closure of Manly hospital will see a likely decline in health-related jobs. Over time, tourism to Manly has been variable. A clear vision and balancing competing industry land use into the future will be required.

Market trends highlight the desirability of Manly and Brookvale

Manly appears to have the highest average price per sqm ($797) for retail and commercial vacancies, while Frenchs Forest has the lowest. Industrial properties cost less per sqm when compared to retail and commercial properties, with Brookvale containing the highest average price ($294 per sqm), and Cromer-Collaroy having the lowest ($207 per sqm). This further reiterates the popularity of Manly as a centre, and the need to improve the desirability of Frenchs Forest as a centre for retail and commercial purposes; for Brookvale this highlights the desirability of the industrial zone and a need to manage the pressures and demand in this centre given the 'retain and manage' policy directives.

4. TRENDS AND DRIVERS

This chapter considers some trends and drivers that may impact future land use and economic activity centres in Northern Beaches LGA.

4.1 Retailing

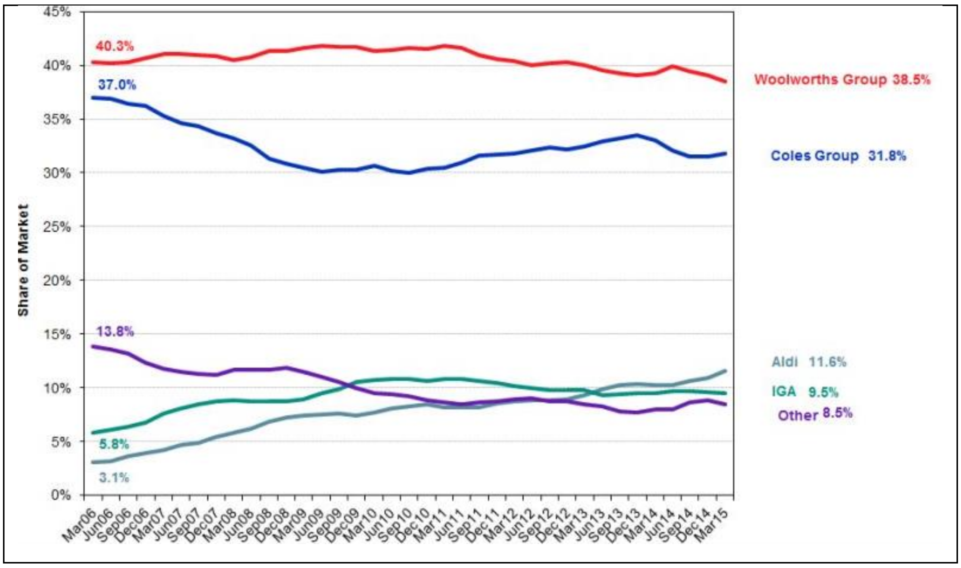
Changing Profile of Supermarkets

High street retail strips and enclosed shopping centres are often anchored by a supermarket that acts as the major tenant with smaller stores clustered around it. Anchor stores play a key role in the overall health of a shopping centre or district. Traditionally, Australia's groceries market has been dominated by Woolworths and Coles brands. Even today, together, they account for about 70 per cent of the market[15], see Figure 37. However, the past decade has seen the rise of two main competitors – IGA and Aldi.

Combined, IGA and Aldi account for approximately 21 per cent of market share. Aldi, the German discount supermarket chain, has tripled its market share (3.1 per cent to 11.6 per cent) in the ten years to 2015. The promotions focus on low-price items of 'home brands' has attracted a number of shoppers who may not have traditionally shopped at discount supermarkets. In NSW and Victoria, about 47 per cent of grocery buyers in each state now shop at Aldi in any given four-week period. Woolworths and Coles in contrast have seen their market share decrease[16].

Where supermarkets tend to service their surrounding population catchment, anecdotally Aldi appears to challenge this trend, with people often deliberately shopping at Aldi in search of a bargain even though it is not their closest supermarket.

FIGURE 37: MARKET SHARE OF LEADING SUPERMARKETS, 2006-2015



Source: Roy Morgan Research, 2015

[15] Roy Morgan Research 2015, 'The ALDI effect: Australia's changing supermarket scene' – 22 June 2015 http://www.roymorgan.com/findings/6297-aldi-effect-australias-changing-supermarket-scene-201506220132

[16] Roy Morgan Research 2015, 'The ALDI effect: Australia's changing supermarket scene' – 22 June 2015 http://www.roymorgan.com/findings/6297-aldi-effect-australias-changing-supermarket-scene-201506220132

In addition to the shifts in market share of supermarket operators, there are also shifts in Australian consumer lifestyles and food retailing preferences. Supermarket operators, regardless of who they are, need to adapt to the changing market.

The demand for organic produce is a small but growing sub-sector of food retailing. It is estimated that the total value of the organic market in Australia is $2.4 billion, an 8.8 per cent increase since 2012[17]. The growing awareness of how food is produced and the impact of chemicals on the environment has driven growth in organic produce. People are choosing vegetarian, vegan and gluten-free diets and are driving the specialised retail offer of organic, fresh and minimally processed foods. The Australian Organic Market Report 2018 states organic shoppers are widespread, buying at all ages, incomes and life stages. It is noted that households that have a total income of $90,000 or higher make up 45.1 per cent of organic shoppers. Households earning between $45-90k per year are 32.9 per cent and households earning less than $45k per year at 22 per cent of organic shopper numbers[18].

Supermarkets are noted as being the dominant purchasing pathway for organic grocery products, with Woolworth and Coles having the dominant share at over 65 per cent but they are under pressure. Aldi has grown its share of organic produce since 2018 alongside other non-supermarkets and independents like Costco increasing their share since 2016[19].

Another new trend that may gain momentum is the development of smaller format supermarkets that are tailored to the local market and offer a larger range of convenient, ready-to-go foods. Key reasons for the development of smaller supermarket stores is the lack of available land in urbanised areas as the population increases in density, higher rents, the arrival of global players in the Australia markets forcing store closures and rising inventory costs and wages requiring downsizing. Supermarket operators, however, see the smaller format as an opportunity to offer tailored products of convenience rather than focusing on a wide selection of goods, at a range of prices. They see customer habits have changed where Australians want faster, takeaway foods of high quality which fits with the smaller supermarket format[20]. For the supermarket giants, Coles and Woolworths, the new format is a way to compete with the independent retailers such as Harris Farm and IGA.

Convenience stores are struggling with the strong competition posed by the new supermarket formats. Operators are having to adjust product ranges and prices to provide value for money. Industry revenue is expected to fall -0.8 per cent annually from 2019 to 2024 [21].

It is worth noting that while supermarkets capture a significant proportion of food retailing, the role of non-supermarket specialty food stores, such as bakeries, grocers, and delicatessens, in meeting food retailing needs is not insignificant.

[17] Australian Organic, 2018, Australian Organic Market Report, https://user-cprcmgz.cld.bz/Australian-Organic-Market-Report-2018, date accessed: 09/04/2019, p. 27

[18] Australian Organic, 2018, Australian Organic Market Report, https://user-cprcmgz.cld.bz/Australian-Organic-Market-Report-2018, date accessed: 09/04/2019, p. 47

[19] Australian Organic, 2018, Australian Organic Market Report, https://user-cprcmgz.cld.bz/Australian-Organic-Market-Report-2018, date accessed: 09/04/2019, p. 48

[20] Mitchell, S, 2018, 'Coles unveils first Coles Local convenience store format', Financial Review, https://www.afr.com/business/retail/coles-unveils-first-coles-local-convenience-store-format-20181111-h17rz5, date accessed: 10/04/2019; Grimmer, L & Mortimer, G, 2018, 'Honey I shrunk the store: why your local supermarket is getting smaller', https://theconversation.com/honey-i-shrunk-the-store-why-your-local-supermarket-is-getting-smaller-98246, date accessed: 10/04/2019; Hatch, P, 2018, 'Coles opens its own little shop as battle for customers goes small', https://www.smh.com.au/business/companies/coles-opens-its-own-little-shop-as-battle-for-customers-goes-small-20181113-p50foj.html, date accessed: 15/05/2019

[21] IBISWorld, 2019, 'Convenience Stores in Australia', www.ibisworld.com.au, p. 3

Case Study: Coles Local, Surrey Hills, Melbourne

In 2018, in the quiet, leafy suburb of Surrey Hills, east Melbourne, Coles unveiled its first small format store under the 'Coles Local' branding, catering to time-poor customers doing more frequent, smaller grocery shops during the week and are willing to pay for premium products.

The store is built inside an old printing plant and is half the size of a traditional supermarket at 1,200 sqm. It carries one third of the usual range of products (8,000 products) which is twice the number of products of Woolworths Metro stores. This allows customers to do a full grocery shop.

More than half the floorspace is allocated to fresh food, including chilled ready-to-eat meals. Packaged groceries are heavily tailored to the local demographic and includes premium, locally produced items such as honey, meats and bakery items; has Asian, vegetarian and vegan options; and offers 100 per cent Australian fruits, vegetables and seafood. The store is also experimenting with an in-house barista, ground-to-order peanut butter and a 'Foodie Hub' housed by an in-house chef offering recipes and advice.

Coles is planning to assess the success of the Surrey Hills site, although it already has several sites earmarked for similar ventures. Woolworths started its small format Metro stores five years ago and now has 33 stores.

Source: Google Image, 2019

Rise of Regional Shopping Centres

Historically, retailing has been viewed as a city centre or town centre activity, particularly for higher order retailing. However, regional suburban centres have emerged as the preferred destination for many consumers and preferred location for retailers which has often come at the expense of traditional local retail centres.

In recent years, some regional suburban centres, such as Bondi Junction, Chatswood and the Macquarie Centre have attracted large international retailers ahead of store development in the city centre. The trend of retail decentralisation is driven by a number of factors including:

- Growth of an affluent and mobile population in suburban areas
- Development of strong corporate chains with fewer ties to a locality and more willingness and need to move shops to areas of demand and opportunity
- Changes in the methods of selling which have seen a demand for larger stores and associated parking.

It has been noted that the popularity of regional shopping centres is being challenged with the rise of online retailing, emerging international brands, pop-up stores, general weak retail sales growth and smaller neighbourhood centres offering a range of conveniences. Repurposing these centres is seen as a requirement to gain back market share that includes changes in the retail mix that may include medical centres, gyms and the inclusion of entertainment and events[22].

Change in Retail Trading Hours

Retail trading hours have relaxed over the past twenty years where shops tend to open on both weekdays and weekends. They are also increasingly trading for longer during the day and into the evening. In part, retailers are reassessing their trading hours as operating hours are seen as outdated - failing to keep up with societal shifts, such as flexible working hours and single parent households that demand alternate shopping times, but also comes in response to the rise of online shopping and an attempt to gain a competitive angle[23].

Tenancies that have longer opening hours can also support retail services that operate 'after hours', such as cinemas and restaurants. This creates a symbiotic relationship and can help to promote and sustain the night-time economy in a precinct.

Fine Grain Spaces

'Fine grain' is a term used to describe small-scale spaces that provide a low-cost layer of diverse and specialised activities in a place[24]. Fine grain spaces can encourage greater community interaction, cultural and creative expression and promote more walkability and sociability in activities and through the fabric of the built environment[25].

In terms of retail, fine grain involves shop fronts at a human scale, often in the form of a main street or high street. A fine grain high street shopping experience offers a more unique retail experience to shopping centres with small local businesses and boutiques. Examples are often seen in villages in the Blue Mountains (for example Leura or Blackheath) or in the Southern Highlands (for example Bowral), both key visitor destinations.

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[22] Commercial Property Guide, 2019, 'Sub-regional shopping centres set course for survival', https://www.commercialpropertyguide.com.au/blog/investing/sub-regional-shopping-centres-set-course-for-survival-126, date accessed: 10/04/2019

[23] Inside Retail, 2014, 'Should retailers extend trading hours?', https://www.insideretail.com.au/news/retailers-extend-trading-hours-201407, date accessed: 09/04/2019

[24] City of Sydney, 2015, George Street 2020 – A public domain activation strategy, part 3, https://www.cityofsydney.nsw.gov.au/__data/assets/pdf_file/0010/308827/George-Street-2020-A-Public-Domain-Activation-Strategy_Part3.pdf, date accessed: 09/04/2019

[25] Greater Sydney Commission, 2017, Fine Grain People Places, https://issuu.com/roberts-day-global/docs/gsc_fin_-_fine_grain_people_places_, date accessed: 10/04/2019, p. 4

As shopfronts are often owned and rented individually along a high street, there is limited control on where certain shops and businesses set up. This contrasts with shopping centres, where centre mangers can direct the location of stores to create clusters, such as fashion floors and fresh food sections. The inability to control the clustering of businesses may limit the ability for collaboration, which in turn may impact on the shopping experience as a 'one-trip' experience. However, this lack of synergy may form part of the appeal of high street retailing with an eclectic mix of stores in proximity.

High street retailing has faced significant challenges in recent years. This is attributed to the rise of regional shopping centres, changes in consumer habits and online retailing. Fine grain retailing along high streets has, however, been adapting to combat these changes, changing from a convenience shopping role to a destination and an experience, as evident in the rise of cafés and cultural uses, such as art galleries and performance spaces that are not easily replicated in shopping centres and not available online.

Principles to successfully promote fine grain activities include having a variety of scales with small and large activities; proximity of shared activities; permeability and engagement with the street; and having spaces that are multifunctional and encourage shared use always of the day[26].

[26] Greater Sydney Commission, 2017, Fine Grain People Places, https://issuu.com/roberts-day-global/docs/gsc_fin_-_fine_grain_people_places_, date accessed: 10/04/2019, p. 20-21

Case Study: Springwood, Blue Mountains

The suburb of Springwood in the Blue Mountains is an example of a suburb that contains fine grain retail development. The fine grain nature of the suburb has been incorporated into the fabric of the built form by a range of different elements which include:

- A balanced mix of open space and built form elements
- A mix of uses including art galleries, cafes, restaurants and public spaces
- Smaller lot sizes which encourage a human scale streetscape
- Residential uses are setback from the core retail area which encourages active street frontages and retains a commercial mix.

Promoting and facilitating this through policy and urban design will underpin finer grain retail. Finer grain streetscapes promote planning on a human scale. The detailed streetscape encourages permeability and interest and makes it an attractive place for people to shop, relax and recreate.

Source: Google Maps 2019 & Blue Mountains Council 2018

Emergence of Café Culture, Food Centres and Experience Dining

Fuelled by Australia's strong coffee culture, the café and coffee shop industry has experienced moderate growth in the last five years. In 2018-19, the industry was estimated to be worth $9.8 billion where a growing number of speciality cafes and coffee shops have opened for business and have led to high industry competition, pushing down profitability[27]. Industry revenue is forecast to increase at an annualised 1.9 per cent over five years through to 2023-24 at a worth of $10.7 billion[28].

[27] IBISWorld, 2018, 'Cafes and coffee shops in Australia', www.ibisworld.com.au, p. 4
[28] IBISWorld, 2018, 'Cafes and coffee shops in Australia', www.ibisworld.com.au, p. 7

NAB notes food retailing has been one of the better performers in the retail sector, largely driven by a boom in breakfast and lunches at cafes and online ordering of take-way for dinner[29]. Artisan bakeries and patisseries have increasingly sought to re-position themselves as cafés, encouraged by the strong growth in recent times. It is anticipated restaurants will expand café-style operations as they compete with cafés for customers[30].

Cafés and restaurants currently account for approximately 14 per cent of retail sales volumes across Australia at $3.5 billion, up from $2.5 billion in 2009[31]. Consumers are expected to spend more on eating out in the next five years from 2018. Trends and drivers supporting growth of this industry include busier lifestyles requiring fast and convenient food and dining options; increased expenditure on recreation and leisure activities; and an appreciation for coffee culture and the lifestyle associated with it[32].

Outdoor dining in Sydney has remained popular, particularly given the conducive climate. This is witnessed in the presence of a number of local high street outdoor food retail options, including Church Street, Parramatta; Willoughby Road, Crows Nest; Crown Street, Surry Hills; and Haldon Street, Lakemba. The move towards outdoor dining and restaurant-defined retail strips requires a reconfiguration of footpaths and road alignment, a strong focus on urban amenity, including street trees, provision of furniture and pedestrian/diner safety, as well as supportive policies that enable these developments to take place.

For shopping centres and associated food courts, it has been noted they are now being refitted into high quality, contemporary dining precincts that refocus the food offering with some clustering cafes, restaurants and fresh food outlets. These can occur inside shopping centres but can also include outdoor components. Colliers states department stores are no longer the key drawcard for customers to shopping centres. The 'contemporary food courts' are new spaces to congregate rather than just transact and are increasingly used as the driver of footfall by shopping centre operators. Furthermore, with the rise in online retailing and home food delivery, retail landlords are also using this evolution of shopping centre food courts to draw back customers. Recent examples include Top Ryde Shopping Centre's Piazza Dining Precinct with outdoor sections, Westfield Chatswood's Hawker Lane and Westfield Hurstville with its new rooftop dining and entertainment precinct[33]. Colliers notes three design principles often used in these such developments include:

- Outdoor/alfresco: rooftop, high street, open-air, indoor/outdoor combinations appear vital to producing a successful product and add to existing nightlife in close surrounds.
- Green: relevant to the outdoor dining environment, consumers are responsive to plants, trees and earthy tones, extending the duration of patronage.
- Access: night-time accessibility is fundamental, with clear pathways, street frontages and easy access to parking facilities[34].

The Property Council of Australia has noted that the rise of UberEATS and Deliveroo and the popularity of ordering food-on-demand at home, is encouraging restauranteurs to set up 'dark kitchens'. This is where restauranteurs set up multi-kitchen sites, often in a low-grade retail space or repurposed basements, to cope with the demands of home delivery[35].

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[29] NAB, 2017, The Future of Retail: the trends reshaping retail and the future implications for the Australian marketplace', https://business.nab.com.au/wp-content/uploads/2017/09/The-future-of-retail-September-2017.pdf, date accessed: 09/04/2019
[30] IBISWorld, 2018, 'Cafes and coffee shops in Australia', www.ibisworld.com.au, p. 4
[31] Colliers, 2016, Back to the Future: light rail to spur CBD retail growth, Research and Forecast Report: First Half 2016, p. 10
[32] IBISWorld, 2018, 'Cafes and coffee shops in Australia', www.ibisworld.com.au, p. 5-7
[33] Colliers, 2016, Back to the Future: light rail to spur CBD retail growth, Research and Forecast Report: First Half 2016, p. 28
[34] Colliers, 2016, Back to the Future: light rail to spur CBD retail growth, Research and Forecast Report: First Half 2016, p. 28-9
[35] Property Council of Australia, 2017, 'Top five food retailing trends in 2018, https://www.propertycouncil.com.au/Web/Content/News/National/2017/Top_five_food_retailing_trends_in_2018.aspx, date accessed: 09/04/2019

In contrast, the Property Council also expects restaurants will have to start attracting diners back out of the comfort of their own homes. Eating out will become more of an experience, where the attraction is no longer just about the food but will also become a value-add opportunity for education, sustainability, growing, tasking, listening, learning, hands-on experiences, music and entertainment. As a result, they expect some tenancies will have larger and more expensive fitouts[36]. Examples of 'experience dining' include the Grounds of Alexandria which offers a café, bakery, retailing and garden located in a converted pie factory. Koskela Kitchen in Rosebery is one part of the greater Koskela complex that offers designer retailing, education and workshop classes and an art gallery space in a repurposed industrial warehouse site.

Case Study: The Spot, Randwick

The Spot in Randwick LGA, and is home to several bars, restaurants and cafes. The Spot also houses the Ritz Cinema which is a historic art deco cinema.

The Spot has high amenity as the streetscape is:

- Walkable
- Accessible to the Randwick strategic centre by active transport and accessible to Sydney CBD
- Well maintained
- Fine grained
- Landscaping and trees create a comfortable urban environment
- Attractive and has a range of outdoor dining places
- Park benches also provide people a place to relax
- Traffic calming devices and pedestrian crossing facilitate high pedestrian amenity.

Source: Domain, 2019

The Spot is an example of how place can be transformed through urban design principles such as landscaping, traffic calming interventions, the provision of street furniture and encourage an outdoor dining culture.

Rise of Online Retailing

Online retail currently makes up a small proportion of retail turnover in Australia where online spending has been estimated at about 6.4 per cent of total retail turnover. Despite these low levels, growth has been strong. Since 2013, it is estimated online retail turnover has grown 142 per cent[37]. NAB estimated that in the 12 months leading up to January 2019, Australians

[36] Property Council of Australia, 2017, 'Top five food retailing trends in 2018, https://www.propertycouncil.com.au/Web/Content/News/National/2017/Top_five_food_retailing_trends_in_2018.aspx, date accessed: 09/04/2019

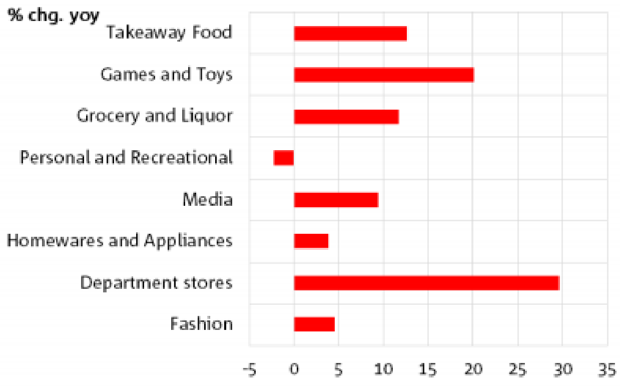
[37] Department of Industry, Innovation and Science, 2017, Inquiry into impacts on local businesses in Australia from global internet-based competition: Department of Industry, Innovation and Science submission, industry.gov.au, p. 9

spent approximately $28.88 billion on online retail which was the equivalent of about nine per cent of retail in the traditional 'brick and mortar' retail sector[38].

Reasons individuals choose to shop online include the reduced amount of time it takes to undertake purchases; it is easier to find the cheapest price for a good; and online shopping provides the flexibility to shop at convenient times[39].

Department and variety stores recorded the highest online retail sales at approximately 29.6 per cent year to year sales average, followed by games and toys (20.1 per cent) and takeaway food (12.7 per cent), as shown below in Figure 38.

FIGURE 38: ONLINE RETAIL SALES BY INDUSTRY (YOY S.A.)



Source: NAB, Online Retail Sales Index, January 2019

The introduction of Amazon in Australia is expected to contribute to the growth of online shopping and further impact bricks and mortar retail. While the Department of Industry, Innovation and Science expects Australia's small and dispersed population will mean the impact of Amazon will take time to gain a significant market share, it is estimated it could reach two per cent of retail sales within five years of entering Australia. This compares to five per cent current market share in the US[40].

It has been noted in both domestic and international contexts that growth in online retailing has led to increased demand for industrial and logistics property. Colliers International expects the demand for industrial space in Australian due to growth in eCommerce will occur over the shore, medium and long term and have greater emphasis on supply chain efficiency and effectiveness[41]. To compete with Amazon, it is expected Australian online retailers will need to make investment in automation to offer comparable services given Amazon's sophisticated and efficient automation systems that improve warehousing, logistics and distribution[42].

For traditional 'bricks and mortar' retailers, to overcome the impact of online retailing and optimise centre competitiveness, landlords are providing increased floorspace for food, beverage, grocery and non-retail uses to align with strong customer trends towards dining out. Shopping centre are also exploring mixed-use options or change-of-use options where more value is extracted from the site by adding residential, commercial or hotels to surplus

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[38] NAB, 2019, 'NAB Online Retail Sales Index, Monthly Update – January 2019, https://business.nab.com.au/nab-online-retail-sales-index-monthly-update-january-2019-33762/, date accessed: 28/03/2019

[39] CBRE, 2015, Asia Pacific Consumer Market: How we like to shop online, https://www.cbre.com/research-and-reports/apac-consumer-survey-how-we-like-to-shop-online.

[40] Department of Industry, Innovation and Science, 2017, Inquiry into impacts on local businesses in Australia from global internet-based competition, industry.gov.au, p. 10

[41] Colliers International, 2018, 'eCommerce is driving Australian Industrial Investment', https://www.colliers.com.au/news/2018/industrial-most-in-demand-property-asset-class-for-2018/, date accessed: 28/03/2019

[42] Department of Industry, Innovation and Science, 2017, Inquiry into impacts on local businesses in Australia from global internet-based competition, industry.gov.au, p. 11

land or air space above centres. Entertainment, events and 'experiences' are also becoming more important to develop the social aspect of retail, as millennials seeks a different shopping experience than previous generations[43].

For large retailers, it is predicted that Australia's trend of department store floorspace expansion and the existing footprint of these stores will decrease as market share is lost to online retailers. For small retailers, it is expected that leveraging local customer relationships and providing in-store services and advice will continue to make these retailing options relevant[44].

The impact of international retailing competition on employment is unclear. It is expected Amazon's arrival will put pressure on job growth in traditional retail, but this could be offset by employment growth in other areas, such as logistics and warehousing. In the US, it was estimated 51 thousand jobs were lost in the general retail sector between 2007 and 2016 but this was outweighed by growth in 355 thousand warehousing jobs, noting Amazon is also headquartered in the US which may add weight to the increase in job numbers in this industry[45].

Considerations for Northern Beaches: Growth of smaller format supermarkets in centres may be arise; Warringah Mall is likely to continue to be a centre of gravity as a regional shopping mall; fine grain retailing could set smaller Local Centres apart from larger Strategic Centres; the rise of online retailing means the value of industrial lands for logistics in Northern Beaches could become more apparent.

4.2 Industrial and Urban Services Lands

Changes in Freight Transportation

Part of the experience of online retailing is also an expectation that goods will be rapidly delivered to customers. A study by McKinsey & Company found approximately one quarter of consumers would pay a premium for same-day delivery[46]. With the growth in online retailing and e-commerce and raised expectations for speedy delivery, 'last mile' logistics has become a priority. In terms of land, this places an even higher value on logistics, industrial services and dispatch land uses in the right areas close to populations.

'Last mile' delivery is the final part of a product journey from warehouse to the customer doorstep and is often the most expensive and time-consuming part of the shipping process. In urban areas, traffic congestion is often one of the key issues affecting 'last mile' delivery. 'Last mile' delivery costs are about 53 per cent of the total cost of shipping. Additionally, customers have become less willing to pay delivery fees with the presence of some 'free shipping' options.

As a result, retailers and logistics companies are seeking new, technological solutions to improve the last leg of this process, and overcome geographical challenges, such as drones or crowdsourcing local delivery sources[47]. However, in the interim, the value of industrial,

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[43] JLL, 2018, 'Australian Shopping Centre Investment Review & Outlook 2018', https://www.jll.com.au/content/dam/jll-com/documents/pdf/research/apac/australia/australian-shopping-centre-investment-review-outlook-2018.pdf, dated accessed: 28/03/2019

[44] Department of Industry, Innovation and Science, 2017, Inquiry into impacts on local businesses in Australia from global internet-based competition, industry.gov.au, p. 12, 14.

[45] Department of Industry, Innovation and Science, 2017, Inquiry into impacts on local businesses in Australia from global internet-based competition, industry.gov.au, p. 18

[46] McKinsey & Company, 2016, 'How customer demands are reshaping last-mile delivery', https://www.mckinsey.com/industries/travel-transport-and-logistics/our-insights/how-customer-demands-are-reshaping-last-mile-delivery, date accessed: 28/03/2019

[47] Business Insider, 2018, 'The Challenges of Last Mile Logistics & Delivery Technology Solutions', https://www.businessinsider.com/last-mile-delivery-shipping-explained/?r=AU&IR=T, date accessed: 28/03/2019; Strategy + Business, 2018, 'Convenience is key in last-mile delivery around the world', https://www.strategy-business.com/article/Convenience-Is-Key-in-Last-Mile-Delivery-around-the-World?gko=bef84, dated accessed: 28/03/2019

logistics land and dispatch centres close to urban areas remains apparent and highly valuable for speed of delivery – particularly given land use is highly contested and land prices are high.

Advanced Manufacturing

Globally, manufacturing and the supply chains that support it are changing. While manufacturing covers a large spectrum of industries, services and products, increasingly complex and inter-connected changes are transforming these industries into what is collectively referred to as 'advanced manufacturing'.

The CSIRO defined advanced manufacturing as 'the set of technology-based offerings, systems and processes that will be used to transition the current manufacturing sector into one that is centred on adding value across entire supply chains'[48]. Advanced manufacturing is where industrial and knowledge sectors are more closely integrated and have close links to research and development.

Examples of advanced manufacturing include the use of sensors and data analytics not only during production but across the whole value chain; replacing workers for hazardous tasks with assistive smart robotics and automation; and proactive integration of advanced materials in the early design phase like biodegradability, energy efficiency and self-repairing.

Driving this change are five mega trends:

- Made to Measure – advances in technology and greater consumer expectations are causing a shift from mass production of goods to bespoke solutions.
- Service Expansion – manufacturers are expanding their role in the value chain from making 'widgets' to developing tightly integrated service-product bundles.
- Smart and Connected – advances in data capture and analytics are optimising operations across the manufacturing value chain and the factory floor.
- Sustainable Operations – resource scarcity and increasingly valued environmental and social credentials are encouraging manufacturers to look for more efficient and sustainable processes and operating models.
- Supply Chain Transformations – specialisation is promoting collaboration in some markets while technological advancements are enabling the vertical integration of others[49].

Success in fostering an advanced manufacturing economy is contingent upon a number of wider socio-economic and governance factors. The CSIRO identified several comparative advantages and disadvantages presented by the Australian economy in attracting or developing an advanced manufacturing sector, as shown in Table 19.

TABLE 19: AUSTRALIA'S COMPETITIVE LANDSCAPE

Comparative Advantages	Comparative Disadvantages
Education and research skills	High labour costs
Quality and standards	Geographical remoteness
Small and medium-sized enterprises	Small and dispersed domestic market
Access to Asia	Risk averse culture
Early adopters	Segregated national agenda
Political and economic stability	Commercialisation
Natural resources	Staff training and development

[48] CSIRO, 2016, Advanced manufacturing: roadmap for unlocking future growth opportunities for Australia, p. 6
[49] CSIRO, 2016, Advanced manufacturing: roadmap for unlocking future growth opportunities for Australia, p. 11

Intellectual property laws	Digital infrastructure
	Public perception
	Quality and quantity of leaders

Source: CSIRO, Advanced manufacturing: roadmap for unlocking future growth opportunities for Australia, p. 16-20

The Committee for Sydney notes cities are at the heart of this evolution in manufacturing and Sydney is well placed to lead the manufacturing revolution due to recent investment in infrastructure, the fact our universities are heavily invested in progressing the innovation agenda, and Sydney is a hub for tech start-up and fintech capital with the capacity for digital innovation and technology and the creative and design talent that underpins it[50].

Case Study: Industrial Lands & the Night-Time Economy

One Drop Brewing Co, South Sydney

One Drop Brewing Co is South Sydney's first microbrewery which was established in 2019. The Brewery is an example of what type of uses are emerging and adjoining industrial precincts. Food trucks come to the site every day of the week. The Brewery is open to the public five days a week 12pm to 8pm/10pm.

The philosophy behind One Drop Brewing Co is to support community, humanity, one love, free thinking and unique creative self-expression, all of which inspires the beer, the food, the tunes and atmosphere of the Brewery.

Source: One Drop Brewery Co, https://www.onedropbrewingco.com.au/, 2019

Metropolitan Industrial Land Policy

Both the Greater Sydney Region Plan and the North District Plan reference the importance of industrial lands in their policy. Industrial lands should be recognised not for the number of jobs they offer but the important urban services role it plays for the city.

[50] Committee for Sydney, 2017, Manufacturing 4.0 Cracking the code for Western Sydney, http://www.sydney.org.au/wp-content/uploads/2015/10/Manufacturing-4.0.pdf, date accessed: 12/04/2019, p. 4

Falling within the North District, Northern Beaches industrially zoned land has been designated as 'Retain and Manage', to arrest the gradual erosion of industrial land that has taken place over the past twenty years in Greater Sydney. Retain and manage is where all existing industrial and urban services land should be safe guarded from development pressure, particularly from residential and mixed-use land uses.

This policy direction sets a clear position that Northern Beaches industrial lands have a viable and, indeed, critical role to play in Greater Sydney's economy in the future. By providing certainty through policy, this enables Council and industries to plan for growth without the pressure of rezoning and the accompanying land speculation.

A study completed by SGS in 2018 for the Greater Sydney Commission about employment lands identified that there is now a mixture of businesses occurring in industrial zones with IN1 having the largest count of a mixture of businesses; IN2 having the highest density of a mixture of businesses and IN3 showing the greatest variety of businesses when compared to B5, B6, and B7.

As these land use zones are at risk of becoming a 'catch-all' for uses, a challenge will be to ensure there is a balance of businesses locating in these sites fulfil the critical role that industrial and urban services lands provide for local communities and are not overcome by 'creative-led gentrification'[51].

Considerations for Northern Beaches: Metropolitan Industrial Lands Policy, changes in freight transportation and the importance of 'last mile' delivery and the opportunities that are opening up with the transition to advanced manufacturing production reiterate the value, importance and opportunities that could arise from the industrial and urban services lands in Northern Beaches LGA.

4.3 Night-Time Economy

A highly contested issue in Sydney in recent years, where it is argued the introduction of lock-out laws in 2014 has impacted the economic strength and vibrancy of the 'after hours' hospitality and music industry in the city.

For Manly, there has been tension where some businesses believe they are losing money due to lock-out laws, but authorities believe the isolated geography in addition to a lack of after-hours public transport and a culture of binge drinking means the location is actually conducive to violence and therefore, lock-out laws should remain enforced[52].

As shown in Figure 39, Core NTE establishments[53] fell between 2015 and 2016 and then increased post-2016. In contrast, Non-Core NTE activities[54] increased between 2015 and 2016 and continued to grow as 2016 progressed. The total economy of the Northern Beaches has exhibited growth over this period, yet Core NTE establishment fell, as shown in Figure 40. This suggests venues related to food, drink and entertainment may have been affected in the immediate years once the 2014 lock-out laws were introduced.

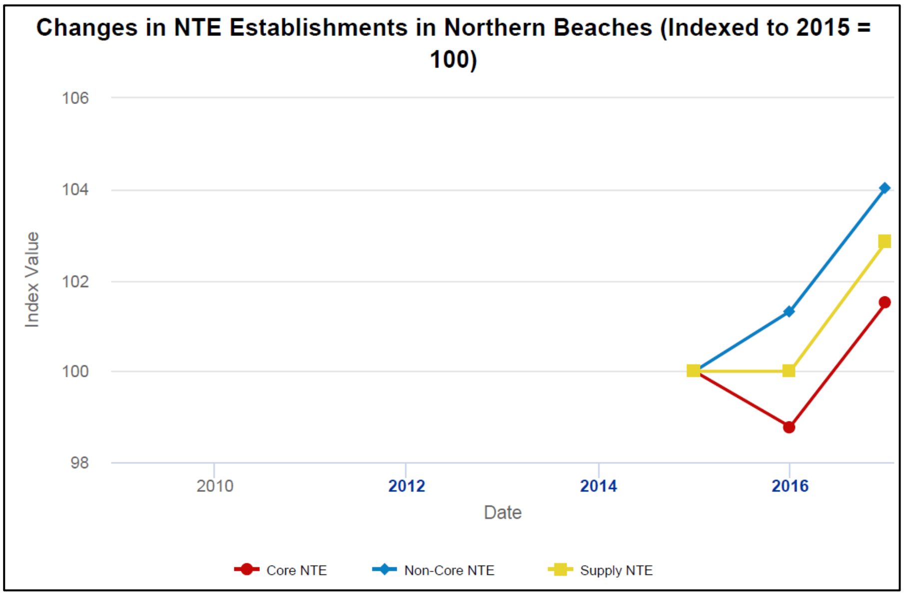
[51] GSC, 2018, Metropolis That Works Paper, p. 24

[52] ABC News, March 2008, Manly pubs urged to keep lockout, https://www.abc.net.au/news/2008-03-28/manly-pubs-urged-to-keep-lockout/2385392, dated accessed: 03/06/2019

[53] Core NTE denotes activities in three key sectors of food, drink and entertainment which are access by the public between 6pm and 6am.

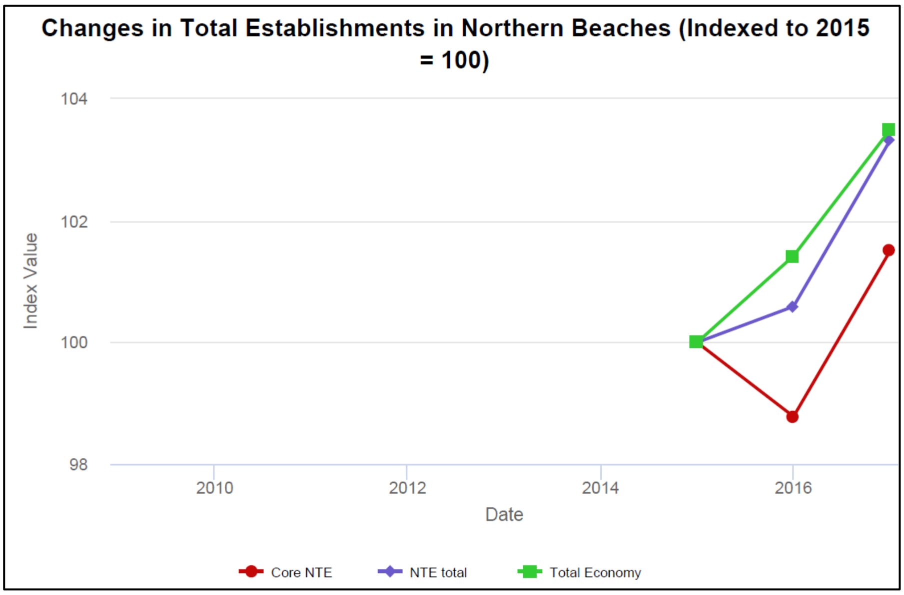
[54] Non-Core NTE activities includes those which operate in the evening and night-time to a greater or lesser degree such as retail trading (except liquor), hotels and guest houses

FIGURE 39: CHANGES IN NIGHT-TIME ECONOMY ESTABLISHMENTS FOR NORTHERN BEACHES



Source: Northern Beaches Council, 2019

FIGURE 40: CHANGES IN TOTAL ESTABLISHEMENT FOR NORTHERN BEACHES



Source: Northern Beaches Council, 2019

The value of the night-time economy in Greater Sydney is estimated to be over $27.2 billion per annum, employing about 234,000 people and with over 180 night-time economy establishments per sq km in the Eastern Harbour City. The food sector contributed $15.7 billion, entertainment sector contributed $7.1 billion and the drinks sectors was valued as $4.4 billion.

In the United Kingdom, the night-time economy makes up six per cent of the economy, whereas in Australia it makes up 3.8 per cent[55].

Deloitte argues it is reductive to simply focus on pubs, clubs and a drinking culture for the urban, young as all that makes up Sydney's night-time economy. A vibrant night-time economy should be seen as a broader range of activities that can include 24-hour gyms, late

[55] Deloitte, 2019, Imagine Sydney: Play, p. 29, 33, 34

night supermarkets, other late-night shopping options, late night museum and gallery openings, food festivals, as well as the obvious options of bars, restaurants, nightclubs, theatre and performances and sporting events. It would include a range of activities that appeal to all age groups, both locals and visitors. All of these activities then must be underpinned by extended hours of public transport.

Case Study: Governance & the Night-Time Economy, Amsterdam

The concept of the Night Mayor originated in Amsterdam in 2014. Creativity has been a key developmental element. A central operating principle was that the night was seen as a meeting point for creative talent - where like-minded individuals could find each other, creative talent could develop and blooms.

Achieving a vibrant nightlife is placed within industrial, government and spatial structures. The Night Mayor Structure is based around 20 positions including a board of directors, an advisory board and the Night Mayor board with backgrounds in nightclubs, festival, culture and diversity and safety legislation governance.

The Night Mayor position is funded by government, industries and self-raised monies. The role is to be a point of liaison that also spots trends, connects stakeholders, sets agendas and stimulates subcultures.

Source: Music Victoria.com.au

The potential value of Greater Sydney's night-time economy is thought to be around $43.3 billion, approximately six per cent of Australia's economy[56].

Some aspects to consider in order to improve a night-time economy include:

- Increasing business potential – Aussie NightMarkets in Western Sydney is a moving night market of food and shopping stalls that operates from 5pm to midnight five or six nights a week. Created by a group of entrepreneurs, in 2017 they were attracting about 12,000 visitors.
- Creating a platform for artistic creation and fostering a sense of identity for a region – Parramatta Lanes has become an annual food and cultural festival that supports multiculturalism and local artistic expression.
- Sustaining visitor growth and cultural tourism – by packaging cultural events with tourism. For example, Vivid Sydney travel packages are sold to tourists, including international tourists.
- Creating economic opportunity – Eastwood has grown its night-time economy with development of the Eastwood Night Market and the Taiwan Night Market, suited in a

[56] Deloitte, 2019, Imagine Sydney: Play, p. 34

safe and vibrant pedestrianised town centre and include food, market retail and gaming areas, kids playground and outdoor performances[57].

- Consideration of local features and attributes – does the area identified for night-time economy development have additional drawcard features beyond simply the tenancy mix? Attributes could include views, a promenade, ability for kids to play somewhere in sight, dining outdoors or ample parking. Attributes should align with the size of the market and generate frequent engagement with the site and a sense of energy.
- Understand the population - where young families may have different preferences to university students and Millennials.
- Consider the practicality of the activity – the precinct for the night-time economy must be easily accessible, preferably have comfortable and passive surveillance features such as wider footpaths, pedestrianised malls or a promenade past outdoor dining, as well as visible security camera, high levels of street lighting and parking lighting.
- Providing a critical mass – where floorspace includes retail, leisure and entertainment, rather than an emphasis on food catering[58].

Case Study: Laneways & Potts Point, Sydney

In 2013, the City of Sydney collaborated with Potts Point Partnership to develop a one-year trial that granted an additional metre of outdoor dining spaces for cafes and restaurants in Llankelly Place. The Council worked alongside local businesses and residents to create a village feel and improve the sense of community in the laneway through the inclusion of better lighting, street market, public art and live jazz.

The trial was a success with more people visiting the area, new restaurants, increased staff hours for the existing restaurants and a reduction in the number of vacant shops. In 2018, City of Sydney considered extending the trial to other areas.

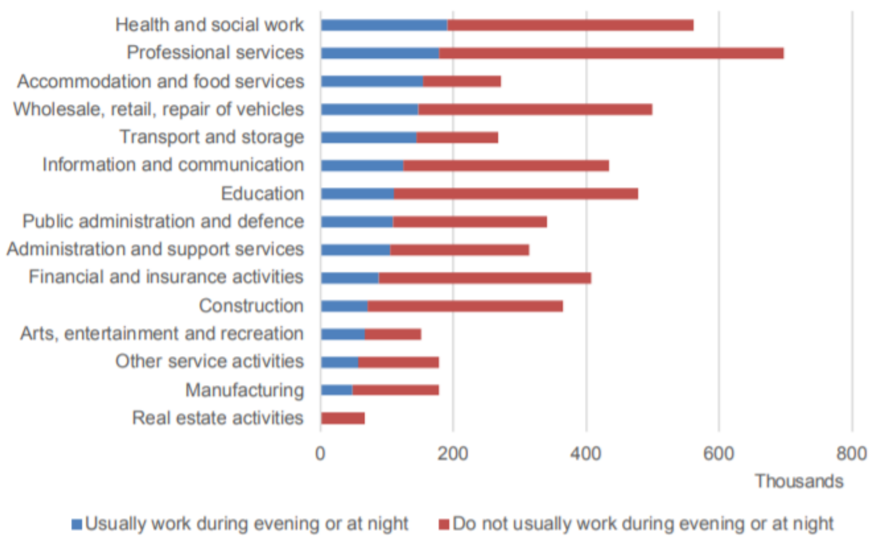
Source: Google Image 2019, Councillor Jenny Green.wordpress.com

Dr Rob Shaw, a geography lecturer at the University of Newcastle in the United Kingdom, also writes that it must be recognised that the night-time economy of a city is broader in the sense of being more than just entertainment and activities. The night-time economy has a practical and functional layer associated to it where people also work to 'reset' the city to make it inhabitable for daytime city functions. The night-time economy is also where workers clean the streets, conduct road works, organise distribution and logistics, or complete night-time shift work in places like hospitals.

[57] Deloitte, 2019, Imagine Sydney: Play, p. 35
[58] B&P, 2016, Beyond bars: 5 critical success factors for a booming night time economy, https://www.brainandpoulter.com.au/food-trends/5-critical-success-factors-for-a-booming-night-time-economy/, date accessed: 10/04/2019
*The NTE components that made up this calculation were not clearly defined in the report but may have included a broader consideration than bars, clubs and restaurants.

The trend in major European cities, such as London, Amsterdam and Paris, has been to employ night mayors. Shaw believe this is a positive move, but actions can be limited and focused towards improving the pub, bar and club scene. For example, in London, certain lines of the Tube network now run 24-hours a day which has been good for those going out and coming home from entertainment districts and for the people who work and service the entertainment districts. Yet, the Tube service actually only supports 20-25 per cent of people who work at night and usually not those working in healthcare, distribution or logistics. Figure 41 shows the variety of industries that evening and night-time employees work within London. Facilities and services, Shaw concludes, are needed that service broader range of activities that people do at night[59].

FIGURE 41: WORKERS IN MAJOR INDUSTRY GROUPS IN LONDON BY USUAL WORK PATTERN, 2017



Source: Mayor of London, https://www.london.gov.uk/sites/default/files/london_at_night_-_executive_report_-_final.pdf, date accessed: 11/04/2019

Considerations for Northern Beaches: There are two sides to the night-time economy for Northern Beaches to consider. On the social side, night-time activities need to cater to all demographics, and for a centre like Manly, to locals and visitors. The night-time economy in French Forest, Dee Why, Mona Vale and smaller Local Centres would also have to be developed. With the development of the Frenchs Forest health and education precinct, actions for the night-time economy would also have consider the more practical component – assisting the movements and safety of shift workers.

4.4 CoWorking Spaces

The phenomenon of coworking originated in 2005 in San Francisco and representing a 'third way' of working that was between the traditional format of an office workplace/community environments and the freelance/independent mode of work that was more isolated and tended to be homebased. The 'third way' was the practice of working individually but in a shared environment[60].

Coworking spaces are shared workplaces that are used by professionals working in different knowledge related industries, often freelance and self-employed workers. Physically, these

[59] Shaw, R, 2018, 'Newcastle at Night', University of Newcastle, https://www.ncl.ac.uk/who-we-are/vision/ncl-at-night/?utm_source=fb&utm_medium=social&utm_campaign=vision&utm_term=link&utm_content=newcastle-at-night, date accessed: 11/04/2019

[60] Gandini, A, 2015, ' The Rise of Coworking Spaces: A Literature Review', http://www.ephemerajournal.org/sites/default/files/pdfs/contribution/15-1gandini.pdf, date accessed: 15/05/2019

coworking spaces are rented office facilities that can include a desk, wifi connection, common areas, as well as a range of other amenities like printers, private phone booths, 24/7 access, front desk services, mail and package handling and professional and social events. Rental options vary and can include a standalone office for a team, a hot desk in an open space or a permanent desk in a shared office[61].

Case Study: Commune, Erskineville and Waterloo

Commune Erskineville is a re-purposed warehouse site located in the suburban backstreets off the Princes Highway. Commune provides the opportunity for people to rent out a communal desk space either on a full-time basis for $155 per week or part time basis for $100 per week. Spaces can be rented out for $25 a day on a casual basis.

Commune Waterloo is a space is divided into a number of different areas that can be hired for small to large events of 1000 people. It includes studio spaces for use by photographers and artists. Creativity is supported and events that are held at Commune including regular yoga and dancehall by donation. Commune aims to foster collaboration, creative experiences and have a positive impact on the local community.

Source: Commune Co-Working, 2016

[61] WeWork, https://www.wework.com/workspace, date accessed: 15/05/2019

A European study completed in 2018 indicated the top five motivations for using a coworking space were:

- I was looking for a workplace outside my home
- Vibrant and creative atmosphere in the coworking space
- Affordable accommodation
- Social interaction with co-workers
- The opportunity to network with co-workers.

Important attributes for the coworking space as identified by users, in order of importance, were:

- Accessibility
- Atmosphere and interior aesthetics
- Layout of the space
- Type of lease contract
- Diversity of tenant
- Reception and hospitality
- Events
- Diversity in supply spaces[62].

Coworking spaces are seen to foster collaboration – one of the key elements required to drive innovation in business practice – with people working across firms and spreading ideas.

In recent years there has been an increase in the number of coworking spaces in Australia. In 2017, a total of 300 coworking spaces were counted, this was up from 60 spaces in 2013. Coworking spaces attracted mainly professional service workers and knowledge-based workers[63].

Technological improvements have provided an opportunity for people to engage in 'footloose' jobs. The defining characteristic of a footloose job is that they are not required for commercial purposes to be in a specific location. A recent study by SGS Economics & Planning found that the proportion of footloose jobs was increasing. Footloose jobs provide individuals with the opportunity to work location independent[64]. Research by Reichenberger (2018) suggests that digital nomads are on the rise worldwide as footloose jobs allow individuals to engage in professional and spatial freedom through international travel[65]. Overall, coworking spaces seed collaboration, creativity and present an opportunity to support the rise of the 'digital nomad', who can locate in high amenity locations.

Con Artist is a New York based coworking art space. The space is mixed use and provides a place for artists to work, create, hold events, and engage in community events.[66]. Weekly night-time events such as Life Drawing runs from 7pm-10pm and provides a community and creative space for people to meet and draw. Such a space can be used to support and facilitate creativity and to grow innovation within the community.

Considerations for Northern Beaches: Coworking spaces have grown in popularity in recent years. The relevance of these spaces to the local population will have to be investigated more closely through business surveys to determine whether the local population has need of these spaces, and if so, what particular format would work best to support greater productivity.

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[62] Weijs-Perree et al, 2018, 'Analysing user preferences for co-working space characteristics', Building Research & Information, 47:5, https://www.tandfonline.com/doi/pdf/10.1080/09613218.2018.1463750?needAccess=true, date accessed: 15/05/2019, pp. 542-3.
[63] Mahlberg, T 2017, 'Australian coworking spaces cater to a more diverse crowd than just young tech entrepreneurs', date accessed 15/04/2019.
[64]SGS Economics and Planning, 2016, 'Macro-economic demographic factors shaping jobs growth', date accessed 24/04/2019
[65] Reichenberger, 2018, 'Digital nomads – a quest for holistic freedom in work and leisure', https://www-tandfonline-com.ezproxy1.library.usyd.edu.au/doi/pdf/10.1080/11745398.2017.1358098?needAccess=true, date accessed 24/04/19
[66] Con Artist, 2019, 'About Con Artist', date accessed 23/04/2019, https://conartistnyc.com/pages/about.php

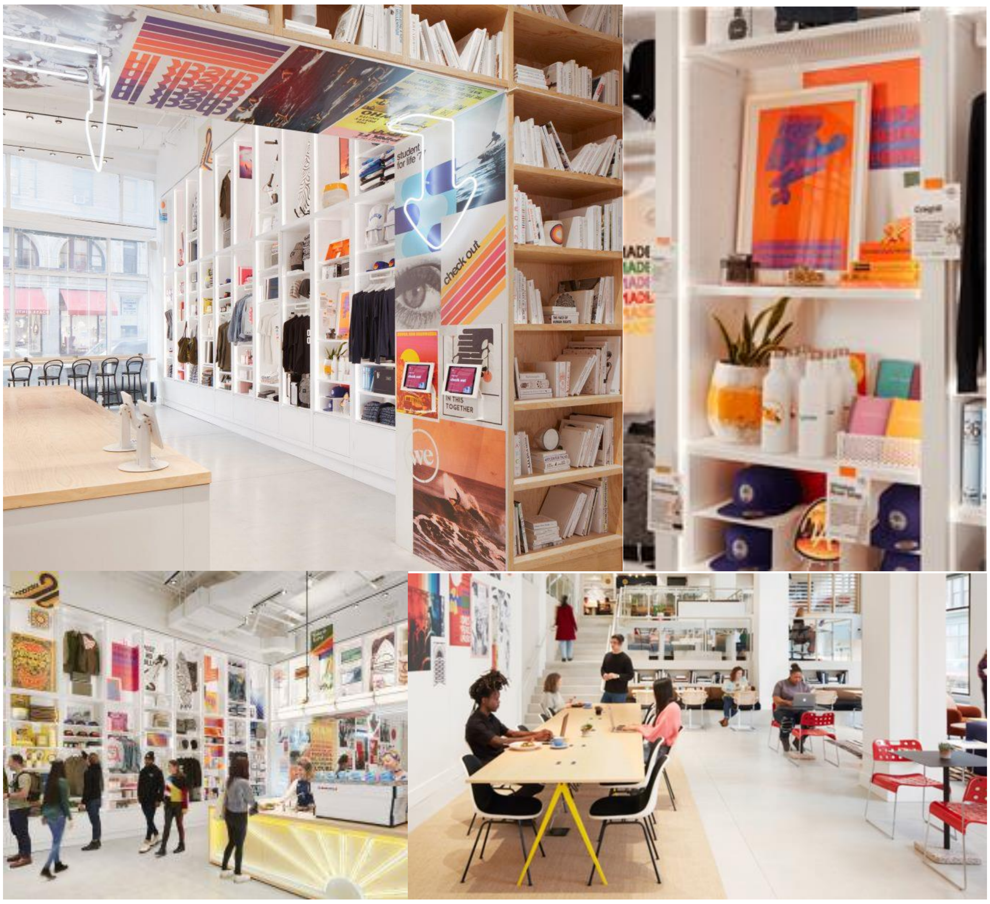
Case Study: the WeCompany evolution, New York City

WeWork is an American company that started in New York City in 2010. The primary concept for the company was to offer coworking spaces for entrepreneurs with a 'green' and sustainable focus. By January 2019, WeWork had expanded to 100 cities around the world with 425 locations. The mission of the company has since transitioned to focus on the concept of 'community' as the future of work.

With the focus on building community, WeWork has again evolved and rebranded under the banner of the WeCompany. Coworking spaces and the WeWork offering remains a primary aspect of the company but now also includes the WeLive concept (coliving), WeGrow (a private elementary school in NYC where young students receive lessons from WeWork employees and clients) and now Made by We.

In 2019, on Broadway in the Flatiron District of NYC, Made By We opened. On the groundfloor is a retail-café-coworking space where members of the public can sit and have a coffee, reserve a desk and also purchase gift products made by WeWork members. Some of the WeWork offices also sell member products, by the Broadway location is the first to open its doors to the public.

Made By We's 96 desks are rentable for at least 30 minutes, starting at US$6 and are reservable online.



Source: Google Image 2019, www.fastcompany.com, www.wework.com

4.5 An Ageing Population

In 1991, there were approximately 700,000 people aged 65 years and over in NSW. The NSW Government estimates by 2031 about 20 per cent of the NSW population, or 1.8 million people, will be aged over 65 years. Alongside an ageing population, population increase in the 15 to 64-year range will slow in the next few decades due to lower fertility rates[67].

The *NSW Ageing Strategy 2016-2020* highlights the need for a-whole-of-community response to the ageing population phenomenon, where change and preparation is required throughout government, the private sector, non-for-profit organisations, communities and individuals.

In relation to economic centres, actions to assist the needs of an ageing population and supporting greater health, wellbeing and quality of life and reduce isolation and loneliness, would be centred on two aspects:

- Creating employment opportunities that support their financial independence later in life.
- Ensuring economic centres cater to their shopping, medical care, social services, recreation and activities needs, and that the built environment, infrastructure and transport services to the economic centres supports their mobility needs.

The NSW Government notes older people can contribute to the economy and society as paid full-time or part-time workers, volunteers, and students in further education. They also provide support to family members and others as carers. They can influence the economy as consumers where their demands for services can create new markets and expand existing ones[68].

The World Health Organisation has identified a checklist of eight domains that should be addressed within a city to ensure it is 'age-friendly', as related to Figure 42. In relation the economic activity centres and employment, this could include civic participation and employment, outdoor spaces and building and transportation [to the economic activity centre].

For The Hague, The Netherland and Krakow, Poland this has included some of the following measures:

- Civic Participation and Employment: In the Hague there is a baking programme for older people, where the baked products are sold by volunteers and the money is used for leisurely activities and other programmes.
- Transportation: In the Hague bicycle lanes are well maintained and are being widened, there is free high-frequency transport for older people, delivery services from pharmacies to homes, voluntary taxi services for access to economic centre activities such as seeing the doctor or attending church and there is free rental of mobility scooters. In Krakow, free transportation for seniors aged 70 and over has been in place for a long time, and there are agreements with taxi companies.
- Outdoor spaces and building: In the Hague, green spaces are well maintained to encourage older persons to use the areas, ATMs are user-friendly. In Krakow, there has been more effort to create green spaces with benches and outdoors gyms that can be used by all ages.

[67] NSW Government, 2016, NSW Ageing Strategy 2016-2020: a whole of government strategy and a whole of community approach, p. 12; NSW Office of Local Government, https://www.olg.nsw.gov.au/councils/integrated-planning-and-reporting/councils-planning-for-an-ageing-population/why-plan-ageing-population, date accessed: 24/05/2019
[68] NSW Government, 2016, NSW Ageing Strategy 2016-2020: a whole of government strategy and a whole of community approach, p. 14

FIGURE 42: EIGHT DOMAINS OF AN AGE FRIENDLY CITY

Source: Van Hoof, 2018

Case Study: Creating Age-Friendly Cities

City of Monash, VIC

In 2016, the City of Monash was declared an 'Age Friendly City' by the World Health Organisation after Council and older residents worked for two years to develop the long-term Age Friendly Monash Plan.

Age Friendly Cities are where older people can live safely, maintain good health and be active in social activities.

Some of the economic activity actions from the Plan include:

- Improving and increasing the number of 'places to rest' in public places
- Review Council volunteer opportunities and work with key stakeholders to identify opportunities for volunteers to support community activities
- Promote government economic incentives for employing seniors to local employers
- Encourage businesses in Monash to embrace economic opportunities created by an ageing population through promotion of age friendly practices.

City of Melville, WA

The City of Melville worked with one of the biggest shopping centres in the LGA, Garden City, to become more age-friendly and accessible for older people in the future as the shopping centre doubled in size over the course of a five-year period.

Some of the aims of the project included:

- Encourage local businesses to implement age-friendly accessible initiatives
- Raise awareness among the business community to the requirements and benefits of becoming more age-friendly and accessible
- Support businesses to have access to free basic training and support around dementia.

Source: City of Monash, https://www.monash.vic.gov.au/Services/Older-Adults/Age-Friendly-Monash, date accessed: 26/05/2019; World Health Organisation, https://extranet.who.int/agefriendlyworld/afp/age-friendly-garden-city-shopping-centre/, date accessed: 26/05/2019

Case Study: the future of the Health Care and Social Assistance industry and its role in Northern Beaches LGA

The global trend of the shift towards older population has seen the rise of the Health Care and Social Assistance industry. As older people generally require more health services than younger people, there will be more demand on Health Care and Social Assistance services and an increase of health expenditure.

Health Care and Social Assistance industry is the largest employment industry in Australia (13.4 per cent of total employment), and projections indicate that Health Care and Social Assistance jobs will grow by a further 14.9 per cent over the next four years. Large jobs growth has been observed in Hospitals, Residential Care Services, Other Social Assistance Services and Allied Health Services.

The Northern Beaches Hospital delivered by the NSW Government in 2018 not only provides essential medical services to patients, particularly those in the Northern District, it is also a major job hub for people working in the Health Care and Social Assistance industry.

Like many other industries, the Health Care and Social Assistance industry will enter a period of rapid change according to the Economist. The Economist noted that innovation trends in healthcare point to a future where health is monitored constantly, and on-demand services are provided outside of hospitals. The Internet of Things (IOT) technology could enable doctors and allied health professionals to monitor patients' health statues and prompt individuals to live a healthy lifestyle. On-demand services and the application of IOT technology will drive further growth in Health Care and Social Assistance jobs. Northern Beaches LGA is well positioned to leverage from this growth, as there were many residents who studied Nursing (4,892 persons) and Human Welfare Studies and Services (2,985 persons). A smaller proportion of residents studied other Health fields such as Rehabilitation Therapy, Medical Studies, Dental Studies, Behavioural Science and others. Overall, 9.19 per cent of residents reported Health as their field of study and 13.54 per cent reported Society and Culture (includes Social Work and Psychology) as their field of study.

Source: NSW Health Infrastructure, https://www.hinfra.health.nsw.gov.au/our-projects/project-search/northern-beaches-hospital; Australian Government, Department of Employment, Skills, Small and Family Business 2018, https://www.employment.gov.au/newsroom/health-care-and-social-assistance-jobs-rise, date accessed: 03/07/2019

Considerations for Northern Beaches: The Northern Beaches has a significant ageing population. Design and access to economic centres in the LGA will have to consider their needs. Socially, businesses in these centres and the activities offered will have to cater to their abilities and interests to ensure they continue to be active and engage members of the community. With the rise in this population, the need for allied and social assistance services may increase within the LGA. Determining how the Frenchs Forest health and education precinct can assist this increase will be beneficial.

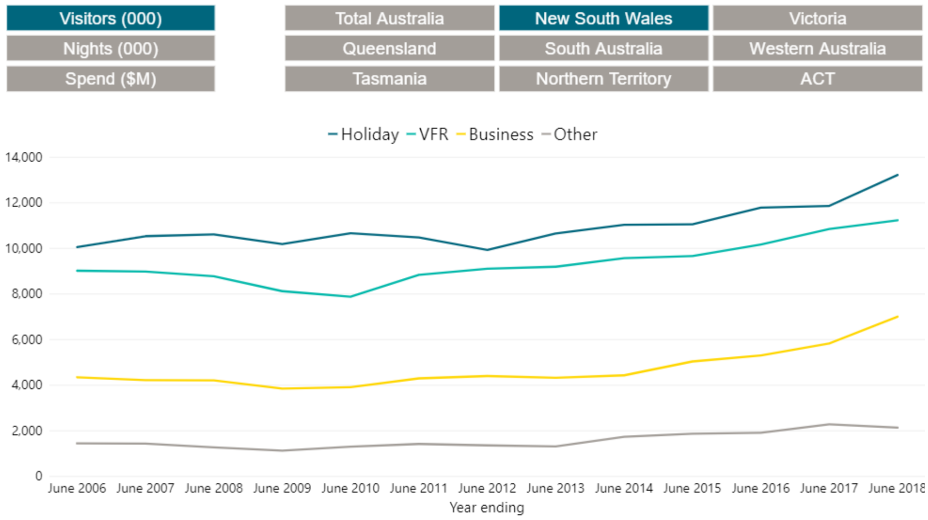
4.6 Visitor Economy

Tourism plays an important role in the Australian economy. The tourism economy accounts for 4.7 per cent of Australia's GDP and provides significant benefits and advantages to business. Greater Sydney welcomes 3.75 million international visitors who spend $9.03 billion a year[69].

In 2017, 8.8 million international tourists visited Australia. Of these 8.8 million people the highest proportion of visitors came from China, this was followed by New Zealand, the United States, the United Kingdom, Japan and Singapore[70]. In Australia, the most popular place for holiday makers was Sydney. The Sydney Opera House is ranked number one on the list of top attractions in Australia. Second, is the Great Barrier Reef, this is followed by Uluru[71]. The Sydney Harbour Bridge is ranked fourth, followed by the Blue Mountains. This suggests that the Greater Sydney area boasts some of the most internationally recognised tourism attractions in Australia[72].

According to Tourism Research Australia, domestic overnight tourism for holiday, visiting friends and relatives and business have generally increased in recent years, as shown in Figure 43.

FIGURE 43: DOMESTIC OVERNIGHT TOURISM TRENDS

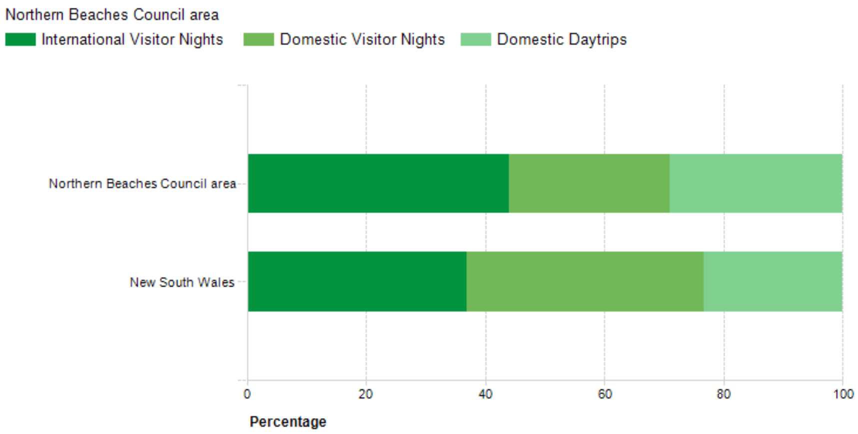


Source: Tourism Research Australia, 2019

In 2017/18, there were 2,464,956 international visitor nights and 1,522,023 domestic visitor nights in the Northern Beaches. This represented approximately 2.6 per cent of total international visitors nights and 1.5 per cent of domestic visitor nights in NSW. As referred to in section 3.3, in 2017/18, it was estimated that Northern Beaches LGA drew more international visitor nights and domestic day trips than NSW combined, see Figure 44. Visitation to Northern Beaches LGA has been variable overtime, however since 2015, it has generally increased to between 5,800,000 to 6,000,000 when accounting for international and domestic visitor nights and domestic daytrips, see Figure 45.

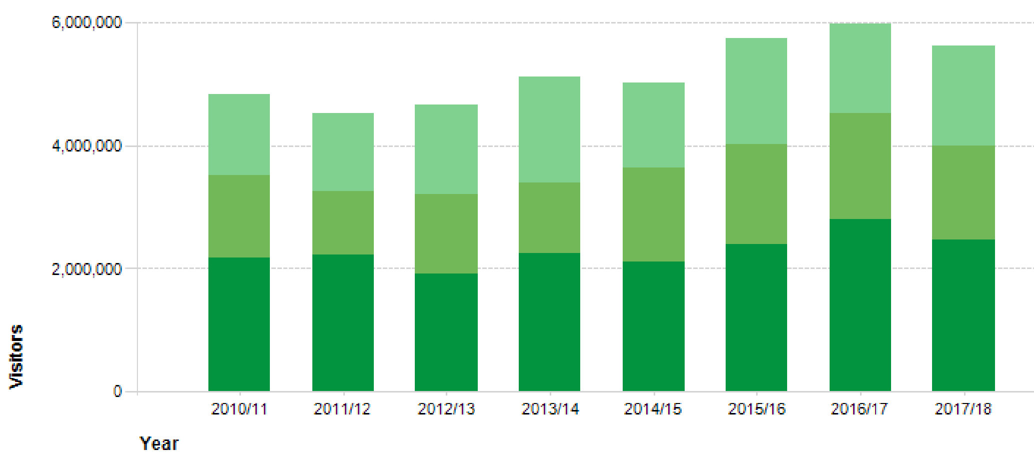
[69] Greater Sydney Commission, 2018, https://greater.sydney/metropolis-of-three-cities/productivity/jobs-and-skills-city/economic-sectors-are-targeted-success, date accessed: 25/05/2019
[70] Tourism Research Australia, 2010, https://www.tra.gov.au/International/International-tourism-results/overview date accessed 16/04/19
[2] Planetware, 2019,https://www.planetware.com/tourist-attractions/australia-aus.htm, date accessed: 16/04/2019
[72] Tourism Research Australia 2013–14 Survey Results, news. com.au, www.news.com.au/travel/travelupdates/sydney-named-australias-top-tourist-destination/ news-story/f6379d446da7d50ebc4506bed14c7bbd, date accessed: 9/04/2019

FIGURE 44: NORTHERN BEACHES LGA, BREAKDOWN OF VISITOR NIGHTS 2017/18



Source: Economy ID, https://economy.id.com.au/northern-beaches/tourism-visitor-summary, date accessed: 04/06/2019

FIGURE 45: NORTHERN BEACHES LGA, TIME SERIES – TOURISM NIGHTS

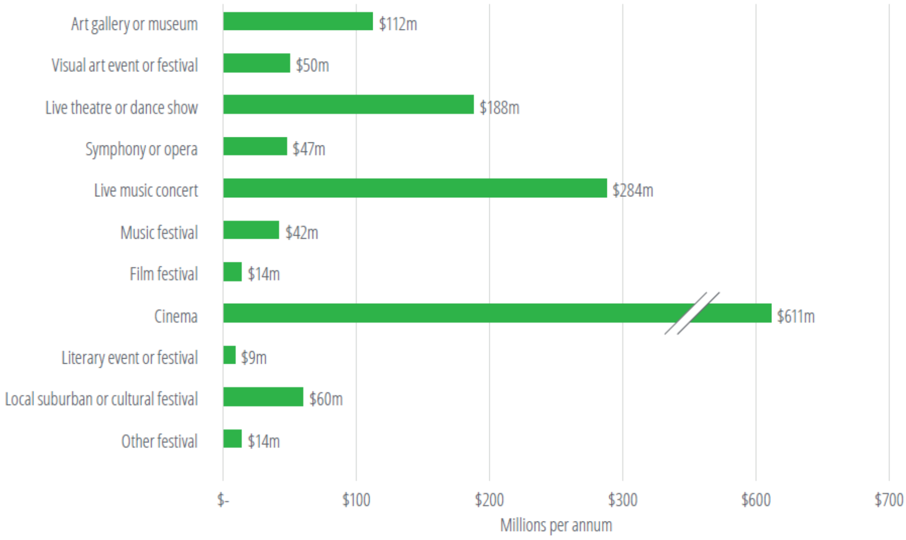


Source: Economy ID, https://economy.id.com.au/northern-beaches/tourism-visitor-summary, date accessed: 04/06/2019

Arts and Culture Based Tourism

A study by Deloitte Access Economics identified the economic visitation value for the arts and cultural scene in Sydney. The study found the highest value was attributed to cinema, ($611m) followed by live music concerts ($284m), live theatre or dance show ($188m), and art gallery or museum ($112).

FIGURE 46: ECONOMIC VISITION VALUE FOR ARTS AND CULTURAL SCENE IN SYDNEY



Source: Deloitte, 2016

Nature Based Tourism

Nature based tourism is leisure travel undertaken largely or solely for the purpose of enjoying natural attractions and engaging in a variety of nature-based activities. Nature based tourism is currently experiencing growth.

In 2015, there was 13 per cent growth in international visitors who went to State and National Parks. In 2016, 68 per cent of all international visitors engaged in nature-based activity. Nature based tourism was also found to be popular among overnight domestic tourists, research suggests that 27 per cent of overnight tourists engaged in nature-based tourism[73].

Food & Wine Tourism

Tourism Australia reports that, of people who have never visited Australia, only 26 per cent associate the destination with good food and wine. Those who *have* visited Australia, rank the country as second across 15 major markets for food and wine experiences[74]. This suggests food and wine tourism is of high quality in Australia but there is a need for this message to become more widespread.

Some of the most attractive food related experiences amongst high value travellers includes:

- Heritage: gourmet experiences which speak of a region's heritage and highlight local produce.
- Wellness: desire for balanced eating using the freshest and most nutritious produce.
- Occasions: experiences where the food takes centre stage at any price point from street food to find dining.
- Stories: the provenance, production, craftmanship of products and personalised culinary experiences[75].

In 2018, the NSW Government released its *NSW Food and Wine Tourism Strategy and Action Plan 2018-2022* that recognises the trend of eating and drinking local produce in a unique location or venue is an integral part of the travel experience and is a notable way to connect travellers with local customs and culture.

[73] Tourism Australia, 2017, https://www.ecotourism.org.au/assets/Uploads/Manifesto-v5.0.pdf, date accessed: 14/04/2019
[74] Tourism Australia, 2019, Food and Wine, http://www.tourism.australia.com/en/about/our-campaigns/food-and-wine.html, date accessed: 27/05/2019
[75] Tourism Australia, 2019, Food and Wine, http://www.tourism.australia.com/en/about/our-campaigns/food-and-wine.html, date accessed: 27/05/2019

It has been estimated that in the year ending December 2017, there were approximately 1.3 million domestic wine travellers spending $1 billion. In relation to food travellers, there was 3.5 million domestic overnight visitors spending $3.1 billion and 1.4 million international visitors, spending $5.4 billion[76].

Accommodation

The Australian accommodation monitor (2017-2018) found that Australian accommodation created $14.7 billion worth of revenue. Australian capitals cities had the highest revenue per room and the highest occupancy rate at 79.8 per cent. Luxury and upper scale rooms were found to have a higher occupancy rate of 80.9 per cent which was compared to a 75.5 per cent of upscale and upper mid classes. The occupancy rate of midscale and economy rooms were found to have a 68.9 per cent occupancy rate[77].

Considerations for Northern Beaches: Northern Beaches contains a number of valuable natural assets. Given tourism and visitors are such an important component of the Greater Sydney economy, identifying how they can better access and engage in activities or business within the LGA is important.

4.7 Sustainability

In 2015, 193 Member States including Australia adopted the 2030 Agenda for Sustainable Development. It provides a blueprint for countries to work together to tackle climate change and achieve a sustainable future through improving health and education, reducing inequality, fostering economic growth, preserving oceans and forests and collaboration. The Agenda aims to integrate the social, environmental and economic dimensions of sustainable development.

Australia Government is on the way to achieve Goal 11: Sustainable Cities and Communities through its many initiatives. In 2016, the Australian Government set out its national approach to cities in the 2016 Smart Cities Plan which outlines a vision for productive and liveable cities by driving collaboration between all levels of government, the private sector, research organisations and the community. The Smart Cities Plan includes three pillars: Smart Investment, Smart policy and Smart Technology.

The Government invested $50 million in the Smart Cities and Suburbs Program to support the delivery of innovative smart city projects. 21 projects in NSW were funded through this program including 3D Technology for Urban Planning in Woollahra, ChillOUT Smart Social Spaces in Georges River, Energy Data for Smart Decision Making for several LGAs including Northern Beaches, Interactive City management in Melbourne, Liveable Neighbourhoods in Lake Macquarie and Sydney City and Melrose Park: Smart Planning for Climate Responsive Neighbourhood. These projects are at various stages and addressing different issues such as mobility, social health, urban irrigation, energy and water systems and management of cities.

New developments and urban renewal projects are central to the development of sustainable cities and communities. Many developers have integrated the Sustainable Development Goal into their projects. One recent example is the development of Barangaroo. The 22-hectare disused container wharf was converted into a mixed-use precinct with the goal of a carbon neutral precinct. In 2009, the NSW Government committed Barangaroo to the Climate Positive Development Program. Barangaroo includes centralised infrastructure such as Sydney Harbour water cooling, embedded electricity networks, recycled water treatment plants and on-site renewable energy generation. External agencies, contractors and organisations are required to contribute to the Sustainability Goals through the following measures:

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[76] NSW Government, 2018, NSW Food and Wine Tourism Strategy and Action Plan 2018-2022, https://www.destinationnsw.com.au/wp-content/uploads/2018/11/nsw-food-and-wine-tourism-strategy-and-action-plan-2018-2022.pdf?x15361, date accessed: 27/05/2019

[77] Tourism Research Australia, 2010, https://www.tra.gov.au/Economic-analysis/Australian-Accommodation-Monitor/aam-2018, date accessed: 16/04/2019

- Carbon neutral. All buildings at Barangaroo are required to report annual greenhouse gas emissions and contribute to renewable energy and carbon offsets.
- Water positive. The precinct uses captured rainwater and treated water for toilet flushing, irrigation, wash down and fire suppression.
- Zero waste emissions. At Barangaroo, all food, office, commercial and industrial waste is treated and managed using methods that are climate neutral.
- Community well-being. More than 50 per cent of Barangaroo will be public space.

Case Study: Smart Social Spaces: Smart Street Furniture supporting Social Health, Georges River Council Area

University of New South Wales and Georges River Council have been awarded the Round One Smart Cities and Suburbs Program funding to pilot a smart infrastructure management system. This project used a variety of environmental IoT sensors (sound sensors, use counters, flow meters, power draw counters etc.) to record real-time use of urban furnishings in public spaces. This enables efficient and informed management of public space and its infrastructure in a local government precinct.

This project also designed and tested a new smart street furniture which includes General Power Outlets (GPO), USB outlets and a water tap. The street furniture allows people to recharge their phones, wash their hands and use cooking appliances. Georges River Council has since then secured the Round Two funding and will deliver smart outdoor community spaces called ChillOUT hubs that utilise IoT environmental sensors and provide Wifi access points, flexible work and rest spaces. The ChillOUT hubs are community spaces where people can connect technologically, professionally and socially, at the same time, they collect data that will aid Council's future planning.

Source: Georges River Council, https://www.georgesriver.nsw.gov.au/Council/About-Your-Council/Publications/Media/Smart-city-innovations-to-connect-the-Georges-Rive

Case Study: Vertical Farming using Hydroponics - Sproutstack

With the global population projected to grow to 9.8 billion in 2050, the demand for food and other agricultural products will increase. Agricultural production that depends on soil and water might not be sufficient to meet future demands as climate change could cause declines in overall productivity. It has been found that changeable weather conditions are the primary driver of variations in agricultural output over time. There are opportunities to use more sustainable and less space restricted way of farming. As 80 per cent of all food is expected to be consumed in cities by 2050, urban farming presents a unique opportunity to reduce food miles and carbon footprints.

One method that is not restricted by weather conditions is hydroponic farming. Hydroponic farming doesn't require soil, instead it applies a nutrient-rich solution to deliver water and minerals to the roots of the plants. Weather conditions do not affect hydronic farms as the crops grow in a controlled environment unaffected by fluctuating rainfalls and changes in temperature. A report by Ellen Macarthur Foundation suggests a theoretical maximum of one-third (by weight) of the food needed in urban areas could be grown within cities. One of the main challenges to this hypothesis is the availability of land for urban farming. Hydroponic farming is more space efficient than outdoor production.

Sprout Stack is a Sydney based indoor-farming business that uses hydroponics to grow crops in a shipping container. The founders of Sprout Stack wanted to increase food production in a sustainable way to meet future demands. Sprout Stack grows crops indoors with LED lights to provide ideal light all year round. The automated irrigation system uses 95 per cent less water than traditional growing systems. The shipping containers can be placed near residential areas and therefore reducing food miles.

Source: SBS 2018, https://www.sbs.com.au/news/small-business-secrets/article/2018/07/20/sprout-stack-changing-face-australian-farming

Considerations for Northern Beaches: Northern Beaches Council is aiming to be a leader in sustainability. Case studies highlight there are innovative business and design concepts that could be implemented to help progress the sustainability agenda within the LGA.

4.8 Key Findings

All facets of the retail landscape are changing

The retailing landscape is varied and changing. Some of the new supermarkets offerings are smaller in format with a more tailored and gourmet selection of foods and are also aimed at appealing to time-poor workers that want healthy and ready-to-go meals. Growth of smaller format supermarkets in centres may arise in the Northern Beaches.

Regional shopping centre maintain popularity but are also becoming more mixed-use centres to compete with the rise in online retailing. Fine grain retailing offers a point of difference to centres that contain large shopping centres and can encourage a more unique, boutique experience at a human scale. Warringah Mall is likely to continue to be a centre of gravity as a regional shopping mall for the LGA. Fine grain retailing could set smaller local centres apart from the larger strategic centres. The food and dining scene have seen strong success in cafes, some restaurants are building the 'experience' components with other activity to attract diners and food courts are redeveloping to engage with the 'outdoors' and improve amenity.

Online retailing is impacting traditional bricks and mortar retailing and these retailers are having to find new ways to engage and attract customers. Online retailing growth has increased the value of industrial and urban services lands that process these products and reiterates the value of these lands in the LGA.

Retaining valuable industrial and urban services lands

With the rise in online retailing, the value of industrial and urban services lands for logistics uses located in close proximity to residential areas has never been more apparent. Advanced manufacturing has seen the inclusion of greater technology in the manufacturing process and some of these types of manufacturing processes could locate in the industrial precinct into the future. There has also been growth in creative led land uses in these areas. Ensuring these lands in the Northern Beaches LGA are retained will be important to ensure industrial and urban services provide for local communities and are not overcome by creative-led gentrification.

There are two components to a night-time economy that require a planning response

A night-time economy has two components, firstly, a practical and functional component where services, safety and amenity assist late-night workers and shift workers. A relevant planning response will be required around the Frenchs Forest centre in this regard. Secondly, a more social component where events, places and activities should cater to the needs and interests of the local community in the LGA. Local studies and policies indicate this is a key priority for the Northern Beaches and will have to be progressed in centres like Manly, Dee Why, Mona Vale and the smaller local centres.

Coworking spaces can take many forms

Coworking spaces can cater to different work styles for individuals to small companies, for freelancers, independent workers and start-ups. Coworking spaces can support a variety of concepts, such as promoting the arts, sustainability or the concept of community. Some coworking spaces are evolving to include cafes and retail spaces.

The relevance of these spaces to the local population will have to be investigated more closely through business surveys to determine whether the local population has need of these spaces, and if so, what particular format would work best to support greater productivity.

Employment opportunities, changes to the built environment and economic services and activities will be needed to support the ageing population

The Northern Beaches has a significant ageing population. Design and access to economic centres in the LGA will have to consider their needs. Socially, businesses in these centres and the activities offered will have to cater to their abilities and interests to ensure they continue to be active and engage members of the community. With the rise in this population, the need for allied and social assistance services may increase within the LGA. Determining how the Frenchs Forest health and education precinct can assist this increase will be beneficial. Economic centres must also respond and cater to the rest of the population in the LGA, including those migrating in to the LGA that will help replenish the workforce.

There are many strengths to tourism in Australia

Arts and culture-based tourism, food and wine centred tourism and nature-based tourism are all strongly represented within the NSW visitor economy. There is potential for these areas to be capitalised upon further in NSW.

Northern Beaches contains a number of valuable natural assets. Given tourism and visitors are such an important contributor to the Greater Sydney economy and Manly is already internationally recognised as a key tourism site; it will be valuable to ensure visitor access and ability to engage in local activities or local businesses within the LGA is important. Protecting the natural environmental should also be a key consideration.

The drive to build sustainable and smart cities

Actions to tackle climate change have to be supported by all levels of government. The Australian Government has adopted the Agenda for Sustainable Development. Technology offers local councils innovative ways to contribute and progress this movement.

Northern Beaches Council is aiming to be a leader in sustainability. Case studies highlight there are innovative business and design concepts that could be implemented to help progress the sustainability agenda within the LGA.

5. EMERGING INSIGHTS

5.1 Challenges

Frenchs Forest Town Centre – severance and impact

French Forest will have the potential to develop health and education and retail industries, as well as commercial (office) through the business park for the LGA. However, the 'centre' has significant severance issues with the hospital and retail and business park located either side of the Warringah Road, as well as how it encompasses the current ForestWay shopping centre.

The growth of this centre may impact other centres in the LGA, such as a decline of Manly or Mona Vale hospitals for employment opportunities as a consequence of the growth of Northern Beaches Hospital. A number of other precincts across Greater Sydney have been designated 'health and education precincts' by the Greater Sydney Commission and there has been no State or Federal commitment to progress tertiary education. Frenchs Forest will be competing with more well-established, more accessible health precincts to attract highly skilled professionals and key workers.

Brookvale as an ill-defined centre

The Brookvale centre suffers from relatively low amenity and a lack of central public space design, a mix of uses in the industrial zone and a dominant Westfield shopping centre that is the centre of gravity for the local population.

There is a challenge in protecting the industrial and urban services lands in Brookvale and balancing it with the other major role of Brookvale, its population serving role alongside an increasing pace of change. Brookvale will assist development of the local economy and changing business models such as advanced manufacturing and increased pressure on 'last mile delivery'. Another challenge will be enabling this transition while protecting core industrial and urban service operations.

Strengthening the role of Dee Why as a strategic centre

With low amenity and dominated by Pittwater Road, Dee Why lacks the vitality of a strategic centre.

Tension with competing uses in Manly centre

The Manly catchment has exhibited the highest growth rate in employment between 2011-2016. Place of work data indicates the Manly catchment has a high share of professional related jobs. Accessibility to Manly is limited. Policy directives for the centre are aimed at encouraging a large mix of uses in tourism, retail and entertainment components of the centre, as well as diversifying commercial activity. Together, these factors have potential to create tension within Manly centre.

Elevating Mona Vale to fulfil its role as a strategic centre

Mona Vale functions like a local centre and is less accessible by public transport than most other centres in the LGA.

Protecting the integrity of the industrial precincts

There is a lack of distinction between commercial and industrial uses in the Brookvale precinct where these land uses also need protection from residential pressures. The value of these lands, in performing important functions for cities and populations, needs to be recognised. The provision of jobs and services close to where people live, and other businesses are critical to the productivity of the North District and Greater Sydney

Understanding what it means to work locally and changing perceptions

Given the high rates of self-containment in the LGA, there is a need to better understand and define this concept, understanding the requirements of workers so that economic centres and population serving industries and coworking spaces respond to worker needs. The Northern Beaches is perceived by residents and local businesses as a place to relax, rather than being a credible business place.

Employment and economic centres meet the needs of the ageing population, and helps maintain generational diversity of the population

Ensuring employment opportunities, the built environment of economic activity centres and the businesses within them caters to the mobility, essential services and employment needs of the ageing population in the LGA. The types of goods, services and experiences sort by older generations in Northern Beaches may be different to the past. Economic centres will also have to meet the needs of others in the Northern Beaches community and encourage diversity by attracting, or retaining, other generations – strengthening the community.

Lack of connectivity and accessibility – internal and external

Overall, the LGA suffers from a lack of connectivity within many centres, topography and severance issues with high rates of private vehicle use. Distance has been identified as an issue for many businesses. Lack of public transport and car parking are also issues. Externally, there is significant movement of workers between Northern Beaches LGA to Sydney CBD, North Sydney and Willoughby, improving connections out of the LGA to these areas would be valuable.

5.2 Opportunities

Frenchs Forest - improving connectivity and the business park

The Frenchs Forest Business Park is a valuable asset in current form and function. It could take on a higher commercial (office) component for the LGA and will require amenity improvements. Consideration of night-shift workers in the hospital precinct and ensuring good amenity and safety in design in included in future development.

Integrating sustainable design elements into the new centre to support the sustainability intent of the LGA could be considered. There is opportunity to shape the future direction of the town centre in alignment with local employment objectives. Design and place branding should build on existing local strengths and aim to attract highly skilled job opportunities and workers.

Improving the functionality of Brookvale

Leverage the high level of transport connectivity in Brookvale and the diversity land uses in terms of retail, industrial and urban services, to make this centre the focus for employment, higher order retail and complementary to the role of Dee Why. Key to centre development will be integrating Warringah Mall with surrounding land uses, improving urban amenity (particularly between the retail and industrial zones) and creating a 'town centre-activity point' outside of Warringah Mall.

Determine the 'right' mix of industrial and urban services uses for the centre, protecting valuable industrial and urban services lands and ensuring creative-led gentrification does not impact the original function of the land use. Recognise there are transitions in business models occurring, such as advanced manufacturing. There is opportunity to leverage these transitions.

Dee Why as a civic and population serving centre

To complement the role of Brookvale, Dee Why centre can be a focal point for civic functions and population servicing industries for the surrounding residential populations. Improving the amenity and vitality of the centre will be key and leveraging the high transport accessibility of the area.

Developing a clear vision for Manly centre to help reduce future land use conflict

A clear vision and balancing competing industry land use into the future will be required. Continuing to build the tourism role of Manly could be a key focus given the widespread recognition of Manly as a visitor site. Consideration of coworking spaces to cater to self-contained, professional jobs could be developed, as well as focusing commercial growth elsewhere in the LGA.

Mona Vale – the strategic centre for the northern portion of the LGA

Recognising other centres in the LGA will be strong attractors of commercial (office), higher order retail and industrial, Mona Vale centre will have to fulfil a complementary role. Like Dee Why, it will have to fulfil a population serving function for the residential communities of the northern area.

Developing the population serving role of smaller, local centres

Grow smaller, local centres to fulfil a primarily population serving role, especially as the population ages. Investigating coworking space given the high rate of self-containment in some of these centres.

Improving internal and external connectivity

Given the significant number of workers, in particular Knowledge Intensive workers, travelling between Northern Beaches LGA and other areas for employment such as Sydney CBD, North Sydney and Willoughby – ensuring efficient transport connections will be valuable to productivity. Improving local level connectivity to improve access, vitality and safety within the LGA.

Strengthen small and medium business opportunities and recognise entrepreneurial strengths

As an opportunity to grow local employment, ensure economic activity centres support the establishment of small and medium businesses. This could potentially be through grants or programs or co-working spaces. There is opportunity for further exploration to understand the potential of coworking and innovative environments to boost employment options.

Support the development of a diverse night-time economy

Highlighted as a priority for the LGA in local studies, supporting increased access, convenience, safety, capacity and diversity of activities of the night-time economy in the economic activity centres is an opportunity area.

Strengthen job containment and self-sufficiency

By improving economic activity centres - the vibrancy, urban design and functionality, as well as achieving the right branding and vision for a centre and opening employment opportunities, this could help to increase the self-sufficiency of the LGA. Furthermore, building the local business community network; changing perceptions and attitudes about the Northern Beaches and highlighting its business potential and encouraging residents to work from home once a month could also assist.

5.3 Questions

- In light of the Greater Sydney Commission directives to 'protect and preserve' industrial land, what should be the future vision for Brookvale town centre?

- Brookvale is a unique centre that contains a valuable portion of industrial and urban services land for the North District, which also contributes to the productivity of Greater Sydney. What sort of industrial and urban services mix should be contained in Brookvale centre?

- If an area of town centre activity were to be developed in Brookvale to help improve amenity and provide a focal point for community activity, ideally where would it be located?

- How can the industrial precinct of Brookvale support new business models?

- How could Dee Why centre better serve the needs of the local population in terms of population serving businesses (such as retail, food servicing), amenity and civic function?

- What sort of role should Manly centre have in the future?

- How could Mona Vale centre better serve the needs of the community?

- What does 'working locally' mean to residents of the Northern Beaches LGA? Should there be greater emphasis on population services in local centres to support people who are located at home to work? To what extent would the commuting workforce consider working locally for a portion of the week?

- How could small businesses be better supported in the economic centres of Northern Beaches LGA?

- Would coworking spaces be a valuable addition to economic centres in the LGA? If so, where and what type of coworking spaces are needed?

- In relation to the economic centres of Northern Beaches LGA, what are the needs of the ageing population in relation to larger Strategic Centres and smaller, Local Centres?

- Housing affordability is a barrier for key workers to be able to live and work locally. What other barriers do key workers face in terms of being able to live and work locally? How can the economic centres of the LGA better serve key workers?

- What sustainability actions/design/activities would you like to see implemented in the economic centres and businesses of Northern Beaches LGA?

- What high-value niche industries exist in the Northern Beaches? Where are they located and why? Could they be leveraged to grow highly skilled employment opportunities?

- What types of commercial businesses and workforce should Council seek to attract to the Frenchs Forest precinct? For these particular commercial businesses, what type of precinct/work environment would be attractive?

5.4 Next Steps

Next steps in the study will explore the issues and insights that have emerged from this preliminary review to develop a series of strategies and recommendations to inform the future planning of economic activity centres and employment precincts in the Northern Beaches LGA.

This will take the form of planning control recommendations, strategic directions and economic development opportunities to ensure the Northern Beaches local economy makes the most of its advantages and puts in place strategic to overcome the challenges it faces.

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APPENDIX 1- BROAD INDUSTRY CATEGORIES (BIC) DEFINITION

In conjunction with the Greater Sydney Commission (GSC), SGS Economics and Planning has categorised ANZSIC Divisions into four broad Industry Groups (also known as Broad Industry Categories – BIC). The following table illustrates the classification.

TABLE 20: INDUSTRY GROUPS

ANZSIC 2006 Division Code	ANZSIC 2006 Division Title	Group
J	Information Media and Telecommunications	Knowledge Intensive
K	Financial and Insurance Services	Knowledge Intensive
L	Rental, Hiring and Real Estate Services	Knowledge Intensive
M	Professional, Scientific and Technical Services	Knowledge Intensive
N	Administrative and Support Services	Knowledge Intensive
O	Public Administration and Safety	Knowledge Intensive
P	Education and Training	Health and Education
Q	Health Care and Social Assistance	Health and Education
E	Construction	Population Serving
G	Retail Trade	Population Serving
H	Accommodation and Food Services	Population Serving
R	Arts and Recreation Services	Population Serving
S	Other Services	Population Serving
A	Agriculture, Forestry and Fishing	Industrial
B	Mining	Industrial
C	Manufacturing	Industrial
D	Electricity, Gas, Water and Waste Services	Industrial
F	Wholesale Trade	Industrial
I	Transport, Postal and Warehousing	Industrial

Source: ABS ANZSIC 2006 Support Tool, SGS Economics and Planning and GSC 2016

APPENDIX 2 – UNDERSTANDING DATA AND MEASURES

Disclaimer: When comparing growth rates between multiple time periods, Compound Annual Growth Rate (%) has been used. The Compound Annual Growth Rate (CAGR %) is a useful measure of growth over multiple time periods. It can be thought of as the growth rate that gets you from the initial value to the ending value.

As Census data (2006-2016) has exclusively been used for reporting historical data/trends in this study, this can be imagined as a Compounded *Census* Growth Rate, representing growth rates at five-year (5-yr%) increments. The same can be applied for future projections (TPA data), representing a forecasted growth rate each five years (5-yr%).

For more information, please reference: https://www.investopedia.com/terms/c/cagr.asp

Percentage Point (PP%) – represents the difference between two percentages. Percentage point is used to show the changes in an indicator with respect to its previous standings (e.g. between growth rates in 2016 and 2011);

Due to differences in methodology and the way data is captured, direct comparisons between absolute ABS historical data values (2006-2016) and TPA (Transport Performance and Analytics) forecasts (2021-2036) is strongly discouraged. It is recommended to use general trends and proportions when observing future trends and comparing across. There is also limited comparison for some indicators over Census periods due to changes in how ABS captures data;

Place of Usual (PUR) - some undercounting inevitably occurs for various reasons during Census count. Although adjustments are available for certain indicators in the form of Estimated Resident Population (ERP) these haven't been used in this report, in order to achieve consistency across all indicators;

Place of Work (POW) - ABS has introduced a new imputation method in 2016 for assigning workplace destination (Destination Zones) to persons that provided partial or no information about their place of work. The imputed data was excluded from this report, in order to achieve compatibility across previous Census years and 2016. As different imputations are applied to different geographies as well, LGA totals will not match sums of lower level geographies (e.g. SA2);

Broad Industry Category (BIC) - represents Greater Sydney Commission (GSC) broad categorisation of 1-digit ANZSIC industries;

Some discrepancies might be present in the Suburb level data, due to changes in ABS geographies between 2011 and 2016;

Totals derived from summing up suburb level data are slightly different to LGA totals due to ABS perturbations applied to protect the confidentiality of individuals;

This report has used a variety of measures in order to better understand trends present in the data from a number of perspectives. Observing indicators from only one perspective can often be misleading. Each perspective (measure) tells a different story and gives a different outlook. This appendix is specifically devised to guide and assist you when analysing the data in this report and help you better understand the original intention of each measure.

Totals - Absolute Values (123)

Totals are the most common used measure for observing data. They are simple, easy to understand and point to straightforward facts. People love using them as they resonate strongly, especially when the numbers are high. For instance, based on the table below, we know we have a large number of people using *Vehicles* (88,789) to travel to work, hence we might end up with a lot of cars on the streets.

METHOD OF TRAVEL TO WORK (PUR) TOTALS AND GROWTH RATES (2006-2016)

Year	Public transport	Vehicle	Active transport	Other Mode	Worked at home or Did not go to work
2016	30,492	88,789	3,193	808	13,183
2011	24,432	81,467	3,043	628	12,240
2006	21,075	75,742	3,292	535	12,155
Growth (Total)	***9,417***	***13,047***	*-99*	*273*	*1,028*
Growth (CAGR %)	***20.28%***	*8.27%*	*-1.52%*	*22.89%*	*4.14%*

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

<u>Downside</u>: When we have a lot of (similar) values, it might become hard to notice what to pay attention to. Also, understanding how one number (category) compares to other numbers (categories) or sum totals (of all categories) might become hard. Expressing data as a ratio or proportion (%) usually helps us with this.

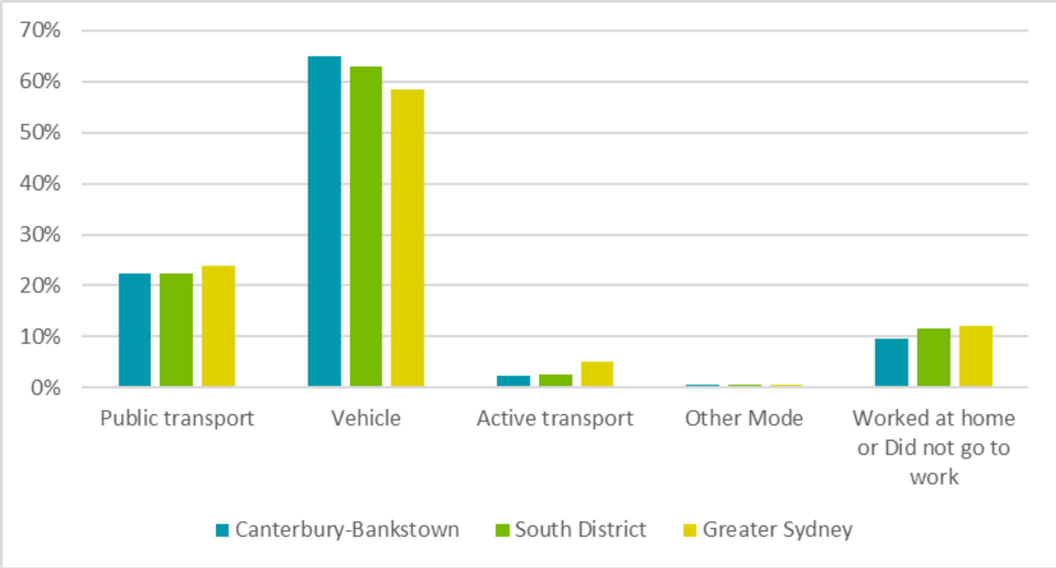
Proportions - Percentage of SUM Total (%)

Proportions, ratios of percentages (name them as you like) usually kick-in handy when trying to understand how something compares to other (sub) categories or SUM totals. This measure is also particularly useful when trying to set up targets.

For instance, we can see that the value of *Vehicles* is quite different when comparing the local level of *Vehicle* usage (30,492) - table above; and the Metropolitan scale (x number of people use *Vehicles*). If someone asked us to put that in context and measure the RATE of *Vehicle* use, we couldn't really achieve it without using a relative measure. However, if expressed as a percentage of the sum total, we would know that the use of *Vehicles* is actually higher at the local level Metro level - see graph below.

Or, let's say our goal is to at least have 30% of people using Public Transport in the future. It makes much more "sense" to express that using proportions (%) than total numbers – e.g. our goal is to have 45,448 people using public transport. Also, the total might change, so 30% isn't 45,448 but a different value.

METHOD OF TRAVEL TO WORK (PUR) STRUCTURE (2016)



Source: ABS Census 2016 (TableBuilder Pro)

Downside: By using percentages or ratios, we can often oversight the overall importance of something in real life terms. Although 2.34% (ratio of people using *Active Transport*) might seem low and negligible, planning for 3,193 cyclists is still quite important. The larger the grand total is, the bigger the chance for such an oversight is to occur.

Growth Totals - Absolute Values (+- 123)

Again, similar to totals, growth totals are good for understanding the overall impact of some sort of change. From 2006 to 2016, the number of people using *Vehicles* has increased by +13,047 meaning we have a large number of additional vehicles on the streets that we need to plan for. Also, we have an additional +9,417 people using *Public Transport* probably requiring additional services.

Downside: However, growth totals can often "hide" important structural changes that occur over a larger period of time. If we disregarded *Active Transport,* we can see that all modes of transport have experienced a growth between 2006 and 2016. It is easy to jump to a conclusion and say the fastest growing mode of transport is *Vehicles.* However, if we compared the PROPORTION of people using *Vehicles* in 2006 to 2016, we will that the opposite is actually true - see next heading.

Proportional Changes - Point Percentages (%)

Proportional changes are good in anticipating broader structural changes. This means, that if the current growth trends continued, even though the growth total of *Public Transport* (+9,147) is lower than that of *Vehicles* (+13,047), the number of people using *Public Transport* would eventually "catch up" in the overall proportion. If we translated the first table to proportions instead of totals, it would look something like this:

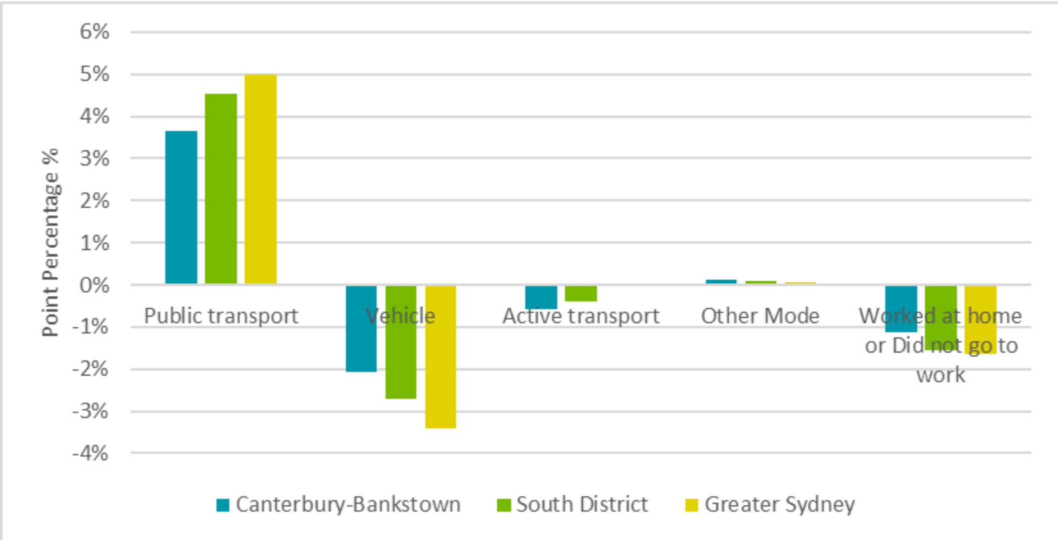
METHOD OF TRAVEL TO WORK (PUR) TOTALS AND GROWTH RATES (2006-2016)

Year	Public transport	Vehicle	Active transport	Other Mode	Worked at home or Did not go to work
2016	22.3%	65.1%	2.3%	0.6%	9.7%
2011	20.1%	66.9%	2.5%	0.5%	10.0%
2006	18.7%	67.1%	2.9%	0.5%	10.8%
Growth (Total)	***9,417***	***13,047***	*-99*	*273*	*1,028*
Growth (CAGR %)	***20.28%***	*8.27%*	*-1.52%*	*22.89%*	*4.14%*

Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

This is simply because the initial "base value" was a lot smaller for *Public Transport* compared to *Vehicles.*

CHANGE IN METHOD OF TRAVEL TO WORK (PUR) STRUCTURE (2006-2016)



Source: ABS Census 2006, 2011 and 2016 (TableBuilder Pro)

Growth Percentages - CAGR (%)

Relative growth is a measure good for understanding how much a value has changed over time and relative to itself, as well as comparing rates and trends of different geographic scales. In relative terms, the +9,417 increase of people using *Public Transport* represents a +20.28% increase, while the +13,047 represent a +8.27% compared to a previous value of those indicators.

Downside: However, what relative growth numbers don't "catch" is the base value itself. If looked in more detail the +22.89% of the use in *Active Transport* is higher than both previously mentioned modes, but it only represents an additional +273 commuters.

Input-Output Modelling

While a cost-effective and widely used technique for economic impact analysis, I-O modelling has some limitations, as follows.

The model assumes relationships between industries are static over the forecast period. That is, productivity improvements are not factored in and historic relationships are assumed to hold.

- The I-O model derives relationships between industries using total production estimates. Consequently, the relationships are 'average', whereas the stimulus used as an input is ‘marginal’. Such an approach does not account for any ‘underutilised capacity’ at the industry level or additional economies of scale that might ensue, as production expands from its existing base.

- The model assumes that there are no supply constraints. An additional drawback is that the model does not take into account the ‘crowding out’ of other sectors. This is recognition of the fact that there are scarce resources in an economy.

The combination of these limitations may lead to inflated economic impact results. Hence, the I-O model is generally considered a useful starting point only.

Note: There is a lot of other things to keep in mind when analysing data and using descriptive statistics to measure performance. Only a small part of it has been mentioned in this appendix. We recommend observing indicators from a variety of perspectives and angles prior to making any conclusions.

APPENDIX 3- GLOSSARY

This appendix contains a glossary of commonly used acronyms and terms in the report.

ABS – Australian Bureau of Statistics

ANZSIC – Australian and New Zealand Standard Industrial Classification

ASCO – Australian Standard Classification of Occupations

BIC – Broad Industry Category

Broader Catchment – a collection of SA2s around a centre

CAGR (%) – Compounded Annual Growth Rate

District – North District

DPE – Department of Planning and Environment

GRSP – Greater Sydney Region Plan

GS – Greater Sydney

GSC – Greater Sydney Commission

HR – Human Resource

I-O – Input Output

LEP – Local Environmental Plans

LGA – Local Government Area

LSPS – Local Strategic Planning Statement

POW – Place of Work

PP (%) – Point Percentage

PUR – Place of Usual Residence

SA2 - Statistical Areas Level 2

Subset- Refers to the categories of employment that go deeper than a BIC or 1-digit ANZIC, mostly referring but not limited to 4-digit ANZICs.

TPA – Transport Performance and Analytics

VET – Vocational Education and Training

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