Cumberland Employment and Innovation Lands Study (2019)

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EXECUTIVE SUMMARY

BACKGROUND AND SCOPE

Cumberland local government area is in the Central City District and was formed in 2016. Cumberland's employment and innovation lands are zoned IN1 General Industrial, IN2 Light Industrial, B6 Business Development, B6 Enterprise Corridor and B7 Business Park. These lands accommodate a mix of traditional industries and technologically advanced businesses who mutually value the centrality of a Cumberland location.

Cumberland Council (Council) recognises the opportunity to transition its economy into higher order and productive industries and the knowledge-intensive economy.

Critically, Council seeks to develop an Innovation Ecosystem and grow a number of *key sectors*: digital technologies/media, advanced manufacturing, food and beverage manufacturing, creative industries, fashion, allied health, advanced knowledge services and freight and logistics.

AEC Group and Mecone comprise a consultant team engaged by Cumberland Council to prepare the Cumberland Employment and Innovation Lands Study. This has been used to inform the development of the Cumberland Employment and Innovation Lands Strategy.

The Study aims to promote firmer and innovative employment, business and economic outcomes for Cumberland, responding to a number of important Council aspirations including:

- Forming an Innovation eco-system and knowledge-intensive industrial sector.
- Fostering growth in priority productive sectors which will also leverage the diversity and skills of migrants.
- Ensuring employment lands are sustainable, able to adapt to and accommodate changing needs of industry and business.

CUMBERLAND BASELINE POSITION

Existing Employment Structure

Cumberland employed almost 70,000 workers with more than 20% of those employed in manufacturing. 10.9% of employees were employed in transport, postal & warehousing while 10.5% were employed in retail trade.

The structure of Cumberland's local economy is characterised by industrial activity (manufacturing and transport, postal & warehousing) and retail activity (with a number of centres and businesses along Parramatta Road).

Overall employment growth in Cumberland has been moderate, occurring at an average annual rate of 1.3% over the 2006-2011 period. In comparison, employment in Parramatta LGA and Greater Sydney grew by average annual rate of 2.7% each and respectively over the same period.

Cumberland's Competitiveness

Cumberland's employment profile has a distinct industrial specialisation, with manufacturing (20.9%) and transport, postal & warehousing (10.9%) together forming nearly a third (31.8%) of total employment in the LGA. Analysis into key sector specialisation has revealed the following sectors of industry specialisation:

- **Freight and Logistics** is highly represented (18.2% of total employment) and is a sector that of significant value - contributing more in industry value-add (21.5%) and paying more in wages (19.3%) than its share of employment.

  Cumberland has a distinct competitive advantage for attracting this sector, further characterised by the use of specialist skills, with a comparatively higher rate of specialisation of 50% compared to benchmark areas of Parramatta and Greater Sydney.

- **Advanced Manufacturing** has a considerable employment presence (7.9%) however the use of specialist skills is not particularly notable. Notwithstanding, it is a sector that is of value to Cumberland - contributing more in industry value-add (9.3%) and paying more in wages (9.4%) than its share of employment.
- **Food and Beverage Manufacturing** is a smaller sector, representing 4.3% of total employment. Also a sector of value, it contributing more in industry value-add (5.7%) and paying more in wages (4.7%) than its share of employment.

  This sector is specialised in Cumberland comparative to the benchmark areas, with more than 40% of employees considered to have specialist skills in the sector.

The other key sectors (advanced knowledge services, digital technologies/media, creative industries, allied health and fashion) are not well represented. Analysis indicates that Cumberland detracted from growth in these sectors, suggesting the area may have some competitive disadvantages and challenges that need to be overcome to attract growth in these sectors in the future.

Notwithstanding, while not as yet well represented in Cumberland, the sectors of digital technologies/media and advanced knowledge services have the potential to contribute meaningfully given they generate relatively high value-added activity and incomes.

Cumberland has had a large role in specialised machinery and food/food product manufacturing. Its employment structure reflects this legacy, denoting Cumberland's comparative appeal as a destination for these sectors.

Cumberland is well connected by the orbital road network (M4, M5 and M7 Motorways) and arterial road network, and is centrally located between Parramatta and Sydney CBDs. The area's most competitive feature is its accessibility to various distribution catchments across metropolitan Sydney.

Future Market Influences

Cumberland's future and the types of business activity are cumulatively influenced by economic trends and factors, but equally driven by business-specific objectives and individual approaches to innovation.

Sectoral and Demographic Trends

A number of key trends are observed to have influence on how industry requires and utilises land and floorspace.

- The **high cost of production in Australia** drove offshoring activity over the last few decades. In the same vein, businesses are consistently seeking to lower their cost base and drive efficiency and productivity.
- The **rise of cyber-systems** will continue to drive change in the fit-out and configuration of industrial stock with occupiers expected to invest more capital into their warehouses and commit to locations for longer as a result.
- Successful retailers have **fully-integrated e-commerce supply chains**. Delivery speed, range and flexibility are critical, increasing aggregate demand for logistics space and with a strong focus on urban logistics in particular.
- The **re-shoring of manufacturing** may see some previously off-shored specialist manufacturing processes relocated back to Australia, allowing innovation opportunities in the production process to be captured.
- The **war for talent**, evolving working practices and sustainability impacting employment and innovation lands although these are not primary drivers of changing demand.

Market and Business Feedback

Discussions with various business occupiers, real estate agents and landowners suggest that overall, Cumberland has many strengths. The overall level of satisfaction of business is high, with the centrality of location cited as an overwhelming strength of the employment precincts in Cumberland.

Cumberland's weaknesses are generally a function of its composition and layout. Due to small allotments in certain areas, traffic congestion and ingress/egress is an issue. Buildings in some of the employment precincts are dated and ageing, with some properties in spite of their excellent location at risk of taking longer to lease.

Implications for Employment and Innovation lands

Key implications for employment and innovation lands in Cumberland include:

- Demand for accessible employment and innovation lands close to customers and labour pools will increase concurrent with the rise and growth of the Central City.
- The use of higher knowledge workers, increased automation and shorter distribution supply chains will continue to increase as businesses seek to value-add and improve efficiency and productivity. A corollary of this is a rise in demand for well-located and accessible, quality space with high worker amenity.
- Logistics will remain the dominant driver of demand with new types of warehouse models emerging. Demand for land is expected to be strong including demand for small-scale facilities around centres and business zones.
- Cumberland is well placed to capture emerging demand from re-shored manufacturing facilities due to its proximity to a large labour and consumer market, offering fast speed to market from manufacture to customer.
- The fit-out and configuration of warehouses will evolve in response to the use of robots and emphasis on supply chain efficiencies. Greater heights and FSRs may be needed, with taller warehouses to process fast-moving goods. In order to commit to the high capital cost to integrate technology into industrial space, occupiers will need to be assured of property tenure but also the long-term sustainability of the employment precinct.

Cumberland is likely to continue to witness the departure of more traditional industrial sectors. Whilst supporting the diversification and innovation of existing business will be important, Cumberland has the opportunity to attract businesses across a range of other industrial activities - those focused on warehousing and distribution, as well as manufacturing activities that are highly invested in knowledge, technology, innovation and value adding activities.

IMPORTANCE OF INNOVATION

Innovation generally refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by the environment. The OECD identifies two categories of innovation:

- **Technological Innovation** (including product innovation and process innovation).
- **Non-technological Innovation** (including marketing innovation and organisational innovation).

Innovation is a key driver of business competitiveness and economic growth. The OECD estimates that up to 50% of long-term economic growth can be attributed to innovation, with this contribution to growth expected to increase.

Innovation in Australia

Despite a high proportion of innovation-active businesses (more than 50%), Australia has a relatively low proportion of businesses that are R+D active.

A major problem in Australia is that despite the much greater prospects for increased productivity, there are barriers to innovation that face many businesses.

- Cost barrier where cash flow or profitability does not permit investment in productivity enhancing initiatives.
- Difficulty in accessing capital at affordable cost to implement innovation.
- Inadequate information available regarding the opportunities and benefits of innovation and change.

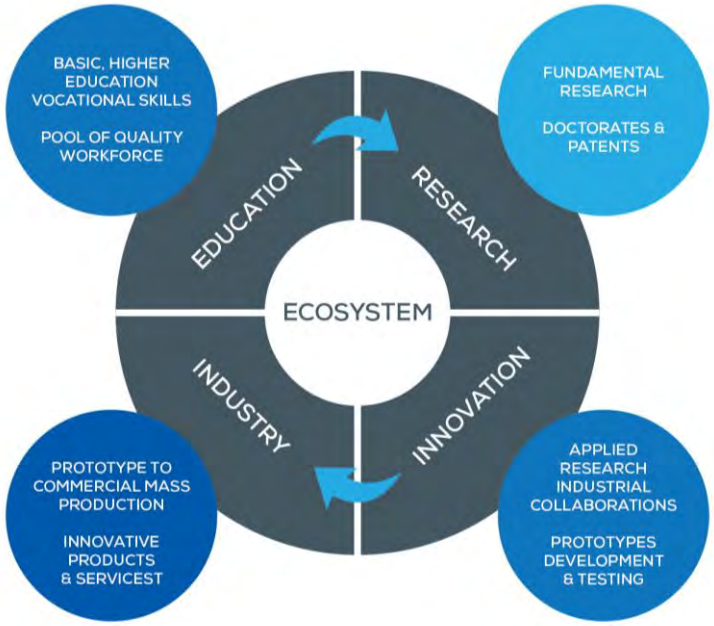
The barriers to innovation are particularly challenging for small business (<20 employees).

Research suggests that Australian business is not an innovation leader but an innovation follower, the majority of innovation-active businesses introducing '**new-to business**' innovation by adopting goods and services introduced by others (DIIS, 2016). Notwithstanding Australia's overall poor **new-to-market** ranking against OECD countries, several sectors perform well on new-to-market innovation, specifically *Manufacturing and Wholesale Trade* sectors.

Role and Location of Innovation Clusters

An 'innovation ecosystem' is an environment that allows a network of interconnecting and interacting participants to mutually drive innovation outcomes. The importance of an innovative business culture is a given. Relevantly, the issue is whether innovation activity is dependent on physical location within a 'hub' or 'cluster' or if there are broader factors (not related to geography) that influence the capacity of businesses to implement innovative practices.

Figure ES.1: Innovation Ecosystem



An innovation ecosystem *does not* require a 'tight' geographic location to be effective. Where an innovation system is in place, i.e. there is collaboration between participants, genuine desire by business and industry to improve their innovation capacity and available research skills, an environment conducive to innovation can be fostered even on a regional basis. On this basis, accessibility to transport, labour, clients and suppliers is the major locational driver.

Opportunity in Cumberland

Business and Supply Chain Clusters

This is the greatest opportunity for Cumberland's employment and innovation lands to support innovation. This could be on an individual asset level or at a regional level is a site is of significant scale.

Cumberland's natural locational qualities, serviced by the orbital and arterial road networks positions it well to play a major role in accommodating a range of innovative businesses and their supply chain networks. Businesses can service metropolitan Sydney from a base central to the '3 cities' - Parramatta, Sydney and future Badgerys Creek.

Most business and supply chain clusters occur at a regional level and support a range of sectors including those of Advanced Manufacturing, Food & Beverage Manufacturing and Freight & Logistics. Cumberland's lands already accommodate regional and site-specific clusters that facilitate individual business supply chains.

Innovation will occur in different ways depending on the sector and individual business circumstances. Building an Innovation System in Cumberland will be key to assisting existing businesses implement innovation as well as attracting new businesses to a mutually supportive culture of innovation.

Research and Development

R+D clusters are catalysed by a university, hospital or research organisation. An education cluster exists at Lidcombe where university and vocational institutions USYD and TAFE are. This presents a natural opportunity for partnerships between education and industry to collaborate and build the skills base of future workforce.

The location of TAFE and Council's community centre at Granville presents an excellent opportunity for the establishment of a Learning Precinct specifically to foster a culture of collaboration and innovation in Cumberland. Strategic partnerships with Western Sydney University (Launch Pad), USYD, TAFE as well as industry research partners and businesses will be necessary to develop a programme of events/opportunities to foster learning and collaboration between companies and individuals to promote innovation outcomes.

Technology and Creative Industries

As the Central City continues to rise in significance, so will the need to accommodate and grow high knowledge and creative jobs. Creative industries typically gravitate to non-traditional commercial accommodation where the environment combines retail amenity, good pedestrian and transport access and other support infrastructure such as quirky and unique spaces within which to recreate.

As a location that offers good proximity and access to the Central City, Cumberland's employment and innovation lands can be positioned to accommodate higher knowledge jobs that seek accommodation in a non-CBD setting with access to the arterial and orbital road network as well as proximity to unique retail and personal amenity.

Growing sectors such as advanced knowledge services, digital technologies/media and creative industries in Cumberland's employment and innovation lands will enable a diversification of the local economy and enable productive output from a greater number of sectors.

Artisan Industry

Cumberland's ethnically diverse resident population could be leveraged for their artisanal skills to contribute to the overall uniqueness and attractiveness of Cumberland. Artisanal skills could include: clothing and jewellery design, furniture restoration, bread and beer manufacture, curation of ethnic spices and herbs, pottery and sculpture, etc.

The growth of artisan industry and community can occur anywhere where rent is affordable and there is a mix of work space, storage and display areas for the public to visit. These locations should be close to existing centres where synergies can be built. Locales such as Regents Park and Parramatta Road (and areas off Parramatta Road such as Lidcombe and Granville) could be suitable for growing an artisan community.

CUMBERLAND EMPLOYMENT AND INNOVATION LANDS STRATEGY

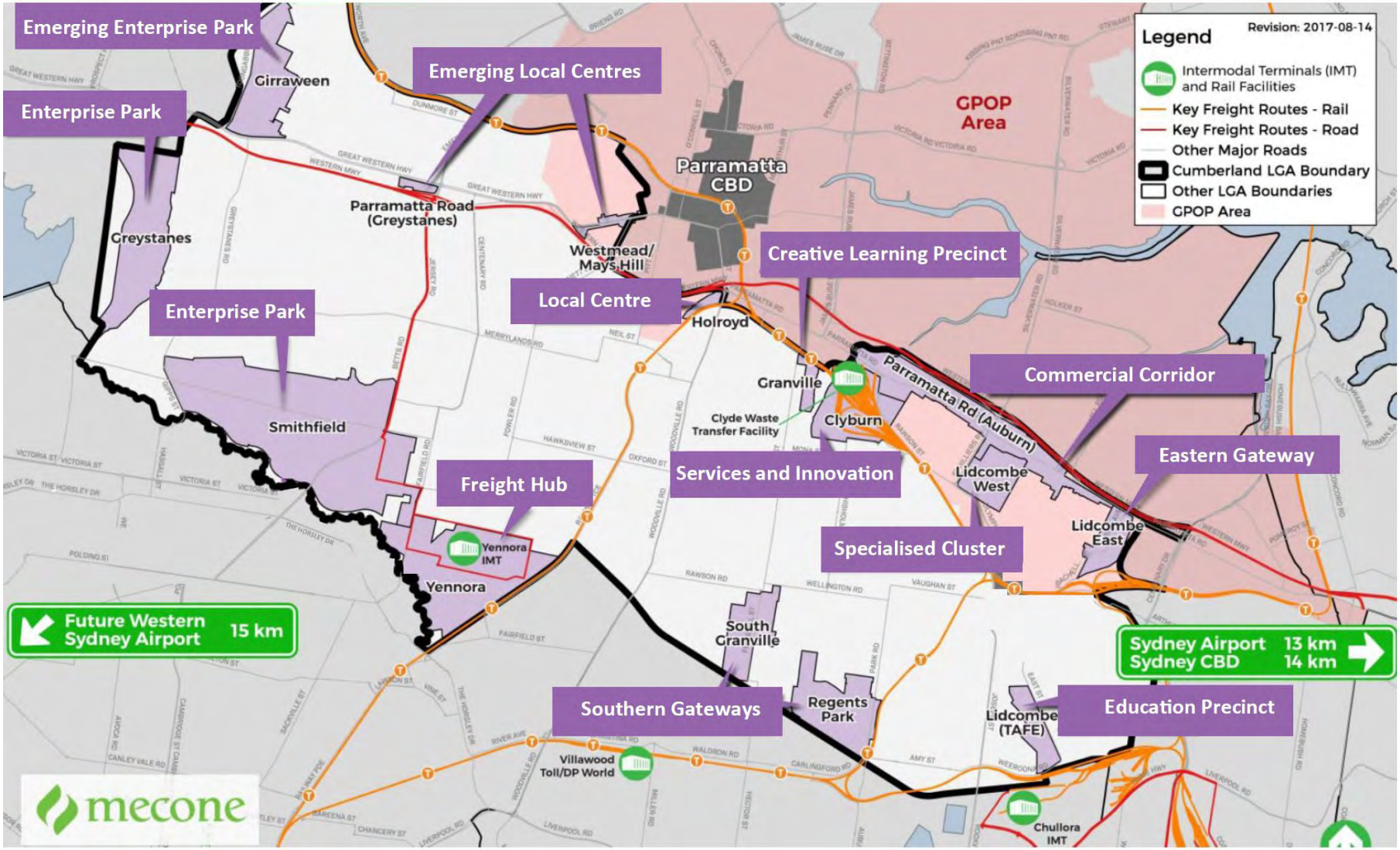
A strategic approach has been identified to support the future of employment and innovation lands in Cumberland. This includes the identification of precincts and focus areas of these precincts to support jobs and economic development in the area. Further details are provided in Table ES.1 and **Figure ES.2**.

Table ES.1: Key Focus Areas of Strategy by Precinct

Precinct	Name	Strategic Focus
1	Education Precinct	Education facilities and supporting services aligned with current and emerging industries in the region
2	Specialised Cluster	Potential for renewal including uses such as advanced knowledge and manufacturing, digital and creative industries (including food)
3	Services and Innovation	Maintain support service capability, e.g. train operations and support new service, research and innovation activities
4	Southern Gateways	Capitalise on strategic location for Sydney Metro south and southwest, retail and expand existing pharmaceutical industrial plus allied health, food/ beverage
5	Freight Hub	Promote strategic importance of this major hub, strengthen road and rail connections
6	Enterprise Parks	Established and emerging business parks building on existing industry specialisations and increasing digitisation of production
7	Emerging Local Centres	Smaller emerging centres supporting local growth, potential to target health, ancillary retail, food/ beverage as well as emerging sectors, e.g. artisan industries
8	Creative Learning Precinct	Focus on industry and business collaboration, and greater alignment of education sector to equip local population with new skills and innovation capacity
9	Commercial Corridor	Renewal with employment focus including advanced knowledge and creative industries, digital and advanced manufacturing
10	Eastern Gateway	Cluster of premium high-tech industrial units closely aligned with Commercial Corridor

Source: AEC

Figure ES.2: Cumberland Employment and Innovation Lands Strategy



Source: Mecone

IMPLEMENTATION

Planning policy is not a silver bullet. Economic development and investment attraction initiatives go in tandem with planning policy frameworks for effective growth and long-term sustainability.

Economic Development and Investment Attraction

Building an Innovation Ecosystem is about creating a culture of innovation, rather than a 'bricks and mortar' centre. Part of building a culture of innovation is getting businesses to collaborate with other businesses (suppliers, customers) and with researchers. It is about connecting businesses with the right skills and tools to identify where there are gaps in their processes or methods which could be improved.

Innovation is borne from a single individual, but is enabled and encouraged by skills development, engagement and interaction with others. Providing innovative environments and support systems can encourage innovative attitudes and support the development of new ideas and solutions. This environment will see innovation develop internally from those existing stakeholders, but also from those who relocate to Cumberland to facilitate their ideas.

There is a role for Council to assist in facilitating existing industry to identify what it is '*that they don't know*' to support innovation at the business level. Bringing together external expertise or cutting-edge research to address existing industry processes or problems is important in identifying where there may be new solutions to either old or assumed to be insurmountable problems.

Research suggests there is a regional disadvantage for Cumberland, conceivably a legacy of Western Sydney being perceived as secondary to Sydney. '**Brand Cumberland**' will be an important campaign to actively raise Cumberland's profile and reposition it in the minds of industry, businesses and investors.

A natural level of growth, expansion or new business should be expected to occur without intervention. Council however, can play an important role in influencing decision makers and facilitating the desired outcome.

Land Use Planning Framework

The Land Use Planning Framework (LUPF) cascades from high-level priorities at the LGA and sub-District level, through common strategies for employment clusters, to specific ideas for individual precincts.

A key aim of the LUPF is to set the right conditions for existing businesses to prosper, while encouraging the growth of target productive industries. It is recommended Council explore a number of tools and mechanisms that may be implemented through the planning system to unlock opportunities for more high-knowledge workers over time.

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GLOSSARY OF TERMS

ANZSCO Australian and New Zealand Standard Classification of Occupations (SCO) developed as a skill-based classification of occupation. The classification includes all jobs in the Australian workforce.

ANZSIC Australian and New Zealand Standard Industrial Classification (SIC) jointly developed by ABS and Statistics New Zealand to make it easier to compare industry statistics between the two countries with the rest of the world.

Business Sizes

According to the ABS:

- Large businesses are those employing 200+ persons
- Medium-sized enterprises are those employing 20 to fewer than 200 persons
- Small businesses are those employing between five and 19 persons
- Micro-businesses are those employing fewer than five persons
- Non-employing businesses are those run by their owners
- Small-to-medium sized enterprises (SMEs) are defined as businesses that employ one to fewer than 200 persons

Full-time equivalent (FTE) is a measure of the total level of staff resources used. The calculation of FTE for part-time staff is based on the proportion of time worked compared to that worked by full-time staff performing similar duties.

Industrial is defined under the NSW Standards Instrument Principal Local Environmental Plan as comprising:

> "…*the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity*." (NSW Government, 2016).

IVA stands for **Industry value-added** and is the amount by which the value of an article is increased at each stage of its production, excluding initial costs.

Innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

Innovation-active business is one that has undertaken any innovative activity irrespective of whether the innovation was introduced, still in development or abandoned during a reference period.

Innovation activities are scientific, technological, organisational, financial and commercial steps that actually or are intended to, lead to the implementation of innovation. Some innovation activities are in and of themselves innovative, others are not but are necessary for the implementation of innovation.

OECD stands for the Organisation for Economic Co-operation and Development which has 35 member countries (of which Australia is one) and was founded to providing a forum for member countries to compare policy experiences, work towards solving common problems, identify good practice and coordinate policy. Member countries include Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

Venture capital is a type of private equity, a form of financing to support early-stage start-up ventures that are considered to have high growth potential.

PART A: CUMBERLAND EMPLOYMENT AND INNOVATION LANDS STUDY (EILS)

1. INTRODUCTION

1.1 BACKGROUND

Cumberland local government area is in the Central City District and was formed in 2016, comprising parts of the former Holroyd, Auburn and Parramatta local government areas.

Cumberland's employment and innovation lands are zoned IN1 General Industrial, IN2 Light Industrial, B6 Business Development, B6 Enterprise Corridor and B7 Business Park. These lands accommodate a mix of traditional industries and technologically advanced businesses who mutually value the centrality of a Cumberland location.

The Central City District Plan identifies Cumberland's employment lands, some of which fall within the Greater Parramatta and Olympic Peninsula (GPOP) area.

Recognising the opportunity to transition the district's economy (and Cumberland's) into higher order and productive industries and the knowledge-intensive economy, Cumberland Council seeks to leverage its employment and innovation lands to increase economic efficiencies and ultimately grow Cumberland's local economy.

Importantly, Council seeks to develop an Innovation Ecosystem and grow the knowledge-intensive industrial sector in the following sectors:

- Digital industries.
- Advanced manufacturing.
- Food and beverage manufacturing.
- Design, media, creative arts and fashion.
- Allied health, research and development.

AEC Group and Mecone comprise a consultant team engaged by Cumberland Council to prepare the Cumberland Employment and Innovation Lands Study.

1.2 PURPOSE AND APPROACH

The Cumberland Employment and Innovation Lands Study (EILS) aims to promote firmer and innovative employment, business and economic outcomes for the Cumberland employment precincts.

The EILS responds to a number of important Council aspirations, including:

- Ensuring employment lands are sustainable, able to adapt to and accommodate changing needs of industry and business.
- Forming an Innovation eco-system and knowledge-intensive industrial sector.
- Fostering growth in priority productive sectors which will also leverage the diversity and skills of migrants.

The Study was undertaken using a two-stage approach described below.

Stage 1 - Competitive Positioning, Sustainability and Future Evolution

Stage 1 investigates the competitive standing of Cumberland, how sustainable its employment and innovation lands are and how it is placed to evolve to accommodate higher value and knowledge-intensive industries.

Under this stage a range of activities were carried out including the following:

- Baseline Research was undertaken and included:
    - Analysis of socio-economic and demographic data to understand the existing context of employment in the LGA.

  - Property market assessment to understand existing role and competitiveness of Cumberland's employment and innovation lands by precinct and locality.
  - Opportunity assessment outlining relative strengths and weaknesses.
- Industry Engagement (businesses, institutional investors, developers and real estate agents) to understand:
  - Changing nature of different business sectors and implications for location and floorspace requirements.
  - Approach to research and development, technology and innovation.
  - Employee strategies for attraction and retention.
  - Key decision criteria for location and investment.
- Economic and Market Research to examine:
  - Global and national trends and influencing factors of business and industrial activity.
  - Case studies of various industrial areas, high-tech business parks and technology clusters to understand respective success factors and requirements.
- Future Employment and Expectations to understand:
  - Employment projections modelling assuming status quo.
  - How Cumberland is placed competitively to grow productive sectors of employment and attract high-value and innovative businesses.

Stage 2 - Vision, Strategy and Land Use Planning Framework

Stage 2 identifies various interventions Council can consider in facilitating a culture of innovation and building an Innovation Ecosystem in Cumberland. The following were developed as part of Stage 2:

- Vision and Goals
  - Building on Stage 1, aspirational vision/s for Cumberland's employment and innovation lands were identified.
  - Barriers to the vision and interventions were also identified.
- Strategy and Implementation
  - An economic development framework for Council to assist in developing and fostering a culture of innovation was prepared.
  - Matters for consideration and initiatives Council can implement in supporting existing business and attracting new businesses to Cumberland were identified.
- Land Use and Policy Framework
  - A framework that suggests planning interventions that will support the vision themes for each locality was prepared.
  - Matters for consideration with regard to updates to the planning framework and statutory planning process were outlined.
  - Development typologies and built environment that align with the aspirational visions in select employment precincts were represented visually.

The EILS is about understanding the environment and economic conditions under which knowledge-based industrial sectors can develop and thrive over time. It is less about a mechanical process of modelling future employment and more about applying researched intelligence into interpreting what it means for employment in the future.

After identifying and understanding the conditions and requirements for innovation and knowledge-based industrial sectors, the project identifies appropriate changes to the planning framework to facilitate a conducive environment for investment and operation.

Planning policy is not a silver bullet. Economic development initiatives go hand-in-hand with policy frameworks for effective growth and change. The EILS incorporates not only recommendations for planning interventions but also for economic development initiatives.

1.3 SCOPE AND LIMITATIONS

The scope of the EILS is to develop a strategy and implementation plan for the positioning of Cumberland's employment lands to support innovation by industry. Considerations include:

- An aligned vision and planning approach for the employment and innovation lands in three former local government areas.
- The future of current industry in the precinct and how to capitalise on 'innovate and create' opportunities that may be apparent.
- Land use policy changes that may be required to promote innovation in industry and ensure suitable use of available of underutilised land.
- The barriers that may prevent businesses from transitioning to higher technology and knowledge bases, and solutions on how to mitigate the implications of these barriers.
- Initiatives to grow and target for key sector investment in the precincts, including those that may already be operating there.
- Opportunities (including infrastructure needs) that would make the employment and innovation lands more attractive to potential investors.
- Consideration of a collaborative networking mechanism that can coordinate business and government efforts to implement the vision and actions developed in the strategy.

The EILS has acknowledged that planning policy is not a silver bullet for an Innovation Ecosystem. Furthermore, the generic application of planning controls can be a crude approach to approximating the needs of business which are different.

The EILS highlights the limitations of non-targeted consultation with businesses and local landowners. Interviews carried out as part of the Study were a result of random telephone calling, which in some cases resulted in shortened interviews.

2. STRATEGIC CONTEXT

This Chapter provides an overview of the characteristics of the employment and innovation lands comprised in the Cumberland LGA (referred to interchangeably as “Cumberland”, “Cumberland LGA” and “Study Area”).

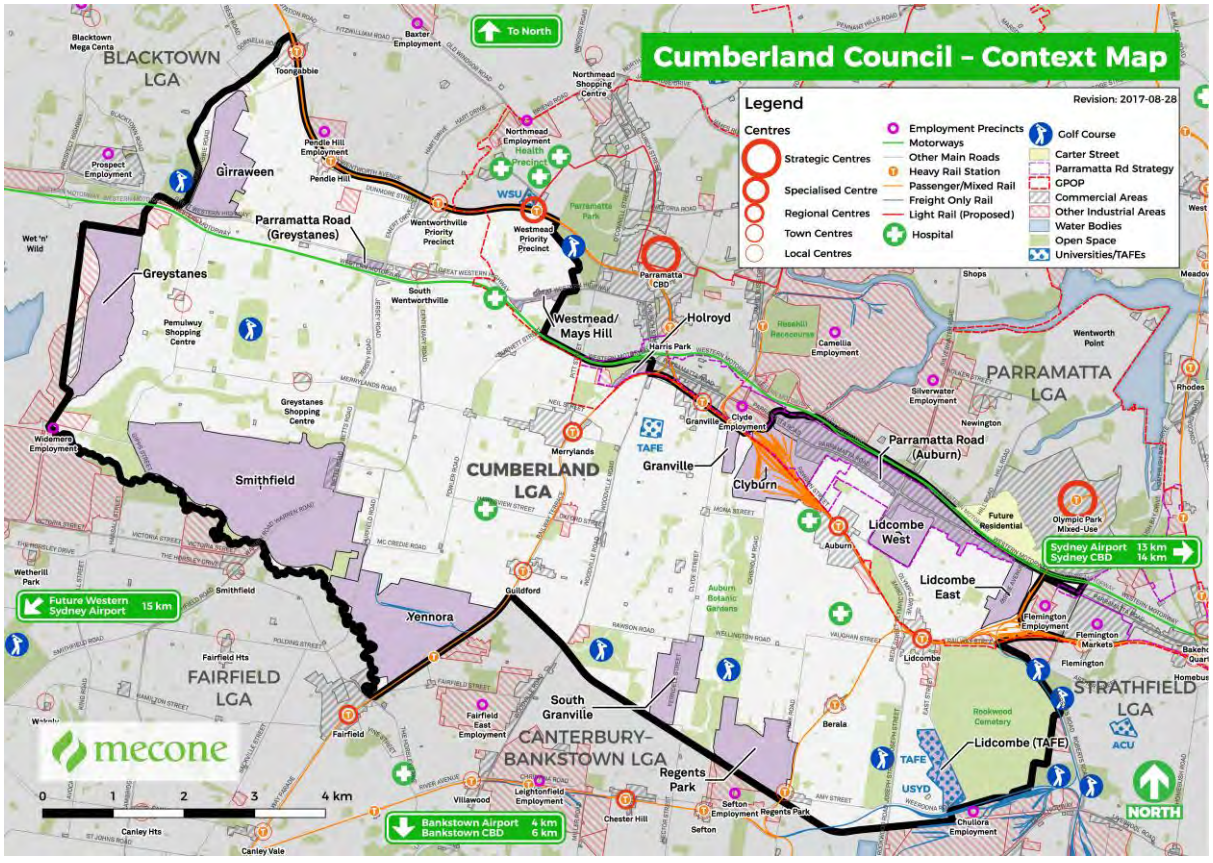
2.1 LOCATION

The Cumberland LGA is strategically located in the Central City District, less than 5km south of Parramatta CBD and approximately 20km west of Sydney CBD. The new Western Sydney Airport at Badgerys Creek will be approximately 30km to the west of Cumberland.

Cumberland’s employment and innovation lands are depicted in **Figure 2.1** and are well serviced by Sydney’s road and rail network. It benefits from the orbital road network (M4 and M7 Motorways) and the arterial road network (Parramatta Road, Cumberland Highway, Woodville Road/Hume Highway, The Horsley Drive as well as passenger and freight rail networks.

The Yennora intermodal terminal (IMT) is located in Cumberland while Chullora and Enfield IMTs are outside the local government boundary to the south.

Figure 2.1: Location Context



Source: Mecone

2.2 PLANNING AND POLICY CONTEXT

This section provides an analysis of current strategic planning and policies relevant to Cumberland, and particularly those strategies dealing with the economy and productivity of Sydney.

A summary of the existing statutory planning framework relevant to the employment and innovation lands is also provided.

2.2.1 Metropolitan Strategic Planning

The Greater Sydney Commission (GSC) released the Greater Sydney Region Plan A Metropolis of Three Cities in 2018. This vision is illustrated in **Figure 2.2**.

Figure 2.2: The Metropolis of Three Cities

Source: Greater Sydney Commission (2018a)

The three cities are characterised by the GSC as follows:

- The established **Eastern City** is the currently established Sydney City and economic corridors to its north through to Macquarie Park and south through Sydney Airport and Port Botany to Kogarah.
- The developing **Central City** with Greater Parramatta and the Olympic Park Peninsula at its heart is anticipated to experience the most significant urban transformation over the next 10 to 15 years.

  By 2036, it will be one of Greater Sydney's administrative and business centres, and the Westmead health and education precinct will continue to grow and lead best practice in medical and education-related industries.

  The strategy indicates that the Central City will offer more opportunities for 21st Century smart jobs, build its own global brand and, with planned transport investments, be an easier place to get to and move around in.
- By 2056, the Western Sydney Airport will be the focus of the emerging **Western City**.

TfNSW also developed the Future Transport Strategy and Infrastructure NSW reviewed the State Infrastructure Strategy for a more integrated land use and infrastructure outcome for Greater Sydney.

Under the Greater Sydney Region Plan, the directions that relate to strategic planning for the Cumberland employment and innovation lands include those for a well-connected city and jobs and skills for the city.

How these directions would likely be transformed by the 'three cities' strategy include:

- **Grow Greater Parramatta**: Greater Parramatta includes areas to the south in Cumberland, including Granville, Wentworthville and Clyde. Cumberland's employment and innovation lands will play a role in supporting the success of the Parramatta CBD as the core of the Central City.
- **Transform the productivity of Western Sydney through growth and investment**: Though there is no specific reference to the Cumberland, this section is generally relevant and aligns with Cumberland Council's aspirations to attract new smart jobs.
- **Enhance Capacity at Sydney's gateways and freight network**: Includes the Yennora Intermodal Terminal and recommends the inclusion of buffers around key locations for the freight network.
- **Expand the Global Economic Corridor**: The Global Economic Corridor ends at Parramatta CBD and Sydney Olympic Park, just north of Cumberland. If Parramatta CBD is the new Central City, then it follows that the economic corridor should radiate out from the CBD rather than be limited to one side.
- **Support priority economic sectors**: Support key industrial precincts with appropriate planning controls. The Industrial Lands Strategic Assessment Checklist under the previous metropolitan plan provided guidance in relation to the rezoning of industrial lands. It allowed for evidence-based decisions and aimed to prevent encroachment on important industrial sites. This included the employment and innovation lands in Cumberland.

With the release of the Greater Sydney Region Plan, industrial land in the Central City District is to be 'reviewed and managed' as part of the strategic approach to be adopted.

2.2.2 Central City District Plan

The Central City District Plan proposes a 20-year vision for the Central City District which includes Cumberland, as well as Blacktown, Parramatta and The Hills councils. The District Plan was released in 2018, as a means of implementing the strategies and directions in the Greater Sydney Region Plan at the district level, whilst also acknowledging the new direction for the strengthened Central City.

The Central City District Plan identifies the Central City District as the fastest growing district for population. As such, the district will need a complementary employment structure to support that growth. The District Plan also identifies the District will be:

> "*leading the transformation of Greater Sydney and the national economy from industrial to innovation technologies and techniques*."

Greater Parramatta and the Olympic Park Peninsula (GPOP) will sit at the heart of the Central City District. Cumberland will play an important supporting role to the Parramatta CBD and GPOP in terms of providing the surrounding jobs and also housing the working population.

The Central City District is home to more than 21% of Greater Sydney's population, approximately 18% of its jobs, and generates an estimated 18% of Greater Sydney's economic activity.

The District Plan identifies the key economic assets in the Central City District, including GPOP, and the advanced manufacturing capabilities in Blacktown, Rydalmere, Silverwater, Camellia and Norwest. Though most of these assets are located outside Cumberland, they are nearby and linked by the transport network.

The employment and innovation lands in Cumberland contribute to key economic assets in the district, due to:

- The connectivity to the established Eastern City and proximity to the planned Western City and Western Sydney Airport.
- A growing, young and well-educated population.

Priorities and Actions

The District Plan identifies relevant priorities and actions for the District.

- **A Productive City**
  The District Plan aims to grow the Central City District's economy and identifies District and Strategic Centres for the growth in smart jobs. Cumberland currently does not include any identified Strategic or District Centres, and as such has not been included specifically in these productivity priorities:

  "*As the District grows, there is a significant opportunity to increase the share of knowledge and professional services jobs and health and education jobs, to diversify employment opportunities, particularly for young people entering the workforce*."

  Cumberland's employment and innovation lands present a significant opportunity to respond to the transforming nature of businesses given its proximity to the Central City and accessibility to the transport network and subsequently the Central and Western Cities.

  The employment and innovation lands in Cumberland could play a role in providing high value jobs in accessible areas to improve on the notion of a '30-minute city'.

- **Coordination of freight activities with land use planning**
  The Central City District includes a range of important freight corridors and facilities that play a key role in freight movement around Greater Sydney and to regional locations.

  A future Western Sydney Freight Line through the southern part of the Central City District will make the surrounding industrial precincts such as Yennora even more accessible and valuable for freight, warehousing and logistics businesses.

- **Better understanding of the value and operation of employment and urban services land**
  Employment and urban services land supports activities that are critical to Greater Sydney's productivity, sustainability and liveability. The District Plan identifies the need to protect and support employment lands (industrial and business zones), to manage these lands for future activities.

  The District Plan also identifies that that the nature of employment and urban services lands is changing as technologies and new industries emerge. Precincts are evolving into complex 'employment lands' distinct from 'industrial land':

  Planning Priority C11 relates to maximising opportunities to attract advanced manufacturing and innovation in industrial and urban services land. Planning, retaining and managing industrial and urban services lands is a key objective of the District Plan.

Statutory Considerations of the District Plan

Section 3.8 of the EP&A Act requires local environment plans (LEPs) to be updated to give effect to each District Plan as soon as practicable after a District Plan is made. They also guide the preparation of planning proposals under Part 3 of the Act. It also guides the preparation of the Local Strategic Planning Statement prepared by local councils.

2.2.3 Greater Parramatta Interim Land Use and Infrastructure Implementation Plan

The Department of Planning and Environment (DPE) released the Greater Parramatta Interim Land Use and Infrastructure Implementation Plan (the Interim Plan) in July 2017. The Interim Plan identified the significant planning for jobs homes and essential services that is being undertaken in the area and identified it as a Priority Growth Area.

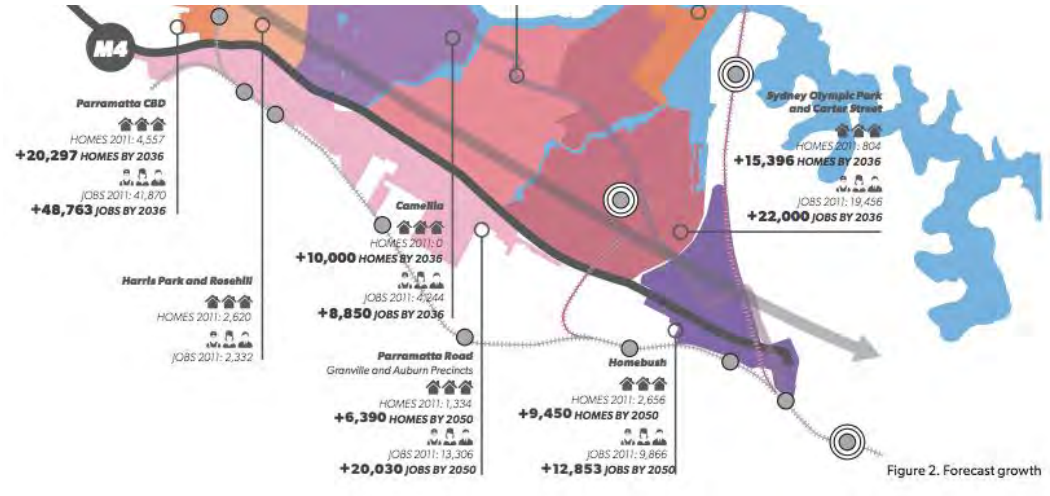
The Interim Plan forecast more than 72,000 additional dwellings and more than 113,000 additional jobs within the priority growth area over the next 20 years. The Interim Plan also acknowledged that work currently being undertaken by the NSW Government estimated that the Priority Growth Area had the capacity to accommodate more than 100,000 additional dwellings and 300,000 additional jobs.

While the Priority Growth Area is focused around Parramatta CBD and the GPOP, some of the peripheral areas include some of the Cumberland employment and innovation lands - the Parramatta Road Auburn and Granville precincts, as well as the Lidcombe industrial zoned areas.

The Interim Plan reflected the NSW Government's 30-year plan for the Parramatta Road Corridor.

Though they are geographically peripheral to the GPOP area, the figure below shows the significant growth being planned for in these employment and innovation lands. By 2050, Granville is projected to provide 5,390 new homes and 7,190 new jobs and Auburn is projected to provide 1,000 new homes and 12,840 new jobs.

Figure 2.3: Forecast Growth, Parramatta Interim Land Use and Infrastructure Implementation Plan



Source: Department of Planning and Environment (2017)

The Interim Plan identified that Government would work with council to implement the Parramatta Road Corridor Urban Transformation Strategy, though the Granville and Auburn Precincts were not nominated for immediate action.

The Interim Plan also identified the actions required to commence planning for the Wentworthville and Westmead Planned Precincts located in the south west of the Growth Areas. The Cumberland Local Government Area has employment areas that would be located on the edges of these Planned Precincts and has the opportunity to work with Government to support growth in the Planned Precincts.

2.2.4 Parramatta Road Corridor Urban Transformation Strategy

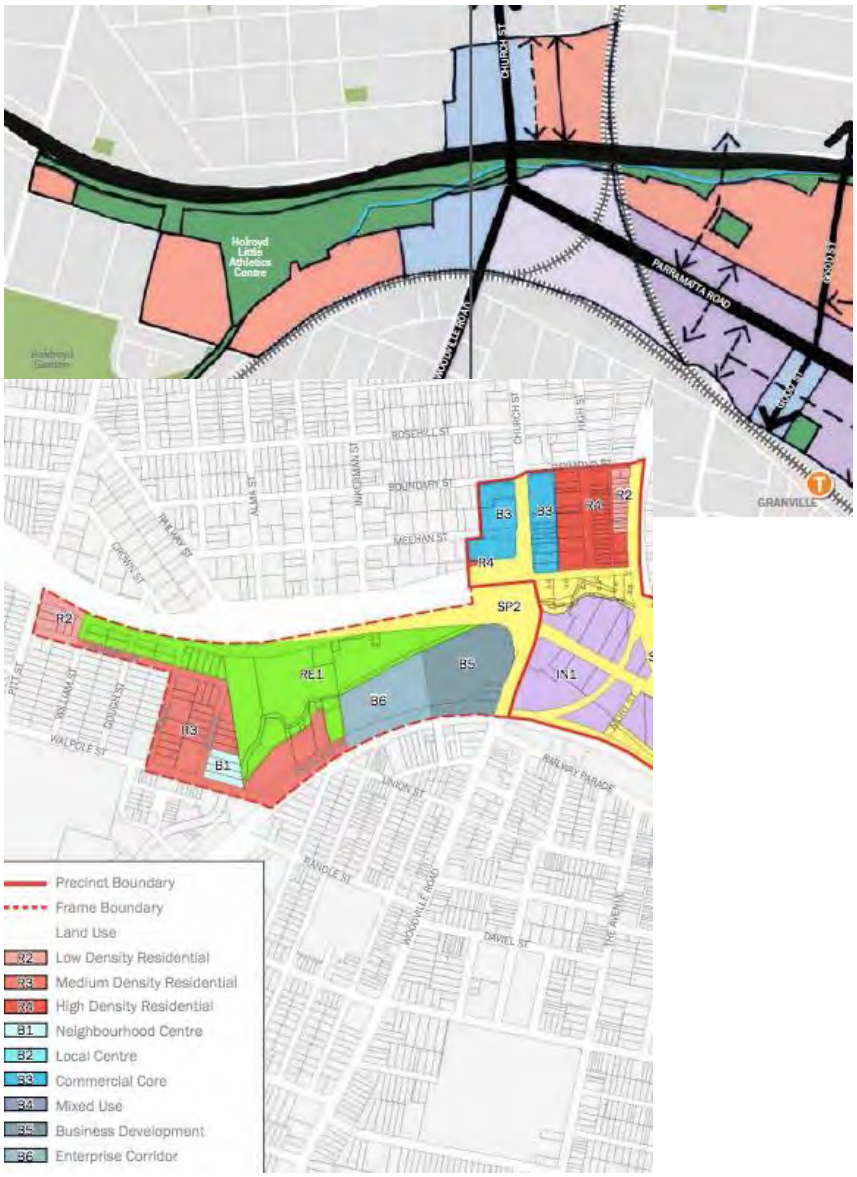
The Parramatta Road Corridor Urban Transformation Strategy (PRUTS) was finalised in November 2016. PRUTS identified the following recommendations for the two Parramatta Road Precincts located in Cumberland - the corridor west of Granville Precinct and Auburn Precinct.

The Granville Precinct

The Granville Precinct adjoins the Holroyd Sportsground and includes Cumberland's Holroyd employment lands. The strategy recommended:

- Residential and Enterprise/Business zones.
- 7,200 new jobs and 5,400 new homes by 2050 in the whole precinct.
- Key actions: Employment uses and residential uses fronting Holroyd Sportsground, west of Woodville Road.

Figure 2.4: Granville Precinct Recommended Planning Control Amendments



Source: UrbanGrowth (2016)

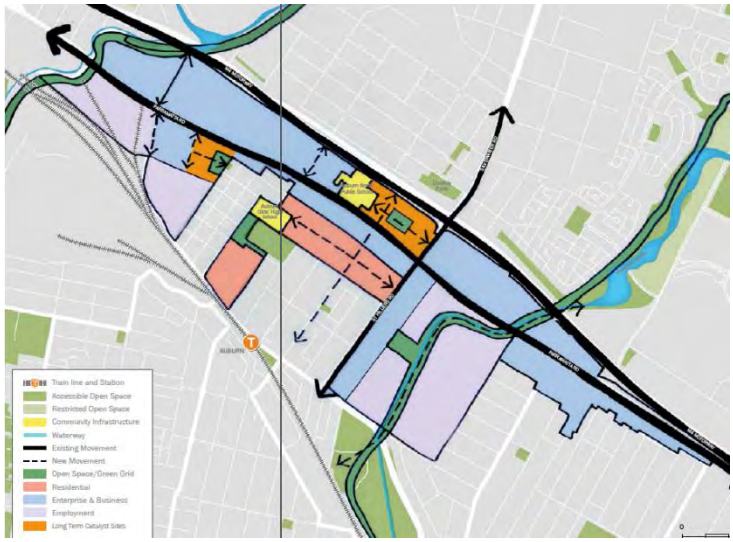
Figure 2.4 show the employment and innovation lands precinct in Cumberland, noting the recommendation to zone the land part B6 Enterprise Corridor, B5 Business Development, and residential.

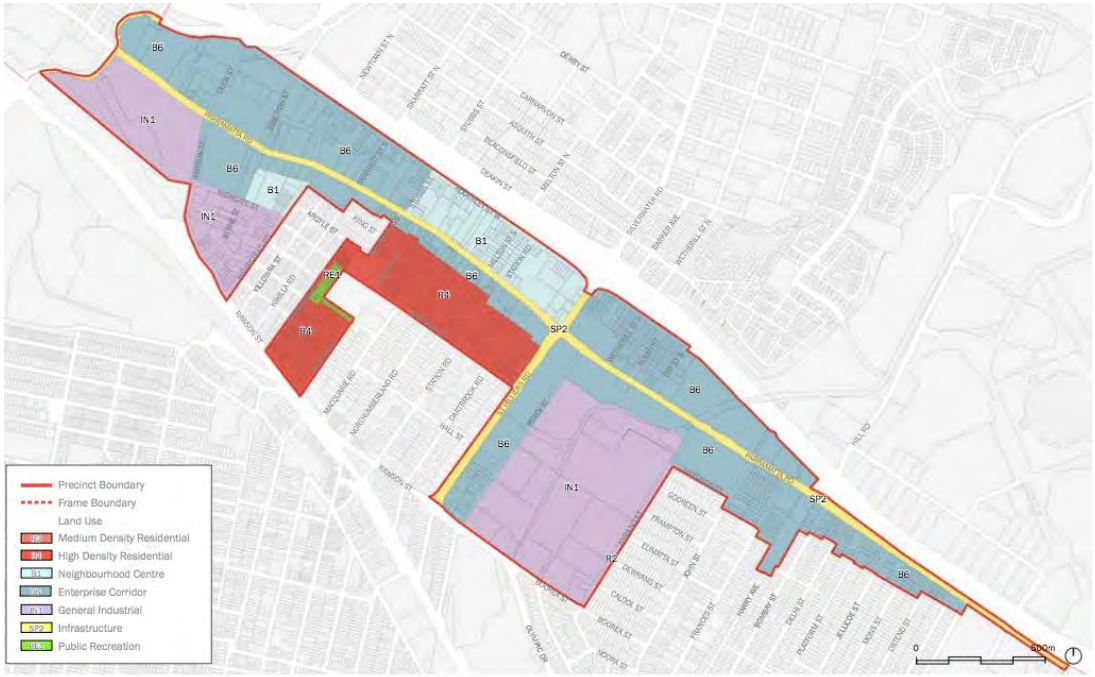
The Auburn Precinct

The Auburn Precinct includes the Lidcombe West and Parramatta Road (Auburn) employment lands in Cumberland. The PRUTS recommended:

- 12,800 new jobs by 2050.
- An increase in Auburn's role for regional employment and large format retail by retaining and growing jobs that respond to the changing needs of Sydney's economy.
- Facilitating more efficient and diverse employment uses, including emerging sectors and new innovative industries.

Figure 2.5: Auburn Precinct Recommended Planning Control Amendments





Source: UrbanGrowth (2016)

Note the main difference between the existing zoning and PRUTS relates to the Lidcombe West employment area. PRUTS recommends the industrial land be rezoned B6 Enterprise Corridor for the length of St Hilliers Road.

2.2.5 Greater Parramatta and Olympic Park Peninsula

The Greater Sydney Commission proposes a vision for the Central City with GPOP, the Greater Parramatta and Olympic Peninsula, at its heart. The four quarters of GPOP are:

1 Parramatta CBD and Westmead Health and Education Super Precinct;

2 Next Generation Living from Camellia to Carlingford;

3 Essential Urban Services, Advanced Technology and Knowledge Sectors in Camellia, Rydalmere, Silverwater and Auburn;

4 Olympic Park Lifestyle Super Precinct.

Cumberland adjoins the GPOP area to the south and includes the Auburn employment lands. Cumberland will have an important role to play in supporting the economic vision for GPOP.

2.3 PRECINCT CHARACTERISTICS

The Study Area is characterised by a mix of uses and built forms of varying sizes, quality, layout and age, which together typify the growth and evolution of the area over time.

In order to understand the nature of the Study Area's composition, it is necessary to consider separately the sub-precincts in terms of planning controls, built form and key business activity.

Table 2.1 contains a summary of each precinct's characteristics.

Table 2.1: Description of Employment and Innovation Lands

Precinct	Location	Building Types	Lot Sizes	Key Occupiers	Land Uses	Vacancy Levels	General Presentation
Lidcombe Education	• 8km south-east of Parra. CBD and 14.5km west of Sydney CBD • Adjacent the Rookwood Cemetery and south of M4 and Parramatta Road • Accessible from: o East Street o Joseph Street o Weeroona Road	• Industrial warehouses • Small format industrial suites • Educational campus-style buildings	• Range of industrial lot sizes from 1,300sqm to 1.4ha • Largest two lots comprise the TAFE and USYD campuses (circa 14ha and 18ha)	• University of Sydney • Lidcombe TAFE College • Royal Australian Air Force • Parsons Engineering Pty Ltd	• Education and training • Industrial supplies • Light manufacturing • Warehousing, distribution & storage	• Sub 5% • Stock available is mostly aged, large warehouses	• Well-presented location benefiting from amenable landscaping provided by the 2 education campuses
Regents Park	• 7km SE of Parra. CBD • Approximately 1.6km from A6 (Joseph Street) and 2.7km from Hume Highway • Accessible from: o Regents Park train station o Park Road o Chisholm Road o Amy Street • Auburn Road	• Large industrial sheds and factory buildings • 1-2 storey 'business park' warehouses/office space • Small format industrial suites	• Dominated by smaller lot sizes (<5,000sqm) • Industrial land (circa 32.5ha) directly north of the Regents Park train station (Regents Park Estate) is held under single ownership (Dexus).	• JLG • Thomas Global Systems • Boral Timber • Enerpac • IPD Group • Mongrel Boots • Incite Fire • Tom & Franks Wholesale Fruit & Vegetables • Bed Bath Linen • Boom Logistics	• Warehousing, distribution & storage • Light manufacturing • Engineering and food science • Food and beverage manufacturing	• Sub 5% • Vacancies are observed within the Regents Park Estate with availabilities ranging from 800sqm to 9,000sqm floorspace	• Mix of aged and newer industrial buildings • Well-maintained streetscape with good presentation • Number of head offices and clean industrial users
South Granville	• 5.2km south of Parra. CBD • Approximately 3km from Hume Highway and 3.5km from Great Western Highway and M4 • Accessible from: o Clyde Street o Wellington Road o Rawson Road • Hector Street	• Large industrial warehouses • 1-2 storey warehouse/offices • Smaller format industrial buildings	• Medium and large lot sizes, ranging from 6,500sqm to 10ha	• Merck Sharp Dohme • British American Tobacco • Bluescope • M&E Equipment Traders Pty • Hume • Tutt Bryant Equipment • VIP Packaging	• Warehousing, distribution & storage • Industrial supplies • Light manufacturing • Food and beverage manufacturing	• Sub 5% • Vacant stock is mostly aged warehouse buildings in excess of 1,000sqm floorspace	• Mix of aged and newer industrial buildings • Well-maintained streetscape with good presentation • Lack of heavy or dirty industrial users
Yennora	• 5.5km south of Parra. CBD • Approximately 2.5km from Hume Highway and from Cumberland Highway • Accessible from: o Yennora train station o Fairfield Road o Military Road o Pine Road	• Large storage sheds and warehousing • Purpose-built industrial facilities, e.g. gas storage plant • Smaller format industrial buildings	• Range of lot sizes, ranging from <1,000sqm up to 12ha	• DB Schenker • Woolworths • Coregas • Australian Wool Exchange • WA Freight Group • CDM Logistics • Akar Halal Meats • My Muscle Meals	• Warehousing, distribution & storage • Gas storage • Light manufacturing • Food manufacturing • Auto services	• Sub 5% • Stock available is mostly aged, large warehouses • Number of pre-leasing opportunities available	• Mainly old warehouses and smaller industrial buildings • Poor aesthetic appeal

Precinct	Location	Building Types	Lot Sizes	Key Occupiers	Land Uses	Vacancy Levels	General Presentation
Smithfield	• 6km SW of Parra. CBD • Directly west of Cumberland Highway and south of The Horsley Drive, providing linkages to the M4 and M7 • Accessible from: o Cumberland Highway o Gipps Road • The Horsley Drive	• Large storage sheds • High-clearance strata suites • Aged factory buildings • Hardstand bitumen sealed yards	• Range of small lots (2,000sqm-8,000sqm) and large lots (>7ha) • Number of smaller strata suites	• Visy • Coca Cola Amatil • Northline Transport • Hettich Australia • Boral Concrete • TFO Tile Factory Outlet • Teco Australia • ANZPAC • XL Express	• Manufacturing • Warehousing, distribution and storage • Industrial supplies • Large formal retail • Auto services	• Sub 10% • Vacant stock is mostly aged industrial warehouses >1,000sqm	• Mix of aged and new warehouses • Fair presentation and streetscape • Negative connotations due to some land uses (e.g. sex service premises)
Lidcombe West	• 5km east of Parra. CBD • Directly south of the M4 and Parramatta Road • Accessible from: o Parramatta Road o M4 Motorway o St Hilliers Road o Olympic Drive o Nyrang Street	• Large industrial sheds and purpose-built factory buildings • 1-2 storey 'business park' warehouses/office space • Big box retail sheds	• Largely dominated by large lot sizes (3ha-9ha) • Small number of smaller lots ranging from 700sqm to 3,000sqm	• Lion Nathan • Bevchain • Kennards Self Storage • Offset Alpine Printing • Complete Office Supplies • Thomas & Betts • AirRoad Direct	• Food and beverage manufacturing • Warehousing, distribution & storage • Self-storage and vehicle hire • Light manufacturing • Industrial supplies	• Circa 10% • Vacancies most dominant along St Hilliers Road given age of warehouses and low-clearance heights	• Tooheys site dominates the precinct • Mainly old sheds and industrial buildings • Limited modern industrial suites
Corridor West Auburn	• 3km SE of Parra. CBD • Located along Parramatta Road between Rawson Street and St Hilliers Road	• Large format retail showrooms • Retail home centres • High street retail buildings	• Small lots prevalent along southern side of Parramatta Road (sub 1,000sqm) • Larger lots on northern edge of Parramatta Road (3,000sqm-8,000sqm)	• Harvey Norman • Officeworks • The Good Guys • Supercheap Auto • Nick Scali • Godfreys • Domayne • Nike • Victoria's Basement • Baby Bunting • Coco Republic	• Bulky goods retailing • Auto services	• Generally low however a number of aged buildings have prolonged vacancy levels.	• Lack of urban amenity with heavy traffic volumes creating a generally unfriendly pedestrian environment
Clyburn	• 2.3km SE of Parra. CBD • Located between Clyde train station and Parramatta Road • Accessible from: o Clyde train station o Parramatta Road o M4 Motorway o William Street	• Small industrial factory units • Large warehouse sheds • Big box retail sheds	• Dominated by smaller lot sizes circa 400sqm to 800sqm • Small number of large lots circa 1.5ha to 3ha	• Toll • Mitsubishi Motors • Autotech Engineering • Pedders Suspension • Hertz • Doors Plus • Milcom Institute	• Automotive services and vehicle hire • Warehousing, distribution & storage • Bulky goods retail • Industrial supplies	• Circa 10% • Space available is typically aged former factory buildings with low clearance heights	• Dominated by aged factory units and small format warehouses • Lack of public carparking generates significant congestion on the small narrow roads
Greystanes	• 7.5km west of Parra. CBD	• Modern distribution centres	• Large lots ranging from 6ha-12ha	• Toll • Hitachi • Boral	• Warehousing, distribution & storage	• Sub 5% • Stock is mostly part of the 'Quarry'	• New modern warehouses with

Precinct	Location	Building Types	Lot Sizes	Key Occupiers	Land Uses	Vacancy Levels	General Presentation
	• Directly south of Great Western Highway and M4 Motorway • Accessible from: o M4 Motorway o Prospect Highway o Reservoir Road	• Climate controlled warehousing • 1-2 storey warehouses/offices • Large factories • Big box retail sheds		• Makita • Fujitsu Data Centre • Toshiba • Blackwoods • Home Timber & Hardware	• Industrial supplies • Retail of hardware supplies • Light manufacturing	development with the landlord (Dexus) undertaking a selective tenant process	ancillary office and retail space • Well presented with attractive streetscapes • Vacant parcels will be developed in coming 12-18 months
Girraween	• 6km west of Parra. CBD • Directly north of Great Western Highway and M4 Motorway • Accessible from: o Great Western Highway o Toongabbie Road o Gilba Road o Mandoon Road o Magowar Road	• Large storage sheds • 1-2 storey warehouse/offices • Hardstand bitumen sealed yards	• Range from 2,000sqm to 8,000sqm • Number of smaller strata suites	• Baiada Poultry • Cordina Chicken Farms • Bidfood Logistics • Kennards Hire • Interflow • Trend Windows & Doors • Rent-A-Space Self Storage	• Chicken hatcheries and meat wholesaling • Industrial supplies • Self-storage and vehicle hire • Light manufacturing • Auto services	• Sub 5% • Vacant stock is mostly aged suites under 500sqm with low clearance heights	• Mainly old warehouse and strata suites • Poorer aesthetic presentation compounded by older and aged buildings.
Corridor West Holroyd	• 1.4km south of Parra. CBD • Located between the T5 Cumberland rail line and the M4 Motorway. • Accessible from: o Walpole Street o Crescent Street o Woodville Road o Parramatta Road	• 1-2 storey warehouse/offices • Hardstand bitumen sealed yards	• Small total number of lots; most are sized from 2,000sqm to 5,000sqm • Largest lot is circa 4ha	• WesTrac • Stone Design • Hanson • Niagara • Revolution X Performance Centre • Fullers Mobile Cranes	• Construction equipment suppliers • Gym and fitness centre • Building material supplier	• All buildings are understood to be fully occupied	• Dominated by the WesTrac site • Well-maintained streetscape with good presentation
Westmead (Mays Hill)	• 1.7km west of Parra. CBD • Located along the Great Western Highway	• Single storey detached dwellings • Auto mechanic workshops developed into mixed-use	• Small lot sizes ranging from 400sqm to 1,000sqm • Few larger sites up to 4,000sqm	• Westmead Auto • BAS Satellite TV • U-Haul Trailer Hire • BP	• Auto services • Vehicle and parts hire • Service station	• All buildings are occupied; many being acquired for residential/mixed-use redevelopment	• Low-density housing dominates the Precinct • Former single storey commercial buildings developed into mixed use buildings
Great Western Highway (Greystanes)	• 4km west of Parra. CBD • Located between the Great Western Highway and M4 Motorway • Accessible from: o Great Western Highway o M4 Motorway o Jersey Road	• Large industrial storage sheds • 1-2 storey warehouse/offices	• Lot sizes range from 1,500sqm to 1.65ha	• Kennards Self Storage • Autobahn Driving School • ColorTile Wentworthville • Kelso Building Trade Centre	• Self-storage • Construction wholesalers	• All buildings are understood to be fully occupied	• Mix of modern and aged bulky goods retail buildings/warehouses
Granville	• 2.3km south-east of Parra. CBD	• Large storage sheds • Aged factory buildings	• Dominated by large lots (1.3ha-5.5ha)	• Tabcorp • Australia Post • SIGMA	• Warehousing, distribution & storage	• All buildings are understood to be fully occupied	• Dominated by aged factory units and warehouses

Precinct	Location	Building Types	Lot Sizes	Key Occupiers	Land Uses	Vacancy Levels	General Presentation
	• Directly south of Granville train station and Parramatta Road • Accessible from: o William Street o Clyde Street	• Large single storey commercial buildings		• Knorr Bremse Australia Pty	• Industrial supplies • Auto services		• Narrow residential roads which are typically congested

Existing Planning Framework

The Cumberland LGA comprises parts of three previous local government areas, and as such there are three relevant Local Environmental Plans (LEPs) that provide planning controls for the employment lands:

- Holroyd Local Environmental Plan (2013).
- Parramatta Local Environmental Plan (2011).
- Auburn Local Environmental Plan (2010).

The employment and innovation lands are all zoned either 'Industrial' or 'Business', except the TAFE Lidcombe lands, which are zoned R3 Medium Density Residential in line with the adjoining land. It is noted that each of the former councils included a slightly different set of permissible and prohibited land uses and density controls for each zone.

A summary is provided in Table 2.2 with commentary on the differences in permissible and prohibited land uses and notable density controls.

Table 2.2: Statutory Planning Controls by Precinct

Precinct	LEP	Zone/Height/FSR	Comment
Lidcombe Education	Auburn	R3 Medium Density Residential HOB 9m, FSR 0.75:1	Commercial premises are prohibited
Regents Park	Auburn	Predominantly IN1 General Industrial HOB n/a, FSR 1:1 Small portion IN2 Light Industrial along Park Road, HOB n/a, FSR 1:1	Retail premises as a group term is prohibited, however garden centre, hardware and building supply, kiosks, markets are permissible with consent. Restaurants or cafes are permissible.
South Granville	Parramatta	IN1 General Industrial HOB 12m, FSR 1:1	Food and drink premises permissible with consent. Group term 'commercial premises' is prohibited. Retail premises are not specifically prohibited, therefore bulky goods, restaurants and cafes may be permissible with consent.
Yennora	Holroyd	Predominantly IN1 General Industrial HOB n/a, FSR 1:1 Small portion IN2 Light Industrial and B5 Business Development along Railway Terrace	Food and drink premises permissible with consent. However, retail premises are not specifically prohibited, therefore other retail uses may be permissible with consent. Commercial premises is prohibited.
Smithfield	Holroyd	IN1 General Industrial HOB and FSR n/a	Food and drink premises permissible with consent. Retail premises are not specifically prohibited, therefore a range of retail uses ay be permissible with consent. Commercial premises prohibited.
Lidcombe West	Auburn	IN1 General Industrial HOB n/a, FSR 1:1	Retail premises as a group term is prohibited, however garden centre, hardware and building supply, kiosks, markets are permissible with consent. Restaurants or cafes are permissible.
Corridor West Auburn	Auburn	B6 Enterprise Corridor HOB varies up to 27m FSR 1.5:1 to 3:1	Incentives for particular uses (office and hotel).
Clyburn	Auburn	IN1 General Industrial HOB n/a, FSR 1:1	Retail premises as a group term is prohibited, however garden centre, hardware and building supply, kiosks, markets are permissible with consent. Restaurants or cafes are permissible.
Greystanes	Holroyd	IN1 General Industrial IN2 Light Industrial HOB and FSR n/a	Retail premises not specifically prohibited, therefore a range of retail uses may be permissible with consent. Commercial premises prohibited.
Girraween	Holroyd	IN1 General Industrial IN2 Light Industrial HOB and FSR n/a	Retail premises not specifically prohibited, therefore a range of retail uses may be permissible with consent. Commercial premises prohibited.
Corridor West Holroyd	Holroyd	B5 Business Development HOB 20m, FSR 1:1	Bulky goods, food and drink premises permissible with consent. Retail premises is not specifically prohibited, therefore a range of retail uses may be permissible with consent. Commercial premises and residential accommodation is prohibited.

Precinct	LEP	Zone/Height/FSR	Comment
Westmead (Mays Hill)	Holroyd	B6 Enterprise Corridor HOB varies, FSR varies	Boarding houses, residential flat buildings, shop top housing permissible with consent. Business, food and drink premises permissible with consent. Retail is not specifically prohibited, therefore other retail uses may be permissible with consent.
Great Western Highway (Greystanes)	Holroyd	B5 Business Development HOB 15m, FSR 1:1	Bulky goods, food and drink premises permissible with consent. Retail premises is not specifically prohibited, therefore a range of retail uses may be permissible with consent. Commercial premises and residential accommodation is prohibited.
Granville	Parramatta	IN1 General Industrial HOB 12m, FSR 1:1	Food and drink premises permissible with consent. Group term 'commercial premises' is prohibited. Retail premises are not specifically prohibited, therefore bulky goods, restaurants and cafes may be permissible with consent.

Source: Mecone

Appendix A provides details of the relevant planning controls for each precinct including zones and objectives, permissible and prohibited land uses, density and subdivision controls.

3. ECONOMIC PROFILE

This chapter provides an outline of Cumberland's profile, including employment, key industry sectors and current competitiveness.

3.1 EMPLOYMENT

In order to better understand the nature of employment and business activity occurring in Cumberland, Australian Bureau of Statistics Census data was examined at the statistical geographical boundaries of the LGA, with a population-weighted correspondence (ABS) assigning data for newly formed local government areas. Benchmark regions of Parramatta LGA and Greater Sydney were also examined in comparison. Collectively, these regions are referred to as 'the Benchmark Areas'.

Employment by Industry

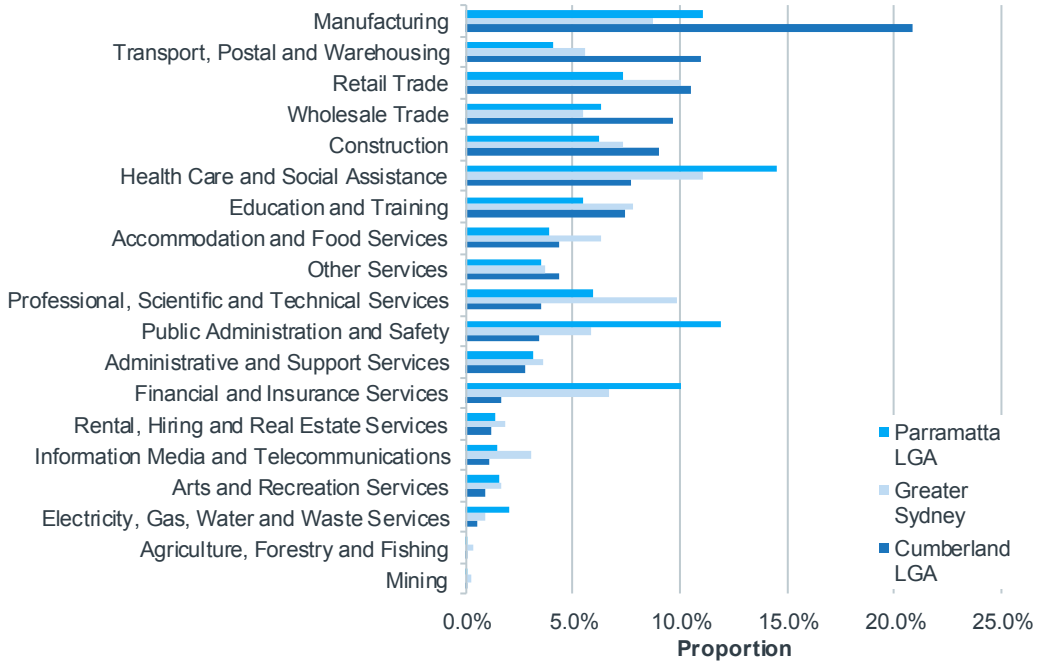
In 2011, Cumberland employed almost 70,000 employees with more than 20% of those employed in manufacturing. 10.9% of employees were employed in transport, postal & warehousing while 10.5% were employed in retail trade.

By comparison, in Parramatta and Greater Sydney, 11.1% and 8.8% were employed in manufacturing respectively, 4.1% and 5.6% employed in transport, postal & warehousing and 7.3% and 10.0% were employed in retail trade.

The structure of Cumberland's local economy is characterised by industrial employment (manufacturing and transport, postal & warehousing) and retail employment (characterised by a number of centres and businesses along Parramatta Road).

In comparison, the structure of Parramatta's local economy resembles that of a CBD, service and administrative hub, with strong employment representation in health care & social assistance (14.5%), public administration & safety (11.9%) and financial & insurance services (10.0%).

Figure 3.1: Proportional Employment by Industry (2011), Study Area and Benchmark Areas



Source: ABS (2012)

Despite strong employment in manufacturing in Cumberland, between 2006 and 2011 the industry declined by almost 1,000 jobs (-6%) and fell in proportional representation from 23.7% to 20.9%.

In contrast, employment in financial and insurance services across Cumberland grew by 72% with a gain of 464 jobs (though occurring largely within the commercial centres *outside* of the Employment Precincts).

Other industries that grew strongly include: transport, postal & warehousing (+10% or 669 jobs), construction (+18% or 939 jobs), retail trade (+7% or 496 jobs), education & training (+17% or 756 jobs) and health care & social assistance (16% or 732 jobs).

Table 3.1: Employment by Industry (2006-2011), Study Area

Industry	2006		2011		Change (2006-2011)	
	No.	%	No.	%	No.	%
Mining	46	0.1%	55	0.1%	9	19%
Agriculture, Forestry and Fishing	77	0.1%	64	0.1%	-14	-18%
Electricity, Gas, Water and Waste Services	277	0.4%	351	0.5%	74	27%
Arts and Recreation Services	582	0.9%	620	0.9%	38	7%
Information, Media and Telecommunications	795	1.2%	728	1.1%	-66	-8%
Rental, Hiring and Real Estate Services	817	1.3%	809	1.2%	-8	-1%
Financial and Insurance Services	642	1.0%	1,106	1.6%	464	72%
Administrative and Support Services	1,485	2.3%	1,866	2.7%	381	26%
Public Administration and Safety	2,120	3.3%	2,310	3.4%	190	9%
Professional, Scientific and Technical Services	2,226	3.5%	2,421	3.6%	195	9%
Other Services	2,605	4.1%	2,947	4.3%	642	13%
Accommodation and Food Services	2,640	4.1%	2,984	4.4%	343	13%
Education and Training	4,324	637%	5,080	7.5%	756	17%
Health Care and Social Assistance	4,549	7.1%	5,281	7.7%	732	16%
Construction	5,222	8.2%	6,161	9.0%	939	18%
Wholesale Trade	7,068	11.0%	6,575	9.6%	-493	-7%
Retail Trade	6,645	10.4%	7,142	10.5%	496	7%
Transport, Postal and Warehousing	6,784	10.6%	7,453	10.9%	669	10%
Manufacturing	15,169	23.7%	14,232	20.9%	-936	-6%
Total Employed	64,073	100.0%	68,185	100.0%	4,112	6.4%

Source: ABS (2012)

Further disaggregation of the decline in manufacturing employment reveals the following sub-sectors experienced the greatest losses:

- Converted paper product manufacturing (-28% or 285 jobs).
- Motor vehicle and motor vehicle part manufacturing (-61% or 452 jobs).
- Dairy product manufacturing (-33% or 227 jobs).
- Metal container manufacturing (-253% or 210 jobs).
- Printing and printing support services (-17% or 154 jobs).

Despite overall decline in manufacturing employment, employment increased in the manufacturing sub-sectors of:

- Meat and meat product manufacturing (+31% or 184 jobs)
- Seafood processing (+527% or 26 jobs).
- Beverage manufacturing (+72% or 315 jobs).
- Transport equipment manufacturing (+75% or 363 jobs).
- Computer and electronic equipment manufacturing (+40% or 110 jobs).

Overall employment growth in Cumberland has been moderate, occurring at an average annual rate of 1.25% over the 2006-2011 period. In comparison, employment in Parramatta LGA and Greater Sydney grew by average annual rates of 2.71% and 2.69% respectively over the same period.

Employment by Occupation

Table 3.2 shows the employment by occupation distribution of employees working in Cumberland and shows that nearly 40% of workers are employed in technician and other blue-collar trade types of occupations.

Table 3.2: Employment by Occupation (2011), Study Area and Benchmark Areas

Occupation	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2006	2011	2006	2011	2006	2011
Managers	12.6%	13.0%	14.0%	14.2%	12.8%	13.1%
Professionals	15.1%	16.2%	24.9%	26.2%	23.9%	26.2%
Technicians and Trades Workers	15.5%	15.4%	12.1%	11.9%	11.1%	10.5%
Community and Personal Service Workers	5.7%	6.6%	8.1%	8.9%	7.8%	8.2%
Clerical and Administrative Workers	17.4%	16.8%	17.8%	17.0%	22.7%	23.5%
Sales Workers	8.8%	8.8%	9.7%	9.1%	8.2%	7.1%
Machinery Operators and Drivers	14.6%	13.8%	5.9%	5.7%	6.0%	5.3%
Labourers	10.3%	9.5%	7.6%	7.0%	7.3%	6.2%
Total Employed (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Employed	64,073	68,185	117,797	134,646	1,827,328	2,086,923

Source: ABS (2012)

Journey to Work

Analysis of 2011 Journey to Work data shows that approximately 17,235 residents lived and worked in Cumberland. With 60,185 total jobs in Cumberland, this means that approximately 50,950 employees lived outside Cumberland and travelled to Cumberland for work (i.e. were imported). In total there were 80,046 residents in Cumberland with a job in 2011, meaning 62,811 residents travelled outside Cumberland for work (i.e. were exported).

Table 3.3 indicates a high proportion (>50%) of Cumberland workers and residents originate from and travel to locations within 20km of where they live (adjoining LGAs).

Table 3.3: Journey to Work (2011), Study Area

Description	No.	%
Cumberland Workers		
Works and Lives in Cumberland	17,235	25.3%
Works in Cumberland, Lives in Adjoining LGA	24,407	35.8%
Works in Cumberland, Lives Elsewhere	26,543	38.9%
Total	68,185	100.0%
Cumberland Residents		
Lives and Works in Cumberland	17,235	21.5%
Lives in Cumberland, Works in Adjoining LGA	26,843	33.5%
Lives in Cumberland, Works Elsewhere	35,968	45.0%
Total	80,046	100.0%

Source: ABS (2012)

Employment Health Indicators

Self-sufficiency and self-containment measure the health of a local economy based on the number of jobs provided.

- **Self-sufficiency** measures the number of local jobs against the labour force (i.e. local jobs divided by the labour force). Cumberland had a self-sufficiency rate of 72.6%, suggesting there were 0.7 local jobs for every local resident participating in the labour force. This was less than Parramatta's self-sufficiency rate of 134.1%.
- **Self-containment** examines where local resident workers are employed. 21.5% of residents lived and worked in Cumberland compared to 28.7% of Parramatta residents.

The benefits of working close to home are espoused in the District Plan, leading to the promotion of the '30-minute city'. This measure of "30 minutes" is already achieved to large degree with the analysis in Table 3.3 indicating more than 50% of Cumberland residents work in Cumberland or in an adjoining local government area.

3.2 KEY INDUSTRY SECTORS

Council has identified a number of key industry sectors to target for development and growth in Cumberland. These key sectors are:

- Advanced manufacturing.
- Food and beverage manufacturing.
- Digital technologies/media.
- Advanced knowledge services.
- Creative industries.
- Fashion.
- Allied health.
- Freight and logistics.

In order to understand the extent to which these key sectors are already represented in Cumberland and their relative importance to the local economy, it is necessary to first define these key sectors.

These key sectors do not align with how employment is classified by the ABS and in the absence of a 'standard definition' for each sector, AEC undertook a process of firstly developing an understanding of each key sector and thereafter sorting ABS data to allocate ANZSIC industries and ANZSCO occupations (both at the 4-digit level) to each key sector. The process enabled an understanding of how each key sector is represented in the employment profile of Cumberland as well as in benchmark areas of Parramatta LGA and Greater Sydney.

For a full description of methodology of classifying the key sectors refer to Appendix C.

3.2.1 Cumberland Employment and Labour Specialisation

Table 3.4 outlines how many employees in 2011 worked in each key sector in Cumberland and the benchmark areas of Parramatta and Greater Sydney as a proportion of overall employment. These employees are comprised of those considered 'core' to the sector (i.e. a specialist worker) or playing an ancillary role (i.e. a support worker).

Table 3.4: Employment in Key Sectors (2011), Study Area & Benchmark Areas*

Key Sector	Cumberland	Parramatta	Greater Sydney
Advanced Manufacturing	5,387 (7.9%)	7,369 (5.5%)	74,497 (3.6%)
Food and Beverage Manufacturing	2,903 (4.3%)	3,682 (2.7%)	37,472 (1.8%)
Digital Technologies/Media	918 (1.3%)	3,003 (2.2%)	86,222 (4.1%)
Advanced Knowledge Services	2,200 (3.2%)	3,585 (2.7%)	100,381 (4.8%)
Creative Industries	1,195 (1.8%)	4,368 (3.2%)	132,617 (6.4%)
Fashion	1,786 (2.6%)	3,170 (2.4%)	74,642 (3.6%)
Allied Health	2,678 (3.9%)	6,321 (4.7%)	107,819 (5.2%)
Freight and Logistics	12,399 (18.2%)	13,006 (9.7%)	202,405 (9.7%)

*% of Total Employment in brackets
Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC

Table 3.5 details the nature of employment and labour specialisation in each key sector, specifically the proportion of 'core' or specialist workers to 'ancillary' or support workers in Cumberland and the benchmark areas.

Table 3.5: Specialist, Support & Total Employment in Key Sectors (2011), Study Area & Benchmark Areas*

Key Sector	Specialist Workers	Support Workers	Total
Cumberland			
Advanced Manufacturing	2,039 (3.0%)	3,348 (4.9%)	5,387 (7.9%)
Food and Beverage Manufacturing	1,186 (1.7%)	1,717 (2.5%)	2,903 (4.3%)
Digital Technologies/ Media	453 (0.7%)	466 (0.7%)	918 (1.3%)
Advanced Knowledge Services	1,333 (2.0%)	868 (1.3%)	2,200 (3.2%)
Creative Industries	537 (0.8%)	658 (1.0%)	1,195 (1.8%)
Fashion	1,054 (1.5%)	732 (1.1%)	1,786 (2.6%)
Allied Health	1,835 (2.7%)	843 (1.2%)	2,678 (3.9%)
Freight and Logistics	6,172 (9.1%)	6,228 (9.1%)	12,399 (18.2%)

Key Sector	Specialist Workers	Support Workers	Total
Parramatta			
Advanced Manufacturing	2,801 (2.1%)	4,568 (3.4%)	7,369 (5.5%)
Food and Beverage Manufacturing	1,137 (0.8%)	2,545 (1.9%)	3,682 (2.7%)
Digital Technologies/ Media	1,753 (1.3%)	1,250 (0.9%)	3,003 (2.2%)
Advanced Knowledge Services	2,100 (1.6%)	1,485 (1.1%)	3,585 (2.7%)
Creative Industries	1,868 (1.4%)	2,500 (1.9%)	4,368 (3.2%)
Fashion	2,144 (1.6%)	1,026 (0.8%)	3,170 (2.4%)
Allied Health	4,000 (3.0%)	2,321 (1.7%)	6,321 (4.7%)
Freight and Logistics	5,250 (3.9%)	7,756 (5.8%)	13,006 (9.7%)
Greater Sydney			
Advanced Manufacturing	27,966 (1.3%)	46,530 (2.2%)	74,497 (3.6%)
Food and Beverage Manufacturing	13,923 (0.7%)	23,548 (1.1%)	37,472 (1.8%)
Digital Technologies/ Media	42,099 (2.0%)	44,122 (2.1%)	86,222 (4.1%)
Advanced Knowledge Services	49,002 (2.3%)	51,380 (2.5%)	100,381 (4.8%)
Creative Industries	68,072 (3.3%)	64,545 (3.1%)	132,617 (6.4%)
Fashion	49,688 (2.4%)	24,954 (1.2%)	74,642 (3.6%)
Allied Health	69,382 (3.3%)	38,437 (1.8%)	107,819 (5.2%)
Freight and Logistics	76,401 (3.7%)	126,004 (6.0%)	202,405 (9.7%)

% of Total Employment in brackets
Source: AEC

The tables above highlight that Cumberland had:

- A higher prevalence of advanced manufacturing (7.9%) than Parramatta (5.5%) or Greater Sydney (3.6%), but similar level of specialisation (specialised labour accounts for 38% of total sector workforce in all three areas).
- A higher prevalence of food and beverage manufacturing (4.3%) than Parramatta (2.7%) or Greater Sydney (1.8%), and a higher rate of specialised labour (41% compared to 31% in Parramatta and 37% in Greater Sydney).
- A lower prevalence of digital technologies/media (1.3%) than Parramatta (2.2%) or Greater Sydney (4.1%), with a similar rate of specialisation as Greater Sydney (49%) but less than in Parramatta (58%).
- A higher prevalence of advanced knowledge services (3.2%) than Parramatta (2.7%), but lower prevalence than in Greater Sydney (4.8%). Labour specialisation is higher than in both benchmark areas (61% compared to 59% in Parramatta and 49% in Greater Metro Sydney).
- A lower prevalence of creative industries (1.8%) than Parramatta (3.2%) or Greater Sydney (6.4%), with a slightly higher rate of specialisation (45%) than in Parramatta (43%) but less than Greater Sydney (51%).
- A higher prevalence of fashion (2.6%) than Parramatta (2.4%), but lower prevalence than in Greater Sydney (3.6%). Labour specialisation is lower than in both benchmark areas (59% compared to 68% in Parramatta and 67% in Greater Sydney).
- A lower prevalence of allied health (3.9%) than Parramatta (4.7%) or Greater Sydney (5.2%), but a higher rate of labour specialisation (69% compared to 63% in Parramatta and 64% in Greater Sydney).
- A significantly higher prevalence of freight and logistics (18.2%) than in Parramatta (9.7%) or Greater Sydney (9.7%), as well as a significantly higher rate of labour specialisation (50% compared to 40% in Parramatta and 38% in Greater Sydney).

The above highlights Cumberland has a distinct competitive advantage for freight and logistics, with a significantly higher attraction and use of specialist skills relative to its benchmarks. Food and beverage manufacturing is also a key sector of competitive advantage for Cumberland, while advanced manufacturing is an industry with considerably greater presence in the region though without an advantage in specialisation.

Conversely, digital technologies/media and creative industries are sectors of distinct competitive disadvantage for Cumberland.

3.2.2 Shift-Share Analysis

Shift share analysis is a tool used to understand contributing factors to industry change in a region between two time periods. Shift share apportions industry change to three factors:

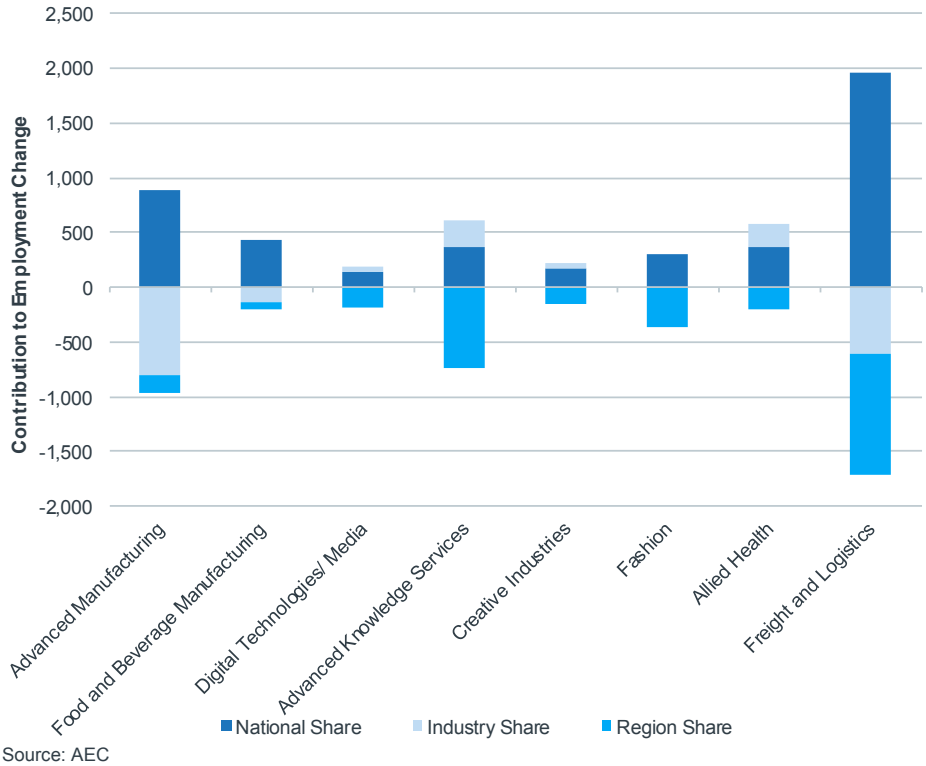
- The contribution of overall national employment growth (the national share). This was calculated by applying total national employment growth between 2006 and 2011 to 2006 employment by industry in Cumberland.
- The contribution of growth of the industry in question at the national level (the industry share). This was calculated by applying national employment growth of each industry between 2006 and 2011 to 2006 employment of the respective industries in Cumberland.
- The contribution of regional specific factors (the region share). This was calculated as the balance between actual 2011 employment for each industry in Cumberland less the national and industry share estimates.

Disaggregating industry change into the above components provides an indication of where a region has a competitive advantage or disadvantage. A positive regional share indicates an industry that has grown at a rate faster than would have been expected based on how the national economy and industry in question performed over the same period overall. This is indicative of specific regional factors that contributed to a positive industry outcome, and suggests the region may have a competitive advantage for that industry. Conversely, a negative regional share indicates specific regional factors that detracted from growth in the industry, and suggests the region may have a competitive disadvantage for that industry.

Shift share analysis shows, in general, the key sectors in Cumberland performed worse than in the benchmark areas. Cumberland's regional share, which reflects how location specific factors of Cumberland contributed to industry change between 2006 and 2011, was negative for all eight key sectors. This indicates that Cumberland detracted from growth in these industries, and suggests the area may have some distinct competitive disadvantages and challenges that need to be overcome to attract growth in these sectors moving forward.

Of note, Parramatta LGA also recorded negative regional shares in each of these key sectors with the exception of advanced knowledge services (which is consistent with Parramatta's role and function as a CBD). **Figure 3.2** depicts graphically the findings of the Shift-Share Analysis.

Figure 3.2: Shift-Share Analysis, 2006-2011 (vs Australia)



Source: AEC

3.2.3 Industry Value-added and Incomes

Industry value-added activity is an economic measure of a sector's value to the economy, while wages/incomes are considered a social measure of a sector's value to the economy, i.e. contributing to improving quality of life.

A review of value-added activity for each key sector (which reflects the value of goods/services produced by industry less costs on goods/ services as inputs to production), highlights the significant value the freight & logistics sector, advanced manufacturing and food & beverage manufacturing provides to the Cumberland economy.

- **Freight and Logistics**
  More than one fifth (21.5%) of total industry value added (IVA) in Cumberland was produced by the freight and logistics sector. This represented a higher proportion than the sector's contribution to total LGA employment (18.2%), highlighting the sector as a high value-adding sector per employee.

  The sector is also a high paying one, with the $709.6 million in incomes paid to employees in the sector representing 19.3% of total incomes paid by industries in Cumberland.

- **Advanced Manufacturing and Food & Beverage Manufacturing**
  Advanced manufacturing (9.3%) and food & beverage manufacturing (5.7%) are also important contributors to Cumberland's IVA - both these sectors provide a greater contribution to total IVA in the LGA than employment.

  The sectors pay higher than average incomes in Cumberland, with both industries recording a higher share of total incomes than employment (9.4% and 4.7% of total incomes paid, respectively, compared to 7.9% and 4.3% of total employment).

All three sectors (freight and logistics, advanced manufacturing and food & beverage manufacturing) have considerably higher contributions to Cumberland's IVA and incomes paid than in Greater Sydney. In contrast, the fashion sector ranked the lowest with comparatively low value-added activity and incomes paid.

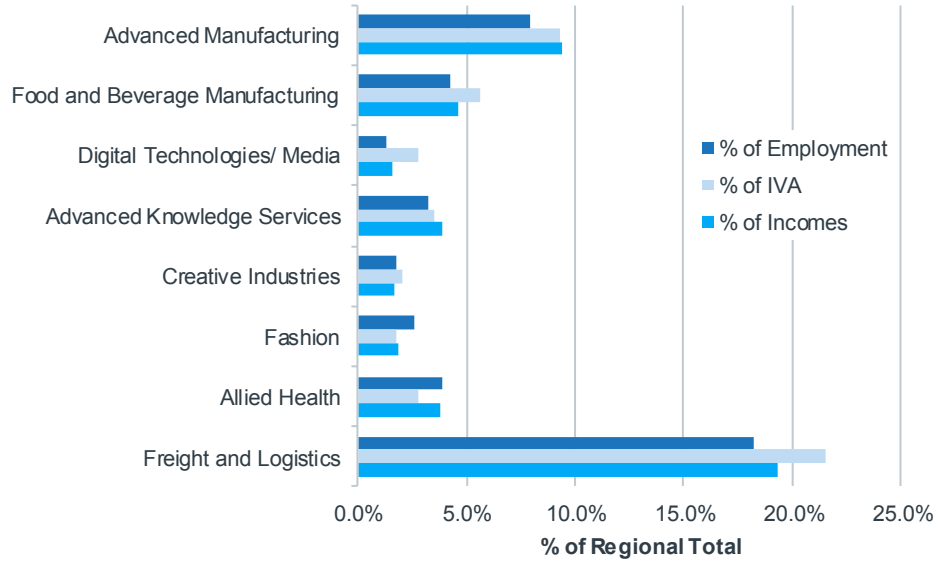
While not as yet well represented in Cumberland, the sectors of digital technologies/media and advanced knowledge services have the potential to contribute meaningfully given they generate relatively high value-added activity and incomes.

Table 3.6: Key Sector Employment, Industry Value-added and Incomes (2011)

Key Sector	Employment		Industry Value-Added		Incomes	
	No.	% of Total	$M	% of Total	$M	% of Total
Cumberland						
Advanced Manufacturing	5,384	7.9%	$713.6	9.3%	$345.3	9.4%
Food and Beverage Manufacturing	2,903	4.3%	$435.2	5.7%	$171.2	4.7%
Digital Technologies/ Media	918	1.3%	$216.3	2.8%	$58.9	1.6%
Advanced Knowledge Services	2,200	3.2%	$269.4	3.5%	$143.2	3.9%
Creative Industries	1,200	1.8%	$157.9	2.1%	$62.0	1.7%
Fashion	1,786	2.6%	$138.7	1.8%	$69.2	1.9%
Allied Health	2,678	3.9%	$211.5	2.8%	$138.2	3.8%
Freight and Logistics	12,399	18.2%	$1,646.5	21.5%	$709.6	19.3%
Greater Sydney						
Advanced Manufacturing	74,393	3.6%	$11,477.6	4.2%	$4,799.5	4.0%
Food and Beverage Manufacturing	37,472	1.8%	$5,482.2	2.0%	$2,121.9	1.8%
Digital Technologies/ Media	86,222	4.1%	$18,193.8	6.7%	$7,058.8	5.9%
Advanced Knowledge Services	100,381	4.8%	$13,341.0	4.9%	$7,223.6	6.0%
Creative Industries	132,617	6.4%	$18,646.5	6.9%	$9,322.5	7.7%
Fashion	74,642	3.6%	$5,900.4	2.2%	$2,786.4	2.3%
Allied Health	107,819	5.2%	$8,204.8	3.0%	$5,832.8	4.8%
Freight and Logistics	202,405	9.7%	$28,784.9	10.6%	$12,433.9	10.3%

Source: AEC

Figure 3.3: Key Sector Employment, Industry Value-added and Incomes (2011)



Source: AEC

3.2.4 Supply Chain Analysis

Supply chain analysis, which reviews the purchases of goods and services for production by industry and the sales of industry goods and services, highlights the significant contribution the key sectors of Freight and Logistics, Advanced Manufacturing, and Food & Beverage Manufacturing make to Cumberland beyond their direct employment, value-added activity and incomes paid. Combined these three industries contribute:

- 38.8% of Cumberland's total industry purchases of goods and services produced by businesses in the Greater Sydney area (local purchases) used as inputs to production.
- 38.2% of Cumberland's total sales to industries within the Greater Sydney area (sales to local industry).
- 31.8% of Cumberland's total sales for final consumption by either households or government within the Greater Sydney area (local consumption).
- 28.4% of Cumberland's total sales for gross fixed capital formation (GFCF) by business and government within the Greater Sydney area.

These three key sectors (Freight and Logistics, Advanced Manufacturing, and Food & Beverage Manufacturing) are also major contributors to export revenues, accounting for 52.8% of Cumberland's total export sales revenue for goods/services sold outside the Greater Sydney area (exports).

Table 3.7: Key Sector Inputs to Production and Sales in Greater Metro Sydney, Share of Region Total (%), 2013-14

Key Industry	Inputs to Production		Sales			
	Imports	Local Purchases	Sales to Local Industry	Local Consumption	GFCF*	Exports
Cumberland						
Advanced Manufacturing	17.0%	11.5%	12.7%	4.3%	16.7%	15.7%
Food and Beverage Manufacturing	13.6%	7.7%	7.9%	10.4%	0.5%	7.6%
Digital Technologies/ Media	1.8%	2.9%	3.6%	1.3%	1.6%	3.1%
Advanced Knowledge Services	0.9%	2.2%	2.9%	3.5%	1.0%	1.7%
Creative Industries	1.1%	1.7%	2.8%	0.4%	1.6%	1.5%
Fashion	1.3%	1.5%	1.0%	2.8%	0.6%	1.8%
Allied Health	0.6%	0.9%	0.2%	6.1%	0.1%	0.1%
Freight and Logistics	14.9%	19.6%	17.6%	17.1%	11.2%	29.5%

Key Industry	Inputs to Production		Sales			
	Imports	Local Purchases	Sales to Local Industry	Local Consumption	GFCF*	Exports
Greater Sydney						
Advanced Manufacturing	11.3%	5.4%	5.8%	2.5%	6.4%	9.2%
Food and Beverage Manufacturing	6.6%	3.5%	2.6%	4.1%	0.3%	3.9%
Digital Technologies/ Media	6.7%	7.2%	9.4%	2.5%	6.0%	8.5%
Advanced Knowledge Services	2.1%	3.9%	5.5%	4.1%	2.0%	2.9%
Creative Industries	6.0%	6.4%	9.8%	1.9%	6.7%	6.8%
Fashion	1.9%	2.1%	1.4%	3.6%	0.9%	2.0%
Allied Health	1.0%	1.2%	0.4%	6.6%	0.1%	0.1%
Freight and Logistics	13.4%	12.0%	9.9%	8.8%	7.0%	19.8%

*Gross Fixed Capital Formation
Source: AEC

Figure 3.4: Supply Chain Analysis (2013-14)

UPSTREAM INPUTS TO		KEY SECTOR	DOWNSTREAM SALES OF PRODUCT			
IMPORTS	LOCAL PURCHASES		SALES TO LOCAL INDUSTRY	LOCAL CONSUMPTION	GROSS FIXED CAPITAL FORMATION	EXPORTS
$M	$M		$M	$M	$M	$M
$499.6	$782.7	Advanced Manufacturing	$872.6	$188.1	$328.5	$658.4
$400.3	$524.9	Food and Beverage Manufacturing	$546.0	$456.9	$10.2	$318.4
$54.0	$196.7	Digital Technologies/ Media	$245.9	$58.8	$31.6	$130.6
$26.3	$149.8	Advanced Knowledge Services	$202.1	$153.1	$19.8	$70.4
$32.9	$116.7	Creative Industries	$195.7	$17.1	$31.4	$63.2
$36.9	$100.3	Fashion	$65.8	$122.5	$12.3	$75.4
$16.7	$61.3	Allied Health	$16.9	$268.6	$1.6	$2.4
$437.8	$1,328.5	Freight and Logistics	$1,210.1	$750.9	$220.4	$1,236.3

Source: AEC

3.3 CURRENT COMPETITIVENESS

Industrial Sector

Cumberland's employment profile has a distinct industrial specialisation, with manufacturing (20.9%) and transport, postal & warehousing (10.9%) together forming nearly a third (31.8%) of total employment in the LGA. Analysis into key sector specialisation has revealed the following sectors of industry specialisation:

- **Freight and Logistics** is not only highly represented in Cumberland (comprising 18.2% of total employment in 2011), it is a sector that is of significant value - contributing more in IVA (21.5%) and paying more in wages (19.3%) than its share of employment.

  Cumberland has a distinct competitive advantage for attracting this sector, further characterised by the use of specialist skills, with a comparatively higher rate of specialisation of 50% compared to benchmark areas.

- **Advanced Manufacturing** has a considerable employment presence (7.9%) in Cumberland; however, the use of specialist skills is not particularly notable (if compared to benchmark areas). Notwithstanding, it is a sector that is of value to Cumberland - contributing more in IVA (9.3%) and paying more in wages (9.4%) than its share of employment.

- **Food and Beverage Manufacturing** is a smaller sector, representing 4.3% of total employment in Cumberland. It is also a sector of value to Cumberland contributing more in IVA (5.7%) and paying more in wages (4.7%) than its share of employment (4.3%).

  This sector is specialised in Cumberland comparative to the benchmark areas, with more than 40% of employees considered to have specialist skills in the sector.

In the context of broader industrial activity in the Greater Sydney region, Cumberland has traditionally had a large role in highly specialised machinery manufacturing and food/food product manufacturing. This is reflected in the above analysis, which denote Cumberland's comparative appeal as a destination for these sectors.

The area is well connected by the orbital road network (M4, M5 and M7 Motorways) and freight rail networks and is centrally located between Parramatta and Sydney CBDs. The area's most competitive feature is its accessibility to various distribution catchments across metropolitan Sydney.

Services Sector

The nature and characteristics of employment areas and centres directly influence the sectors and types of businesses that locate within. Due to the spatial distribution of land use zones within the LGA, the structure of Cumberland's local economy is expectedly characterised by industrial employment (manufacturing, freight and logistics in employment precincts) and retail employment (characterised by a number of centres and clusters along Parramatta Road).

In comparison, the structure of Parramatta's local economy resembles that of a CBD, service and administrative hub, with strong employment representation in health, public administration and advanced knowledge services. Notably, employment in hospitals in Parramatta LGA demonstrates a high degree of specialisation in the health sector, which is commensurate with the location of the Westmead Health Precinct in Parramatta.

Cumberland has relatively low specialisation in business services, many of which generally seek accommodation within CBDs and major commercial centres. Sectors such as digital technologies/media, advanced knowledge services and creative industries were less well represented in Cumberland compared to the benchmark areas.

The next chapter explores the trends and influencing factors on key sectors of employment and their subsequent implications for Cumberland.

4. CURRENT TRENDS AND FUTURE INFLUENCES

This Chapter explores the trends and influencing factors that impact demand for employment land in Australia today and how this may change in the future. Sectoral trends are considered first followed by demographic trends.

The Chapter then examines market and activity occurring in Cumberland and outlines feedback received from local businesses, landowners and local real estate agents. The Chapter concludes by drawing out specific implications current and future influences may have for employment and innovation lands in Cumberland.

4.1 BUSINESS AND INDUSTRY TRENDS

A large proportion of Cumberland's employment and innovation lands are designated with industrial zones (IN1 General Industrial or IN2 Light Industrial) with the remainder comprised a mix of B5 Business Development, B6 Enterprise Corridor and B7 Business Park zones. In this chapter "industrial lands" and "employment and innovation lands" are used interchangeably.

"Industrial" is defined under the NSW Standards Instrument Principal Local Environmental Plan as comprising:

> "…*the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity*." (NSW Government, 2016).

The industrial sector encompasses two distinct sub-sectors: manufacturing and logistics.

- **Manufacturing** is the process through which goods and products are made from raw materials.
- **Logistics** is the means by which those goods and products are taken to customers.

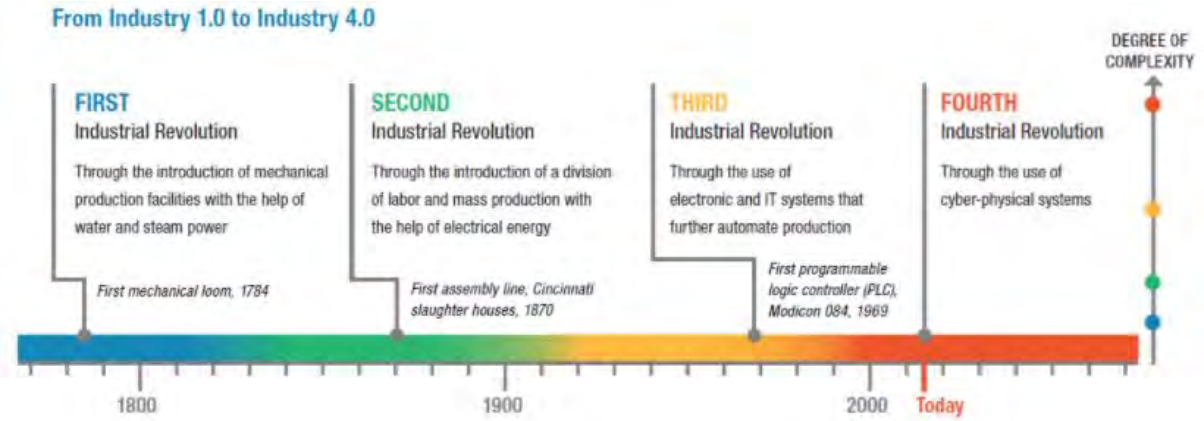
Manufacturing and logistics operators are both impacted by the same global trends but in different ways, which manifests in different land requirements. Both are key parts to a holistic industrial sector and are considered next.

The Industrial Revolutions

The modern industrial sector has experienced a number of major shifts prompted by rapid technological advancements which significantly altered the structure and operation of the industrial sector. Each of these shifts, or revolutions, changed the demand for and use of industrial land.

Three industrial revolutions have been completed so far and it is widely agreed that the sector is on the cusp of a fourth industrial revolution. This will dramatically alter the way goods and products are manufactured and transported once again.

Figure 4.1: The Four Industrial Revolutions



Source: DFKI, 2011

- The **First Industrial Revolution** was facilitated by steam, water and mechanical equipment. The development of labour intensive, industrial manufacturing processes engaged by more reliable power sources prompted the mass movement of people from rural areas to cities. From the 18th century, urbanisation characterised western countries which were the centre of industrial innovation at the time.
- The **Second Industrial Revolution** from the late 19th century was triggered by electricity which significantly expanded operational potential. Other manufacturing advances coupled with the ubiquity of on demand, reliable power led to the division of labour and mass production via assembly lines for the first time. Output increased significantly.
- The **Third Industrial Revolution** from the mid-20th century onwards was driven by computerisation, the use of electronics and IT systems in production. This led to automation and, together with other labour and logistics chains, allowed globalised supply chains.
- Today it is accepted that the application of cyber-physical systems such as the Internet of Things (IoT) and robotics is the start of the **Fourth Industrial Revolution**. This is expected to have transformative impacts on manufacturing, supply chains and logistics of a similar or greater magnitude to the previous three. The fourth industrial revolution was the theme of the Davos World Economic Conference in 2016, reflecting the enormity of its expected impact future on world trade.

The following sections identify and detail how global influences are particularly impacting the way businesses conduct business and use space.

4.1.1 Globalisation and Off-shoring

The third industrial revolution has shaped the use of employment and innovation lands today. The global expansion of supply chains also known as the process of offshoring was aided by a number of factors:

- Availability of cheap, low skilled labour in emerging economies.
- Advancements in transportation such as air travel and shipping containerisation brought down the cost of transportation and increased its reliability.

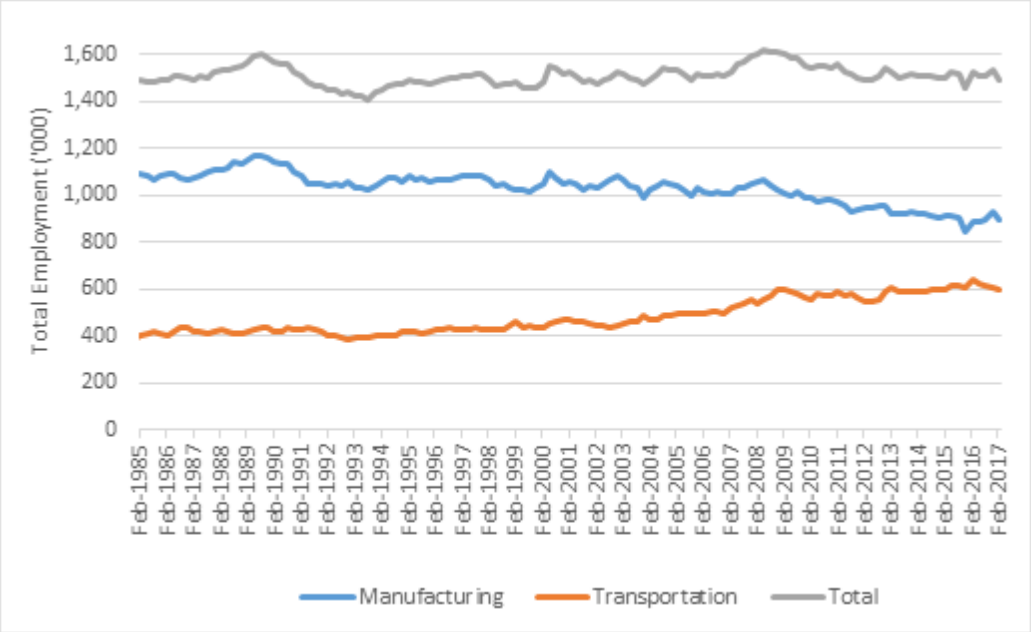
Cheaper labour and lower transport costs made it financially viable to relocate all or part of Western-based manufacturing processes to emerging economies and import the finished goods back for distribution.

The third industrial revolution saw many Australian manufacturing jobs off-shored to Asia, most recently impacted is vehicle manufacturing with GM Holden and Toyota having closed their manufacturing plants at the end of 2017.

Globalisation and off-shoring resulted in a change of function for industrial land, from manufacturing-focused to largely logistics-focused. Rather than being used to physically build goods and products from raw materials, more and more employment land is used to sort, package and distribute goods and products that were made elsewhere.

Figure 4.2 depicts a decline in manufacturing employment is met with commensurate increase in transportation employment, thereby leaving overall industrial employment generally stable over the last three decades.

Figure 4.2: Australian Industrial Employment, 1985-2017



Source: ABS, 2017

4.1.2 Impact of Cyber Systems

The fourth industrial revolution will result from the physical, digital and biological worlds influencing the industrial processes of manufacture and logistics. This will in turn change customer expectations and create new types of demand for land and success requirements.

There is a wide array of technological developments in early stage development. How they ultimately develop is not yet clear as some will fail and some will succeed in ways not as yet predictable. That said, the emerging technologies with the greatest potential to disrupt the industrial sector include (JLL, 2016):

- **E-commerce**
  Digitisation in the retail sector has already significantly impacted demand for industrial land in Australia as fulfilling orders off-site (rather than in-store) becomes important. More and more retail stores are functioning as showrooms for goods and products but with the sale and dispatch of items routed through an online portal. This has fuelled demand for warehouses to serve as storage and distribution centres for the retail sector.

  The growth of online retailers such as Amazon and the engagement of domestic retailers with the internet is focusing attention on supply chains and logistics. Historically Australia has had a low retail expenditure penetration rate compared to other Western countries (6% compared to 16% in the UK) and has significant potential to increase e-commerce spending, which have major implications for logistics-related land demand.

- **Big Data**
  The ubiquity of technology within supply chains will create huge new data sets that will provide major insights into customer demand. Assisted by Artificial Intelligence and algorithmic analytic systems, companies will be able to gain a deeper understanding of supply and demand characteristics and even predict consumer demand in advance. This will allow supply chains to become much more flexible and responsive to demand.

  Big data will facilitate a shift in supply chains from production led to consumer-centric, demand led. Rather than having stock produced on mass and stored locally until it is sold, for example, products will be developed in accordance with predicted or real-time consumer demand. This requires a streamlined, rapid supply chain.

- **The Internet of Things (IoT)**
  The embedding of sensors and monitors in every stage of the manufacturing process allows potential malfunctions in the process to be identified in advance, reducing the downtime from stoppages and lowering operating costs. Applying the IoT to supply chains will allow better tracking of raw materials and goods and services. It will assist businesses respond to supply chain risk, enabling more efficient use of real estate.

- **3D Printing**
  3D printing allows physical objects to be constructed from a 3-dimensional model. In theory this technology has the potential to revolutionise production process by allowing products to be 'printed-to-order' on site, avoiding significant transport costs and removing the need for keep spare components and parts on-site in case they break. In reality though, the 3D printing market is still small and at a very early stage of development.

  The main benefit of 3D printing has so far has been in rapid prototyping in particular industries, e.g. prosthetics in the healthcare sector. It allows customisation of products easily in small production runs, but its impact on global supply chains and manufacturing process is yet to be seen.

- **Robotics**
  Robots have been used on assembly lines for decades but the fourth industrial revolution offers the potential for smarter, AI-enabled robotics to perform more complex manufacturing tasks independently. In logistics warehouses, the use of smarter robots has greater disruption potential. Robot pickers could yield major efficiency and productivity benefits compared to their human counter-parts and make fewer mistakes.

  Amazon has been using smart picking robots since 2012 and is estimated to have up to 45,000 working today (Business Insider, 2017). Greater use of robots in manufacturing facilities and logistics warehouse has the potential to encourage more companies to relocate production back to Western economies if the labour arbitrage benefits of off-shore no longer stack-up. For occupiers, floorplate efficiencies could be maximised by reducing the need for staff car parking and internal space as a result.

- **Autonomous Vehicles**
  The advancement of self-driving car technology could lead to significant changes in the manufacture and supply chain requirements of the automotive sector. The use of autonomous vehicles to deliver raw materials to manufacturers and end products to consumers would reduce labour requirements, increase efficiency and productivity. In densely packed urban areas autonomous vehicles may have greater potential to deliver goods from fulfilment warehouses to households and retail clients with speed.

Table 4.1 outlines how cyber systems could affect businesses' use of space, their demand for land and floorspace.

Table 4.1: Potential Impact of Technologies on Land Use and Real Estate Requirements

Technology	Potential Implications for Land Use and Real Estate
E-commerce	• Demand for mega fulfilment centres where merchandise is stored and picked at an item level • More parcel sortation centres • Warehoused dedicated solely to the delivery of online orders e.g. Woolworths' dark stores • More return processing centres • More local delivery centres for faster delivery
Big Data	• Less demand for product storage facilities, increased demand for rapid logistics capacity • Need for industrial warehouses to provide secure, seamless wireless internet
Internet of Things (IoT)	• Creation of 'smart' factories with embedded technology, increasing investment in successful assets • Sizeable investment in supply chain technology and real estate assets will be needed so occupiers may need to commit to individual assets for a longer period to make this financially viable • Need for industrial warehouses to provide secure, seamless wireless internet
3D Printing	• Reduced need to maintain large competent storage areas for certain industries, such as automotive or healthcare businesses
Robotics	• More manufacturing process could be brought back to Western countries • Access to a large labour market may no longer be weighted heavily when appraising industrial land locations • More efficient use of warehouses through maximising the floorspace space ratio
Autonomous Vehicles	• Redesigned warehouses to allow automated vehicle use which may change dock and yard design • Access to a large labour market may no longer be weighted heavily when appraising industrial land locations • Greater focus on urban logistics

Source: AEC, JLL (2016)

Technology-rich warehouses will undoubtedly be the future of industrial warehouses and factories. Large occupiers are observed to already be investing heavily in new technology. This can be expected to strengthen their commitment to existing and potential new locations as higher investment means a longer operational life is needed to justify their investment. Conversely, they will need security that industrial sites will remain in their current land use zoning in order to invest with confidence in the long-term sustainability of locations.

4.1.3 Re-shoring

The third industrial revolution encouraged off-shoring and the transfer of manufacturing capacity from Australia to emerging counties. Some manufacturing processes have started to be re-shored - relocated back from overseas destinations back to the domestic market. Instances of re-shoring are small-scale at presence, but prevailing trends may encourage more of this activity in the future. There are three main drivers of re-shoring:

- **Fragmentation of Value Chain**
  Dispersal of the manufacturing process across different parts of the globe can result in fragmented value chains where individual unit operations are separated by activity, localisation and ownership. The offshoring of the production process presents an increased risk of failing to capture innovation opportunities in the process and thereby cede competitive advantage that could otherwise be enjoyed.
- **Labour**
  The availability of cheap labour for labour-intensive manufacturing process was a major cause for off-shoring. Since the 1980's labour costs in emerging countries have risen strongly. Concurrently, the increasing use of technology in manufacturing process is lowering the need for low skilled labour inputs whilst increasing the need for tech-savvy, high skilled specialist labour inputs. Therefore, the financial viability benefit of off-shoring such facilities is no longer as compelling as it was.
- **Geopolitical Risk**
  Long supply chains are inherently more vulnerable to disruption and risk. For example, flooding and earthquakes can lead to major disruption particularly if emergency response is inadequate. Trade barriers and import/export tariffs also have the potential to impact pricing in unpredictable, potential serious ways. Domestically located manufacturing facilities can lower the length of the supply chain and associated risks.
- **Consumer Expectation**
  Retail consumers are increasingly demanding customised products quickly. Re-shoring facilitates a more nimble, responsive product development to serve tailored consumer demand.

  Adidas, a sports clothing manufacturer, has moved some production back from Asian counties to factories in Germany and the US for example into 'speed-factories. These speed-factories are fully automated using robots and enable customised shoes to be delivered directly to consumers at vastly reduced lead-times. Rising consumer expectations could represent the start of a broader trend.

Firms in high-cost locations have to be able to offer products and services to international clientele who are interested in innovative and unique products with a performance advantage for which the buyer is willing to pay a premium price (CEDA, 2013).

Re-shoring has yet to have a strong impact on the Australian manufacturing sector but in time it may lead to increasing demand for industrial property for manufacturing purposes. It is more likely to impact advanced manufacturing sub-sectors that are reliant on specialist or R&D focused skills.

Real estate outcomes could include a greater focus on campus developments which allow co-location of R&D facilities and the manufacturing process which has returned. Re-shored manufacturing activities are likely to represent small, specialist products rather than the larger-scale, mass output processes that were off-shored in the previous decades.

4.1.4 Urban Logistics

The major developing trend set to define the future of industrial uses in Western economies is a focus on urban logistics. The expansion of e-commerce means that successful retailers will be those that have a clear multi-channel strategy, allowing customers to trade across several platforms - online, in store and on mobile.

The ability of retailers to offer next day or same day delivery, for example, will influence purchasing decisions. This means far greater emphasis on the 'Last Mile' in which the end product is delivered to the consumer. In order to meet the demands of consumers in terms of choice, availability and delivery, many extra nodes in the supply chain are required in addition to storage space close to large population centres.

Australia lags behind other Western countries in terms of delivery speed. In part, this reflects the sheer size of Australia and its comparatively low population density. Amazon has yet to make major inroads into the market, but in UK now offers 2-hour delivery on thousands of items, enabled by urban logistics centres and AI-enabled computer software which can predict likely purchases before the consumer has made them. There is scope for significant improvement in delivery speeds in Australia as consumer increasingly expect faster, more efficient order fulfilment which will greatly increase demand for urban logistics.

In the supermarket sector Woolworths launched its first 'dark store' in Mascot, Sydney, in 2014 with the sole purpose of fulfilling online orders. The dark store is facilitated under an IN1 General Industrial land use zoning in the Botany Bay LEP. Online supermarket shopping penetration rates in Australia lag significantly behind those of other countries. In time more and more tech-savvy, time poor consumers will demand better integration of physical and digital supermarkets which will shake up supply chains. Again, the result will be rising demand for distribution warehouses in urban areas.

Even in food and beverage sector demand is expected for urban logistics. Services like Deliveroo, which connect cafes, restaurants and take-aways with nearby consumers, are already established in Sydney. In other global cities trials of 'dark kitchens' have occurred which exist solely to fulfil online orders (Telegraph, 2016). These do not need to be physically accessible to consumers, allowing them to be located in lower cost locations such as industrial sites. The demand for and application of urban logistics and land is therefore broad.

Urban logistics will continue be a strong theme for future employment land in Cumberland (and indeed Sydney). Implications could include:

- A need for more facilities to fulfil the 'Last Mile' to put products directly into the hands of consumers.
- Shared urban consolidation centres in which orders across multiple different retailers are delivered by a single fulfilment centre to serve specific local areas.
- Multi-modal logistics platforms which have access to railway networks, road networks, waterways and other transportation modes.
- Stacked logistics facilities over a number of floors. These facilities are already used in Asia-Pacific, places like Japan, China and Hong Kong which face significant pressure on land.

In high density urban locations with intense demand for industrial land but which lack sufficient stock, stacked logistics facilities could become viable.

4.2 DEMOGRAPHIC TRENDS

Major population-based demographic trends are influencing global society. They are changing the way work is undertaken and, consequently is affecting what makes land use and locations that rely on labour successful. Broader societal changes are shaping sectors of the economy by placing different needs and expectations on them. Some major demographic trends which influence successful locations and use of real estate are explored below.

4.2.1 The Rise of Cities and Re-urbanisation

Cities are increasingly at the forefront of the world economy. Globalisation and international mobilisation of the workforce is concentrating economic opportunity and innovation onto cities. Global cities such as Sydney have experienced unprecedented population growth leading to significant pressure on urban land for various uses.

At the mirco-level a young, cosmopolitan demographic is increasingly viewing inner-city living as an attractive lifestyle choice. Often this means re-colonisation of formerly overlooked inner city areas by an affluent, educated population wanting localised access to employment, amenity and entertainment options while relying on public transport.

In time and in response to rising land prices and scarcity of land, multi-level logistics warehouses in inner city locations may become viable on a large scale. Development schemes may also need to take account of and allow for more localised employment land capable of fulfilling localised demand for logistics and small-scale manufacturing, whether that be car parts, evening meals or bespoke clothing.

The population of Sydney is expected to grow by almost 2 million people by 2036 (NSW Planning & Environment, 2017), meaning that pressure on industrial land for redevelopment to housing will only increase. Concurrently, a larger urban population will require a network of employment and innovation lands to facilitate their lifestyle. Whether that be land for construction materials, to service ever-changing retail habits or deliver fast-food to their homes quickly, the need for proximate industrial land will expand with population growth.

The rise of Sydney's Central City (Parramatta) to rival that of the Eastern Sydney (Sydney) will undoubtedly result in similar demand for housing and employment that will facilitate lifestyle drivers of work proximity, convenience and entertainment. Accordingly, employment and innovation lands that are accessible and close to the Central City are vital to support the growth and evolution of Parramatta into a city in its own right.

4.2.2 War for Talent

The pre-eminence of talent for businesses is increasing in focus with the quality of talent being a critical part of business success. Companies which rely on knowledge-based workers in particular, such as professional services or tech firms, are observed to be using their real estate to attract and retain the best talent.

High-knowledge workers could be employed to develop innovative technologies in a business and may occupy space similar to a commercial office setting. High-knowledge workers could also be employed to implement innovative processes, i.e. oversee and implement the high-tech production of precision parts in a sophisticated and automated process. In the latter situation, employee-floorspace ratios are likely to be low (e.g. one employee per 100sqm) in comparison to the former where one employee may occupy 15sqm-20sqm of floorspace.

As a consequence of different applications of technology and innovation, space utilisation ratios in an industrial facility can be highly variable. Direct employment is not always a reliable indicator of the value-add of a business or sector. As examined in section 3.2.3, certain sectors contribute far greater share to the local economy than the number of workers they employ.

Talent is important for the industrial sector, particularly with the increasing integration of technology and knowledge with output. Notwithstanding, knowledge and technology can be applied in unequal measure by businesses, this decision underpinned by the cost-return ratio which would be different in each industry, sector and scale of operation.

The large-scale application of technology within a business can be cost-prohibitive, necessitating businesses to evaluate the degree of innovation that is employed, i.e. which elements of the business should for example be automated versus which elements should remain a more manual/traditional process.

Whether high-knowledge workers are required to develop innovative technologies or if they are required to implement innovation, in any event the war for talent is no different. Talent is mobile and has expectations of their workplace.

4.2.3 Changing Worker Profile

Industrial jobs are often perceived as being low skilled and low paid. As logistics comes to dominate the industrial sector and as it modernises and experiments with new technology, occupiers increasingly need technically skilled employees.

The perception that industrial jobs mean human production line workers is increasingly outdated. Analysis of ABS employment data supports this view.

Table 4.2: Average Weekly Earnings, 2006-2016

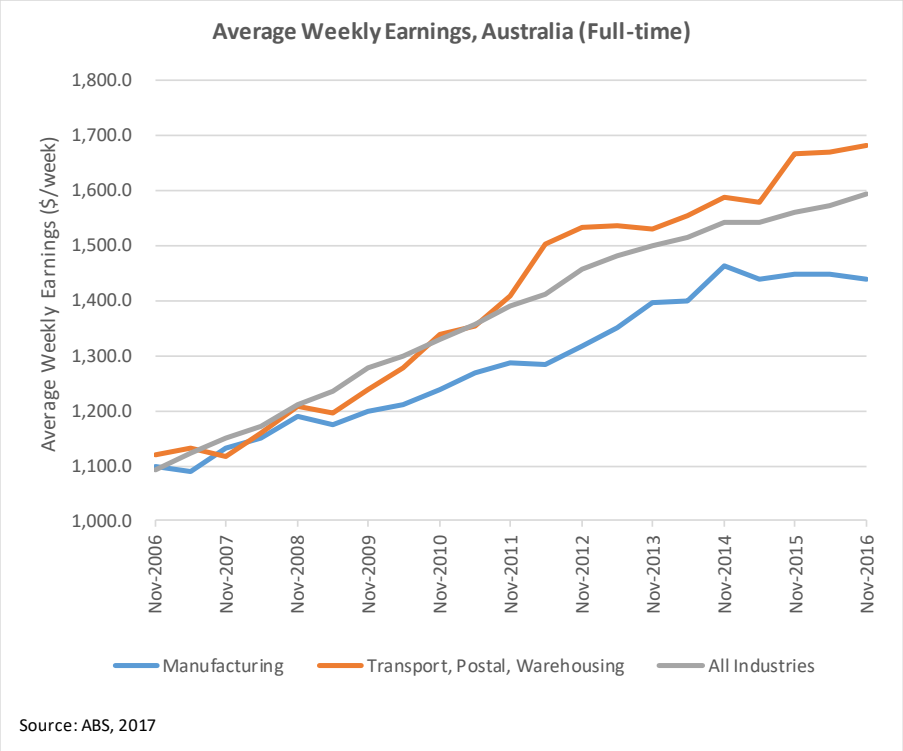
	Manufacturing	Transport, Postal & Warehousing	All Industries
Weekly Earnings ($/week, full-time workers)			
2006	$1,097.0	$1,120.9	$1,093.8
2011	$1,286.0	$1,408.3	$1,390.5
2016	$1,437.8	$1,681.0	$1,595.5

	Manufacturing	Transport, Postal & Warehousing	All Industries
Growth (2006-2016)			
Amount	$340.8	$560.1	$501.7
Percentage	31%	50%	46%
Annual Earnings to All Industry Earnings			
2006	100%	102%	-
2011	92%	101%	-
2016	98%	105%	-

Source: ABS (2017)

Table 4.2 and **Figure 4.3** compare weekly incomes for full-time Australian employees in the 'manufacturing' and 'transport, postal and warehousing' sectors to the 'all industries' average. In 2016 both cohorts were slightly above the all industries average.

Figure 4.3: Average Weekly Earnings, Australia, 2006-2016



'Manufacturing' wages grew by 31% in 2006-2016 compared to 46% growth in the all industries average. As a result, by 2016 'manufacturing' wages were 90% of the national average. By contrast 'transport, postal and warehousing' wages grew by 50% over the 2006-16 period. By 2016, there were 5% higher than the all industries average. Full-time workers in 'transport, postal and warehousing' sector therefore earn above average wages and their earnings growth is outpacing the national average.

The growing skill base and expertise of workers in the logistics sector is not surprising. As a key growth industry sector for decades to come, businesses will invest in innovative practices that will drive productivity and lower cost.

4.2.4 Working Practices

Working practices are changing due to socio-demographic change and technological advancements. A new generation is entering the workforce with completely different expectations than the incumbent working generation.

- **Entrepreneurship and Worker Mobility**
  Self-employment is on the rise. A global study (BNP Paribas, 2016) found that Gen Y (born between 1980 and 1995) are increasingly exploring entrepreneurial opportunities, being both ambitious and having high expectations. While young entrepreneurs show strong interest in the new economy, this is not exclusively the case with traditional sectors also piquing their interest. The study surveyed under 35's which suggested the top three considered future industries are (in equal proportion): financial services, social media and e-commerce.
- **Flexibility and Sharing of Resources**
  There is increasing demand for flexible workspaces on short-term term leases as part of an expanding sharing economy. The co-working provider WeWork is an example of how the sharing economy is changing the office environment, which is particularly successful among start-up and emerging businesses.

  The ability to co-work offers significant flexibility (no commitment to a fixed lease, ability to use common facilities such as meeting rooms, printing facilities) and the opportunity to interact and collaborate with other businesses/individuals.
- **Importance of Amenity**
  As workers now have more ability to choose where they work, places of employment are working harder to attract employees in. This means more interesting, engaging work spaces and additional perks like free food or leisure activities. The ability of talent to work from anywhere also reinforces the need for central, accessible workspaces in cities for meetings and collaboration.

Changing working practices are likely to impact industrial uses on a smaller scale compared to office uses. Industrial employees are usually needed for specific on-site functions and therefore need to be on site every day. This is true for both manual pickers or production line workers as well as more specialist and high-knowledge workers.

FLEXE is an American online platform connecting business seeking short-term warehouse-space with landlords and occupiers with excess capacity. FlexSpace offers a similar platform for offices, warehouses and industrial spaces in the UK. Comparable models could emerge in Australia to serve a rising demand for short-term, flexible industrial space.

A rise in self-employment and growing technical innovation could mean demand for small industrial units or experimental warehouse space available on flexible terms to facilitate the incubation and growth of new ideas.

Case study analysis shows instances of where large landowners have utilised their lands to incorporate flexible facilities where start-up and emerging companies can co-locate and share on-site facilities. Principled on an innovation theme, examples include Sony Technology Centre (Wales, UK) and East Plus (London, UK), Bentley Technology Park (Perth) and Dandenong Innovation Cluster (Melbourne). These case studies are explored further in Chapter 5.

4.2.5 Sustainability

Sustainability is a global theme. Promoting sustainability for the industrial sector encourages shorter supply chains with less transportation and less wasteful industrial processes. The prevailing industrial trends explored above in terms of re-shoring, urban logistics and technical innovation cultivating streamlined distribution align with sustainability objectives, although sustainability is not in and of itself a major driver of change in the sector.

Several innovation parks are observed to have incorporated a sustainability focus in their development. LOGIS Innovation Park (Dandenong, Melbourne) is an eco-friendly park with the developer implementing green strategies while East Plus (London, UK) incorporates a 'Sustainable Industries Park' where occupiers selected on the basis of their sustainability credentials.

4.3 CURRENT MARKET ACTIVITY

Sydney's metropolitan industrial market is experiencing a growth spurt. Buoyed by a combination of substantial government infrastructure investment, the rise of online retailing and withdrawals of industrial stock in parts of Sydney, Cumberland has benefited from strong demand with businesses and investors alike observed to be continuing to shift their focus towards the geographic centre of Sydney. Little new development (with the exception of Greystanes) has further contributed to tight market conditions in most metropolitan markets.

The emergence of the logistics and warehousing sectors as a core source of demand for industrial sites has had a profound impact on the Sydney industrial market. Both sectors have largely been driven by the growth of the retail and wholesale industries which have benefitted from an uptick in consumer demand and evolving sectoral changes. The 'bricks and clicks' based retailers are becoming increasingly active in metropolitan industrial markets and are already observed within Cumberland and Western Sydney, e.g. Hello Fresh in Greystanes, The Iconic in Yennora and Amazon in Horsley Park.

With this growing demand from logistics and warehousing users, the advent of (and demand for) modern storage solutions has increased paramount. Many older warehouses unable to incorporate modern picking, storage and transport technologies have suffered reduced demand (and subsequently lower values and rents). Such trends are observed in parts of Cumberland.

Whilst large numbers of stock within the Study Area is aged and approaching obsolescence, many of the Employment Precincts in Cumberland benefit from large lot sizes and are subsequently ripe for redevelopment to accommodate more modern facilities.

The following sub-sections analyses sales, leasing and development activity across the various Employment Precincts in Cumberland and provide commentary on the competitive standing of the precincts.

4.3.1 Sales Activity

Western Sydney has observed strong demand for investment grade industrial assets over the past 12-18 months with keen interest from overseas investors, institutional property funds and owner occupiers alike noted by local real estate agents. Portfolio sale activity has been buoyant in recent times - the sale of 53 Britton Street in Smithfield for $27.8m as part of the Altis AREEP II portfolio is a prominent local example.

- **Interest Rates**
  Similar to other property markets, interest rates have direct impact on purchaser activity within the industrial market. With the prolonged period of low interest rates, local industrial agents note that number of owner occupier purchasers has increased as local businesses take advantage of cheap credit and look to purchase as opposed to lease.

  Additionally, low interest rates have obvious repercussions for institutional investors seeking returns with prime industrial properties still trading at attractive market yields (circa 6%-7%) compared to prime commercial and retail properties within metropolitan Sydney (sub-5%) which have been flooded by yield-seeking buying activity.

- **WestConnex Motorway**
  The imminent completion of the WestConnex Motorway is identified as a major driver in sales activity with businesses seeking to situate between Sydney and Parramatta CBDs. This is most evident in the >5,000sqm component of the market where freight and logistic operators as well major retailers and consumer suppliers seek out large sites to base their distribution centres to service metropolitan Sydney.

- **Quality of Accommodation**
  Extensive discussions with local industrial agents indicates that strong purchaser interest transcends each of the employment precincts in Cumberland, with greatest price levels observed in **Lidcombe (East and West)** whilst Girraween represents the lower bookend of sale values.

  The higher prices witnessed in Lidcombe are a direct function of where more modern facilities are available, as well as their appeal to businesses as a location suitable for both head office and operations requirements (well serviced by M4 Motorway as well as by public transport and retail amenity).

- **Diverse Market Dynamics**
    - Notwithstanding its excellent location directly off the M4 Motorway, **Girraween** suffers from a poorer image due to the age of the area and buildings and number of 'dirtier' users therein, e.g. chicken hatcheries. By way of example, 35 Amax Avenue in Girraween sold for $1.91m ($1,000/sqm site area) in March 2017 compared to 47-61 Bachell Avenue, Lidcombe which sold for $3.4m in August 2014, equating to a rate of $1,600/sqm site area. Both sites are zoned IN1 and are between 1,800sqm-2,000sqm in site area and are therefore relatively comparable however 47-61 Bachell Avenue achieved a much higher sale price despite selling almost three years earlier in a much softer market.
    - **Regents Park** and **South Granville** represent the second tier down from Lidcombe and Auburn in terms of industrial property values, particularly Regents Park given the availability of the train station. For example, a relatively aged warehouse building with low clearance heights at 7-11 Clapham Road sold for $2.66m in May 2016 (circa $1,400/sqm site area), which is considered a strong result despite the age of the building.
    - **South Granville** has produced a significant number of transactions over the past 12-18 months with strong sale prices observed for both small and large sites. For example, a small brick factory/warehouse building at 20 Ferndell Street sold for $950,000 in March 2017 to a small warehousing company, equating to just under $1,750/sqm site area. Conversely, a 10ha site at 54-68 Ferndell Street comprising the former headquarters of Merck Sharp and Dohme was acquired by Jaycar Electronics for $55m in July 2016, equating to just under $550/sqm of site area. Both sales are representative of strong owner occupier activity observed within South Granville.
    - Sales rates within **Smithfield** and **Yennora** are typically on par with South Granville however lower rates can be observed where aged buildings do not meet the requirements of modern industrial occupiers. Recent sales activity is most readily observed in the >5,000sqm sector of the market with several large deals observed over the past 12 months generating strong results with interest from investors and owner occupiers alike.
    - **Greystanes** has emerged as a premier industrial precinct in recent times following Stage 1 completion of the QuarryWEST development by Dexus. Little sale activity has been observed with the exception of the 6.57ha site at 6-20 Clunies Ross Street in December 2015 which sold for $76.6m to Perpetual Corporate Trust, equating to $1,150/sqm of site area. The site compromises a modern distribution centre and is understood to be occupied by Australia Post, NSW Police and Wesfarmers.

Overall, industrial agents note that stock in each employment precinct is relatively tightly held as owner occupiers anticipate improved traffic and road conditions that will be delivered by Westconnex, in addition to several other local road improvements being delivered by RMS through the Pinchpoint Program, e.g. The Horsley Drive upgrade.

Sales demand is likely to remain positive over the short to medium term as the merchandise trade, construction and manufacturing sectors continue to demand processing, storage and logistics centres between the Parramatta and Sydney CBDs.

4.3.2 Leasing Activity

Similar to the sales market, leasing activity within the Study Area has been robust over the past 12-18 months with rents rising whilst vacancy levels have fallen. This is largely in line with Sydney industrial averages, with overall vacancy levels understood to be the lowest on record with just under 402,000sqm of floorspace available across metropolitan Sydney (Knight Frank, 2017). Extensive discussions with local industrial agents indicate likely industrial vacancy levels in Cumberland are likely circa 5%-10%.

Given the particularly tight market conditions, average industrial rents of prime industrial buildings across metropolitan Sydney have risen 3.8% over the 12 months to April, the greatest annual increase in a decade (Knight Frank, 2017).

Aa clear hierarchy is observable between each precinct with regard to rental rates. Following detailed discussions and interviews with a variety of industrial agents and landlords, the average range of gross rents achieved for good quality industrial space between 1,000sqm-5,000sqm of floor area for each precinct is depicted below in Table 4.3.

It should be noted that poorer quality assets approaching obsolescence will not fall within these respective ranges given the discounting required to secure tenancies.

Table 4.3: Rent Levels in Cumberland

Ranking	Precinct(s)	Average Gross Rent ($/sqm floor area)
1	Lidcombe East	$130/sqm-$145/sqm
2	Lidcombe West	$130/sqm-$140/sqm
3	Greystanes	$125/sqm-$130/sqm
4	South Granville/Regents Park/Clyde	$120/sqm-$130/sqm
5	Smithfield/Yennora	$110/sqm-$125/sqm
6	Girraween	$100/sqm-$120/sqm

Source: AEC

Interestingly, the vast majority of the precincts comprised in Cumberland are achieving average gross rents above the average rates observed in the Outer West region, demonstrating the appeal and strong demand for land that is centrally located between Sydney and Parramatta.

Local agents note that the majority of lessee interest is observed from the logistics, transport and distribution sector, many being on servicing e-retailers. That said, strong demand is still observed from smaller service orientated operators (smash repairers, building trades, etc) and food and beverage manufacturing. Small pockets of furniture and marble manufacturers, steel fabrication and other traditional manufacturing industries are also observed to be seeking space within Cumberland.

4.3.3 Location-specific Factors

Whilst the broader trends influencing demand for industrial property have been acknowledged, location-specific factors driving the appeal of the respective factors can only be understood when investigated at the micro level. Extensive conversations with local agents, landlords and local businesses has distilled three key factors which drive the appeal for industrial floorspace within Cumberland.

- **Proximity to Motorways and Arterial Roads**
  The relative close proximity to the key motorways (M4 and M7) along with major arterial roads such as the Great Western Highway/Parramatta Road, Cumberland Highway and Hume Highway provide excellent access to and from both the orbital and arterial road network. Given the range of businesses with time-critical distribution requirements, Cumberland's location to major road infrastructure is the key consideration for existing businesses and those businesses seeking accommodation.

- **Centrality of Location**
  The central location of Cumberland provides strong access to major markets such as Sydney CBD and Parramatta CBD, in addition to key logistics gateways such as Port Botany, Kingsford Smith Airport, Bankstown Airport and the Enfield Intermodal Terminal. The Study Area is also well-positioned to service nearby strategic and district centres such as Liverpool, Bankstown and Fairfield. Given the surrounding motorway and road networks, Cumberland is optimally located to service much of metropolitan Sydney.

- **Affordability**
  Whilst recent market conditions have driven increases in both industrial property values and rents, Cumberland remains relatively affordable compared to the Inner West and South Sydney markets. This has been a major factor driving the movement of large national freight and logistics tenants into the area while benefitting smaller and emerging local businesses.

These three components are the primary drivers behind the appeal of employment precincts in Cumberland to a variety of businesses.

4.3.4 Development Activity

Given the varying types of occupiers seeking accommodation in Cumberland, the nature and amount of development currently observed differs in each Precinct to meet respective market need. Market indicators such as property values and rents will also directly influence the level of development being undertaken in each precinct.

Table 4.4 analyses development activity currently observed within the development pipeline for each precinct, noting the primary type of development being progressed and major projects therein.

Table 4.4: Development Activity

Precinct	Activity	Type of Development
Girraween	Limited	Solely refurbishments and additions are observed as opposed to demolition and redevelopment, major projects being: • Expansion of Cordina Chicken Farms factory facility and cold storage/processing plant • Expansion of the Baiada Poultry processing plant to include an additional storey above administration building for an additional 1,460sqm office GFA • Variety of additions and expansions to a number of warehouse buildings
Greystanes (Pemulwuy)	High	Large volume of new development primarily at the QuarryWEST Dexus Estate comprising 8 development lots and a total GFA of 131,140sqm. Building typologies include: • Logistics campus and distribution complex including ancillary office and retail service centre (Zone 1) • 4 warehouse and distribution facilities with ancillary office (Zone 2)
Smithfield	High	Strong level of development activity ranging from new builds to additions and refurbishments. Many developments are targeting aged warehouse and factory buildings for demolition and construction of large warehouses, distribution centres and smaller format industrial suites. Major projects include: • Demolition of existing factory at 132-144 Warren Road for 60 small format industrial suites. • Demolition of old warehouse at 727-737 The Horsley Drive for construction of a 24 small format industrial suites. • Construction of a transport depot totalling 194,644sqm of industrial floorspace at 93 Victoria Street.
Yennora	Moderate	Modest level of development underway, particularly new developments along the western edge of the Precinct and on the former Alcoa site. Major projects include: • Proposed construction of a singe storey warehouse/distribution facility and a 2 storey office building at 63 Pine Road and 7 Dursley Road. • Construction of an industrial warehouse & ancillary office, ancillary washbay and repair bay at 202 Fairfield Road. • Proposed construction of 8 industrial units on part of the former Alcoa site (26-28 Nelson Road and 30 Loftus Road).
South Granville	Limited	Limited new development currently observed with the majority of development being alterations and additions. Several alterations are to increase the existing warehouse heights to accommodate larger trucks and shipping containers. Major projects include: • Construction of 3 warehouses with ancillary office space for use as a distribution centre for Jaycar Electronics Group at 62 Ferndell Street. The only new build underway. • Alterations and additions to existing warehouse building to increase building height and remove office space to provide additional warehousing space at 46-52 Ferndell Street.
Regents Park	Moderate	Strong number of new developments observed in the pipeline with older factory and warehouse buildings being replaced with modern light industrial/workshop buildings. Major projects include: • Construction of a 3 storey warehouse complex for use as a distribution centre with ancillary office space at 35 Clapham Road. • Demolition of existing warehouse building for construction of a light industrial building to be used for the manufacturing and warehousing of metal flashings at 1 Clapham Road. • Proposed construction of a single storey warehouse building with ancillary two storey office building at 29 Rose Crescent.
Lidcombe	Moderate	Moderate level of new development planned in both Lidcombe Precincts with additions and refurbishments also well represented in the development pipeline. Major projects include: • Demolition of aged warehouse building for construction of an industrial building for the purpose of the manufacturing and storage of blinds with ancillary office and showroom space at 15 Alban Street. • Construction of a storage facility and warehouse with ancillary office space at 48-50 Boorea Street. • Alterations and additions to existing Parmalat warehouse to expand the existing milk processing plant to incorporate an automated palletiser. • Alterations to the existing Bunnings site on Parramatta Road to include additional office floorspace.

Precinct	Activity	Type of Development
Clyburn	Marginal	Dearth of new development, both new builds and alterations, observed in the pipeline. Only major development observed in recent times has been two commercial office buildings at 148 Manchester Road for use by Sydney Trains.
Parramatta Road (Auburn)	Limited	Little new development currently with only a small number of new builds and alterations currently observed in the development pipeline. These projects include: • Demolition of existing dwellings for construction of a 2-3 storey commercial building comprising 580sqm of commercial GFA at 88 Adderley Street. • Construction of a warehouse building with 2 warehouse units at 68-80 Adderley Street. • Alterations and additions to existing Officeworks at 300 Parramatta Road.
Holroyd	Marginal	Low level of development activity. Planning Proposal for the Westrac site for the development of a mixed use development that is primarily resiential is with the State Planning Panel for consideration.
Westmead (Mays Hill)	High	Large amount of mixed-use development observed along Great Western Highway with the existing commercial buildings largely demolished and cleared. A total of 243 residential apartments is proposed within the precinct. Major projects include: • 4 residential single storey dwellings proposed to be demolished for construction of a 7 storey mixed-use development comprising 84 units and 4 ground floor commercial tenancies at 141-147 Great Western Highway. • Demolition of two existing single storey dwellings occupied for home businesses for construction of a 7 storey mixed-use development comprising 42 units and 3 ground floor commercial tenancies at 181-183 Great Western Highway.
Great Western Highway (Greystanes)	Marginal	Construction of an additional warehouse at 405 Great Western Highway between the two existing warehouses is the only new development currently being progressed.

Source: AEC/Cordell Connect

In precincts where large scale, new build development activity is occurring as opposed to additions and expansions, properties that are approaching obsolescence are observed to be the target of this new development activity. Development site sale activity is investigated in further detail below.

4.3.5 Development Site Sales

A dearth of recent development site sale activity has been observed in Cumberland, particularly in the northern precincts of Girraween, Greystanes, Clyburn and both Lidcombe precincts. Site sales have been largely limited to the Smithfield, Yennora and South Granville precincts over the past 12-24 months as developers target ageing buildings approaching obsolescence for redevelopment into more modern warehouse facilities or intensification with industrial complexes with smaller suites.

A lack of development site sale activity in areas such as Greystanes and Lidcombe is expected - both precincts are improved with modern facilities with high existing use values rendering redevelopment into similar building typologies financially unviable. Girraween has also observed little development site sale activity which is likely due to the tightly held nature of the area and low rents and property values providing little incentive for developers to undertake redevelopment in the precinct.

4.3.6 Competitive Analysis

With the emergence of logistics operators as a major driver of floorspace demand, linkages to motorway and arterial road infrastructure have become paramount to the appeal of the employment precincts. Site specific features are equally important with sites unable to incorporate modern requirements consequently less appealing to businesses.

Industrial occupiers with smaller floorspace requirements are typically service-orientated and population-serving accordingly, tend to locate adjacent population centres. Whilst many of these businesses will not have the number of specialised requirements sought by national logistics operators, adequate access to arterial roads is equally important in order for businesses to viably service the surrounding population.

Quality of buildings, range of building sizes, access and congestion levels, surrounding land uses and proximity to motorways and key arterial roads all cumulatively influence the appeal of each employment precinct in Cumberland.

Precincts in Cumberland compete against each other, as well as other industrial precincts outside of the Study Area. Table 4.5 identifies and discusses the primary competitors of each employment precinct in Cumberland.

Table 4.5: Competitive Analysis, Employment Precincts within Study Area

Precinct	Main Competitors	Analysis
Girraween	• Pendle Hill • Greystanes • Arndell Park • Huntingwood • Smithfield	• Identified by local agents as the least desirable precinct in Cumberland due to the age of existing buildings which typically do not cater to modern users as well as existence of several dirty users which detracts from the desirability of the area, e.g. chicken hatcheries and processing centres. • Whilst the precinct is well-liked by existing occupiers, it typically fails to attract new occupiers and tenants. • Location wise, the precinct is amongst the most well-located in Cumberland given its proximity to the M4 Motorway and Parramatta Road/Great Western Highway.
Greystanes (Pemulwuy)	• Huntingwood • Eastern Creek • Wetherill Park • Smithfield/Yennora • Arndell Park	• Highly desirable newly constructed precinct with a number of major national tenants which has subsequently raised the profile and status of the area. • Modern, purpose-built warehouses have attracted a number of pharmaceutical companies which require climate-controlled facilities for storage. • High quality, well-designed ancillary office and retail space with attractive streetscapes has created a strong level of amenity not currently offered in Cumberland outside of Lidcombe East. • Given the large size of buildings offered, main competitors are typically Huntingwood and Eastern Creek given the similar age and quality of buildings located therein.
Smithfield	• Wetherill Park • Greystanes • Huntingwood • Eastern Creek	• Desirable industrial precinct with solid access to both the orbital and old road network given it is situated adjacent the Cumberland Highway. Includes a range of building sizes catering to a number of users. • Main competitor is Wetherill Park which local agents note is slightly more desirable given slightly better quality of buildings and closer proximity to the M7 motorway via The Horsley Drive. • Wetherill Park also has a larger buffer from residential uses and is subject to marginally lower levels of local road congestion which will be further improved through the Horsley Road upgrade works.
Yennora	• Greystanes • Smithfield • Wetherill Park • Eastern Creek • Fairfield East/Villawood	• Major industrial precinct within Cumberland which has slowly declined in desirability according to research. This is understood to be due to ageing quality of stock, road congestion and access issues along with pressure from surrounding residential uses to limit hours of business operations. • Local agents note most industrial users currently seeking space within the region will tend to avoid the area if possible given the precinct's access is largely limited to narrow local roads which proves difficult for major freight and logistics users. • The existing intermodal terminal is currently underutilised and output is restricted under current arrangements with Sydney Trains. • Nearby precincts such as Smithfield, Wetherill Park and Greystanes are identified as more desirable under current conditions. • Local road improvements and redevelopment of existing industrial buildings will improve the desirability of the precinct.
South Granville	• Regents Park • Sefton • Villawood • Bankstown/Revesby	• Small, well-occupied industrial precinct dominated by large warehouse and factory buildings. • A lack of heavy and 'dirty' industrial users has boded well for the image of the area. • Though the area suffers from poor access and is largely limited to the local road network, it is well buffered from surrounding residential uses. • A number of small cafes and fitness operators further improves the amenity offer within the precinct. • Major competitor is nearby Regents Park which has a similar level of amenity. It however, includes a greater range of building sizes.
Regents Park	• Chullora • Bankstown/Revesby • South Granville • Sefton	• Well-occupied industrial precinct with a range of light and 'clean' industrial users with several companies also including head office space (e.g. Toys R Us, Thomas Global Systems). • Area is dominated by the Regents Park Industrial Estate (owned by Dexus) with a range of small and large tenants. • The Regents Park train station is identified as a key factor behind the popularity of the precinct. • Major competitors include the nearby Chullora industrial area and the Bankstown industrial area surrounding the Bankstown airport.
Lidcombe East	• Lidcombe West • Silverwater • Newington	• A premier precinct Cumberland with a range of large warehouse buildings and contemporary business park space at Campus Business Park and Lidcombe Business Park (both owned by Goodman). • Proximity the M4 motorway and Parramatta Road, quality of existing buildings and central location between the Sydney CBD and greater Western Sydney

Precinct	Main Competitors	Analysis
		ideally suits a range of industrial users, many of whom have head office space within the respective business parks. • Major competitors would include Silverwater and Newington however these precincts lack the quality of accommodation and/or strong access characteristics compared to Lidcombe East.
Lidcombe West	• Lidcombe East • Silverwater • Clyde	• Popular industrial precinct containing a variety of large warehouse and distribution centres along with smaller industrial suites within the Quantum Corporate Park. • Similar to Lidcombe East, the precinct is well-positioned adjacent the M4 motorway which provides strong linkages between the Sydney CBD and Western Sydney. • Local agents note that older stock along St Hilliers Road has suffered from longer vacancy periods in recent times due to the age of the warehouses unable to meet modern tenant requirements, particularly around clearance heights. • Surrounding residential uses are also cited as limiting hours of operation, detracting from the precincts desirability as a business location. The major competitor is Lidcombe East which provides more modern business park facilities, while neighbouring Silverwater and Clyde compete for larger heavy industrial users.
Clyburn	• Silverwater • Lidcombe West • Rydalmere	• Designated as an intermodal terminal, the precinct accommodates the Clyde Waste Transfer Terminal which receives large volumes of household and commercial waste for transfer by rail for treatment. • The Clyburn industrial precinct is dominated by the auto service industry with land use intensity amongst the greatest within the Study Area (lot sizes circa 400sqm-800sqm). • The precinct also accommodates cement manufacturing and Sydney Rail maintenance activities. • Located between the M4 Motorway, Parramatta Road and T1 Western rail line, the precinct has strong access however is a relatively harsh urban environment. • Silverwater provides the primary competitor to the precinct, given the number of similar sized accommodation whilst remaining in close proximity to the Sydney Speedway.

Source: AEC

Employment precincts in Cumberland have the benefit of excellent location and accessibility (via M4 and M7 motorways). Vehicle congestion and ease/frequency of access can be an issue in certain areas while obsolete buildings can hinder businesses' functional requirements. Cumulatively, these factors can either cause businesses not to choose Cumberland or existing businesses to move away.

The development pipeline (Table 4.4) demonstrates a range of development activity is viable to undertake, from comprehensive redevelopment to refurbishments, upgrades and extensions. The core requirement is suitability/sustainability of location. That being present, market demand will underwrite rents/prices that are sufficiently attractive to incentivise landowners/landlords to reinvest in their properties. In locations where business activity is not viable (whether due to restricted truck movements or residential land use conflicts), market demand will deteriorate and eventually render subject properties therein unattractive from a market perspective.

Cumberland's employment precincts cater to a variety of users and budgets. While overall Cumberland is well positioned, there are certain precincts that face challenges with land use conflicts and restrictions on operations which if left unaddressed, could leave these precincts at risk of becoming uncompetitive.

4.4 BUSINESS OCCUPIER AND LANDOWNER FEEDBACK

To understand the relative market appeal of the respective precincts as well as the level of innovation take-up, discussions were conducted with local sales/leasing agents, landowners and businesses.

Responses from all parties consulted consistently identified three major factors (in order of importance) that underpin the desirability of employment and innovation lands in Cumberland:

1. Proximity to motorways and arterial roads.
2. Centrality of location (between Parramatta and Sydney).
3. Affordability to suit different budgets.

The negative factors commented upon by local businesses and agents was road congestion and complaints from residential uses, which have in some precincts resulted in restricted business working hours. Congestion on local roads has direct implications for those precincts distanced away from the M4 Motorway or arterial roads (e.g. in Yennora, South Granville, Regents Park), necessitating vehicle travel through or past residential roads.

Conflicts with surrounding residential uses was raised as the most serious threat to the continued viability (and attractiveness) of employment and innovation lands. Local real estate agents note that working hours around the Lidcombe West, Yennora and Smithfield precincts have been restricted in some parts due to complaints from nearby residents. Land buffers between employment and residential land are limited or non-existent in various areas, thereby detracting from the integrity and sustainability of these employment and innovation lands.

A lack of amenity (e.g. retail, childcare facilities) and public transport connections were cited as drawbacks, particularly by businesses who seek to retain higher knowledge workers.

Business Innovation and Utilisation of Technology

Feedback from local agents and businesses indicates that take-up of innovative technologies remains relatively slow. Cost is cited as the primary deterrent to investment, with the users of such technologies generally limited to the larger companies who benefit from large balance sheets and/or access to significant amounts of debt capital. For many businesses, manual labour remains the default method of operations.

Whilst uptake of new technologies remains low, several examples of businesses utilising advanced technology and/or R&D activities can be observed in various precincts in Cumberland.

- **Toshiba Centre of Excellence (QuarryWEST, Greystanes)**
  Toshiba currently occupy a purpose-built 12,520sqm 'dark warehouse' within the new 'QuarryWEST' industrial estate in Greystanes. The warehouse serves as Toshiba's new consolidated metropolitan distribution centre for health and pharmaceutical supplies with ancillary office and laboratory space.

  The warehouse is understood to be equipped with a multi-shuttle sortation, picking and pallet stacking system (cost >$100m) which has drastically reduced the need for manual labour and technicians whilst creating exponential growth in output. The building is climate-controlled with self-monitoring capabilities given the perishable nature of health and pharmaceutical supplies.

- **Fujitsu Data Centre (Bellevue Circuit, Greystanes)**
  Originally constructed in 2011, the Fujitsu Western Sydney Data Centre provides data and cloud storage services for large parts of Western Sydney. The 17,500sqm multi-level building comprises a 9,000sqm data hall with 2,000sqm of office space. Fujitsu undertook major upgrades to the facility in late 2015 ($12.2m) to improve power infrastructure and internal capacity in light of strong demand for enterprise grade data storage.

- **Thomas Global Systems (Regents Park Industrial Estate)**
  Located within Dexus' asset at Regents Park Industrial Estate, Thomas Global Systems manufacture avionics and defence electronics systems as well as computerised pilot training and stimulation computer systems. Occupying circa 3,000sqm of warehouse and office space, all business functions are currently located within the Regents Park building including R&D. A high level of new technology and robotics is understood to be employed on-site.

- **Meriuex NutrSciences (Regents Park Industrial Estate)**
  Also located within the Regents Park Industrial Estate, Meriuex NutrSciences is a global microbiological analytic company specialising in safety testing food, pharmaceutical, cosmetic, agrochemicals and consumer goods. The company currently occupies a 500sqm-600sqm industrial suite primarily used for clinical laboratory space, representing their only location within NSW.
- **Neptune Bio-Innovations (Lidcombe Business Park)**
  Occupying circa 1,500sqm of industrial space within the Lidcombe Business Park, Neptune Bio-Innovations develop, test and manufacture alternative food products for individuals with auto-immune diseases. The suite comprises a large portion of laboratory space and clean rooms with a range of specialised medical equipment.

The overall degree of business innovation may not necessarily be manifest in the use of sophisticated technological systems. Utilisation of higher knowledge workers to gain production efficiencies as well as product customisation to better meet customer need and more effective marketing/organisational systems are all innovative initiatives that assist with business competitiveness and profitability.

Recruitment and Employees

Businesses consulted indicate the vast majority of their employees live within close proximity (10km-15km). Many businesses are understood to have had the option of relocating premises (for example on lease expiry) however have chosen to remain in Cumberland in order to retain local staff members.

Some smaller businesses indicate some difficulty finding highly qualified individuals to fill highly-specialised roles, further noting that employee expectations regarding the quality of their working environment are directly related to their skill and level of expertise.

Some businesses are understood to be reluctant to co-locate head office and operations in employment precincts further south (e.g. Smithfield, Yennora), instead choosing to situate only operations there, with head office functions elsewhere in a more 'office' environment, e.g. in Macquarie Park, Sydney CBD, Parramatta CBD. In contrast, employment precincts in the north (e.g. Lidcombe West and East) are understood to have more appeal to businesses as locations to accommodate head office/operations under the one roof. These businesses attitudes are understood to be borne out of perceptions on staff attraction and retention.

Accommodation Considerations of High-technology/Advanced Manufacturing Occupiers

Several high-technology businesses outside Cumberland were interviewed to obtain their perspectives on general floorspace requirements as well as the relative desirability of employment precincts in Cumberland. The following common requirements are observed:

- An **array of functions** is generally carried out on-site (design, research, product manufacturing, sales support).
- **High office-to-warehouse floorspace ratio** (compared to traditional manufacturing where office-to-warehouse ratio is low) and requirement of 'clean rooms' with different levels of cleanliness.
- **Employee amenity** is critical, e.g. access to cafés and restaurants, recreational facilities (gym, running/cycling tracks) and other retail amenity such as a microbrewery, convenience shopping and coffee shops.
- **Public transport** is a key requirement. Feedback suggests that many employees with bachelor degree qualification or greater would generally not consider a job if there was no train station access.
- **Competitive clustering** only occurs where businesses have common customers or where there is benefit for users to collaborate on ideas. Defence clusters are not uncommon, where vendors and service providers co-locate with each other with a view of servicing their key clients who are also in the same locality.

  In Melbourne, a number of 'Employment and Innovation Clusters' are identified for competitive clustering, centred around medical, research and tertiary institutions across metropolitan Melbourne (DELWP, 2017).
- **Proximity to airport and/or port** can be a requirement depending on the business. Unlike freight and logistics operators who seek to, as much as possible, shorten the length of the supply chain, high tech and advanced manufacturing businesses typically have a much shorter production chain.

4.5 FUTURE MARKET INFLUENCES ON CUMBERLAND

This Chapter has explored the major sectoral and demographic changes impacting on the industrial sector and its consequent demand for land. The chapter also examined market activity in Cumberland and business/industry feedback on business activity to understand the factors being felt on-ground.

Cumberland's future and the types of business activity that will seek accommodation is cumulatively influenced not only by economic trends and factors, but is equally driven by business-specific objectives and approach to innovation for productivity gains to achieve their cost-return imperative.

Sectoral and Demographic Trends

A number of key trends are observed to have influence on how industry requires and utilises land and floorspace. These included:

- Globalisation and off-shoring compelled many businesses to chase productivity gains in order to remain competitive. Interventions included use of more automation, streamlining of businesses processes and sourcing materials from cheaper locations outside Australia.
- A structural shift from traditional manufacture to consumption saw a shift of the industrial land sector in Australia to include logistics and related functions as well as more niche, high-value manufacturing sectors.
- The rise of cyber-systems will continue to drive change in the fit-out and configuration of industrial stock with occupiers expected to invest more capital into their warehouses and commit to locations for longer as a result.
- Successful retailers of the future will have fully-integrated e-commerce supply chains. Delivery speed, range and flexibility will become a main differentiator for retailers, requiring additional delivery nodes within their supply chains. This will increase aggregate demand for logistics space and with a strong focus on urban logistics in particular.
- The re-shoring of niche manufacturing may see some previously off-shored specialist manufacturing processes relocated back to Australia, allowing innovation opportunities in the production process to be captured. This could require locations that can accommodate a range of functions and processes.
- The war for talent, evolving working practices and sustainability impacting employment and innovation lands although these are not primary drivers of changing demand.

Market and Business Feedback

Discussions with various business occupiers, real estate agents and landowners suggest that overall, Cumberland has many strengths. The overall level of satisfaction of business is high, with the centrality of location cited as an overwhelming strength of the employment precincts in Cumberland.

Cumberland's weaknesses are generally a function of its composition and layout. Due to the presence of many small allotments (particularly in certain precincts), in some parts traffic congestion and ingress/egress is an issue. Buildings in some of the employment precincts are dated and ageing, with some properties in spite of their excellent location at risk of taking longer to lease.

The price of accommodation (i.e. rents, property prices and land values) is cited to be a disadvantage particularly for larger occupiers who require more than 10,000sqm of building area. Many of these occupiers seek out accommodation in the Outer West regions where prices are lower than in Cumberland.

Implications for Employment and Innovation lands

Key implications for employment and innovation lands in Cumberland that emerge in the context of influencing trends include:

- Demand for accessible employment and innovation lands close to customers and labour pools will increase concurrent with the rise and growth of the Central City.
- The use of higher knowledge workers will continue to increase as businesses seek to value-add and improve their efficiency and productivity. A corollary of this is a rise in worker amenity expectations.

- Logistics will remain the dominant driver of industrial lands demand with new types of warehouse models emerging, for example mega-fulfilment centres, dark stores, parcel sorting and returns centres. Demand for logistics-related land is expected to grow strongly. This is also expected to result in demand for small-scale facilities in and around centres and business zones.
- The highest value lands will be those located closest to transport links, particularly multi-modal links.
- Cumberland is well placed to capture emerging demand from re-shored manufacturing facilities on account of its proximity to a large labour and consumer market, offering fast speed to market from manufacture to customer.
- The increasing use of cyber-systems will mean that providing access to quality internet infrastructure will be essential to future-proofing employment and innovation lands.
- There is some growth in demand for flexible warehouse space available on shorter lease terms.
- The fit-out and configuration of warehouses will evolve in response to the use of robots and the emphasis on supply chain speed and efficiencies. Greater heights and FSRs may be needed, with taller warehouses to process fast-moving goods. Flexibility will be essential. Given the high cost of capital investment to integrating technology into industrial space, occupiers will need long-term security of land use in order to commit.

Historically a high proportion of the Cumberland's activity has been centred on manufacturing and wholesaling activity, in particular, manufacturing of paper and wood product and printing support services. Over the next decade, Cumberland is likely to witness the departure of more traditional sectors, e.g. wood product and parts manufacturing activities (with the exception of highly customised, niche manufacturing) in favour of innovation in industrial activities. While some businesses have departed, others have restructured and diversified their operations and target markets in anticipation of change in the sector. Businesses will seek to innovate in response to change.

Whilst supporting the diversification and innovation of existing business will be important, Cumberland also has the opportunity to attract medium and larger sized enterprises across a range of other industrial activities, that are likely to be more focused on warehousing and distribution, wholesaling and retailing, as well as manufacturing activities that are highly invested in knowledge, technology, innovation and value adding activities. This is in line with Australian manufacturing trends, which will see greater emphasis on innovative and knowledge-based industrial activities, as the pressure from competing global markets increases.

The next chapter explores the notion of 'Innovation', its drivers and where it seeks to be located.

5. ROLE AND IMPORTANCE OF INNOVATION

This Chapter examines the concept of innovation and how it is important for a local economy like Cumberland. It then explores the environment in which innovation can occur as well as the key characteristics and requirements of innovative businesses when deciding where to locate. Understanding the requirements and parameters for attracting innovative industry will be important for ensuring that the right environment is created in Cumberland through planning, policy and partnerships to facilitate high value employment growth.

5.1 CONCEPT OF INNOVATION

'Innovation' derives from the Latin root word "*innovatus*", which means to "renew or change". Innovation generally refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by the environment.

Innovation is commonly associated with the use of technology and knowledge to create better products and processes. The Organisation of Economic Co-operation and Development (OECD) describes goods, services and process innovation as technological innovation, and marketing/organisational innovation as mostly non-technological innovation (Definition 1.3).

Definition 1.3: Types of Innovation

- **Product Innovation** is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness, or other functional characteristics.
- **Process Innovation** is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.
- **Marketing Innovation** is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing.
- **Organisational Innovation** is the implementation of a new organisational method in the business' business practices, workplace organisation or external relations.

For the purposes of this Study, innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

Australia's unit labour costs make it challenging to compete on the global stage, both at the high end of the value chain and from lower cost, faster growing emerging economies (Hawksworth and Tiwari as quoted in CEDA, 2013).

In an environment where terms of trade are wound back and the Australia dollar remains relatively high, there is a strong argument for businesses to adopt technological change and innovation (including design-led non-technology innovation, and marketing/organisational innovation), new business models and the development of management and workforce capability will be critical for improving productivity performance.

5.2 IMPORTANCE OF INNOVATION

It is undisputed that innovation is a key driver of business competitiveness and economic growth. The OECD estimates that up to 50% of long-term economic growth can be attributed to innovation, with this contribution to growth expected to increase. Research consistently finds that innovation-active businesses outperform non-innovation-active businesses in a range of indicators.

Innovation-active businesses in Australia in 2014-15 comprise 45% of all employing businesses (down from 48% in 2013-14) but contribute to more than 60% of sales and employment. If compared with non-innovation-active businesses they are more than 40% more likely to increase their income and profitability, twice as likely to export and two-to-three times more likely to report increased productivity, employment and training (DIIS, 2016).

Innovation in Australia

Despite a high proportion of innovation-active businesses, Australia has a relatively low proportion of businesses that are R+D active. Australia's gross expenditure on R+D (GERD, gross expenditure in research and development) as a proportion of gross domestic product (GDP) grew steadily from 2000 and has levelled off in recent years. Australia's R+D intensity is slightly above that of the OECD average, comprising only 2.12% in 2013-14 (OECD average of 2.0%) but significantly lower than the top five OECD performers on this indicator (DIIS, 2016).

A major problem in Australia is that despite the much greater prospects for increased productivity, there are barriers to innovation that many businesses face. These include:

- Cost barrier where the cash flow or profitability of a firm does not permit investment in productivity enhancing initiatives.
- Difficulty in accessing capital at an affordable cost to implement innovation.
- Inadequate information available regarding the opportunities and benefits of innovation and change.

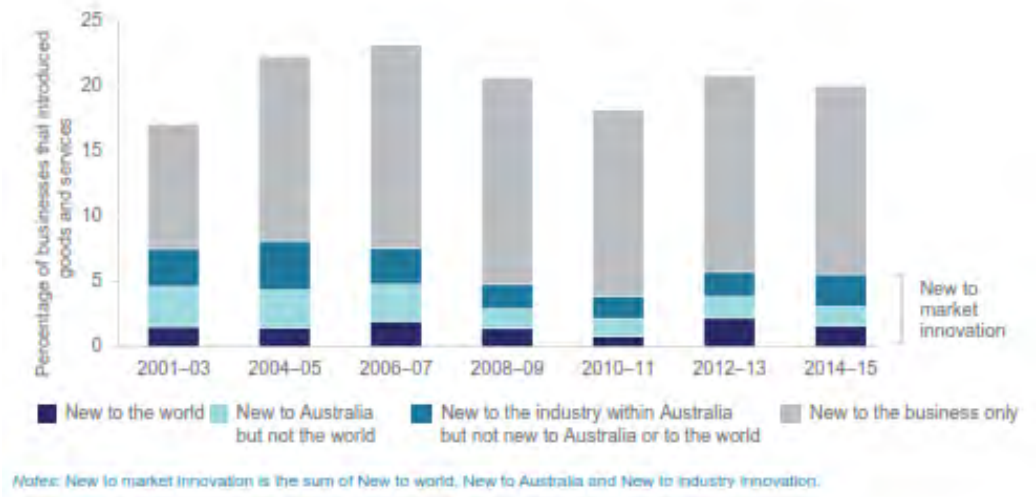
The barriers to innovation are particularly challenging for small sized firms (<20 employees). Large firms (>200 employees) are more than twice as likely to innovate, despite representing a small minority of total firms in Australia (CEDA, 2013).

In comparison to OECD member countries, in 2014-15 Australia ranked highly for technological innovation (product or process), with large businesses ranked 3rd in the OECD and SMEs ranked 8th. By contrast, for non-technological innovation (marketing and organisational), Australia ranks poorly (30th for large businesses and 31st for SMEs out of 33 OECD countries). However, when considering both technological *and* non-technological innovation, Australian SMEs ranked first in the OECD while large businesses ranked 13th in the OECD (DIIS, 2016).

While Australia's performance in technological innovations (product and/or process) has remained steady or declined, it has begun to improve in relation to non-technological innovation (managerial, organisational and marketing). Businesses are noted to be adopting new models of innovation, focusing on better integrating various functions such as marketing, operations and design and with less emphasis on traditional research-intensive approaches.

Importantly, research data on 'innovation novelty' suggests that Australian business is not an innovation leader but an innovation follower, with the majority of innovation-active businesses not introducing a '**new-to-market**' innovation. Rather, **Figure 5.1** indicates that majority of businesses were introducing '**new-to business**' innovation by adopting goods and services introduced by others (DIIS, 2016). Notwithstanding Australia's overall poor new-to-market ranking against OECD countries, several Australian sectors performed well on new-to-market innovation, specifically *Manufacturing and Wholesale Trade* sectors.

Figure 5.1: Degree of Innovation Novelty, Australian Goods and Services Innovation, 2001-03 to 2014-15



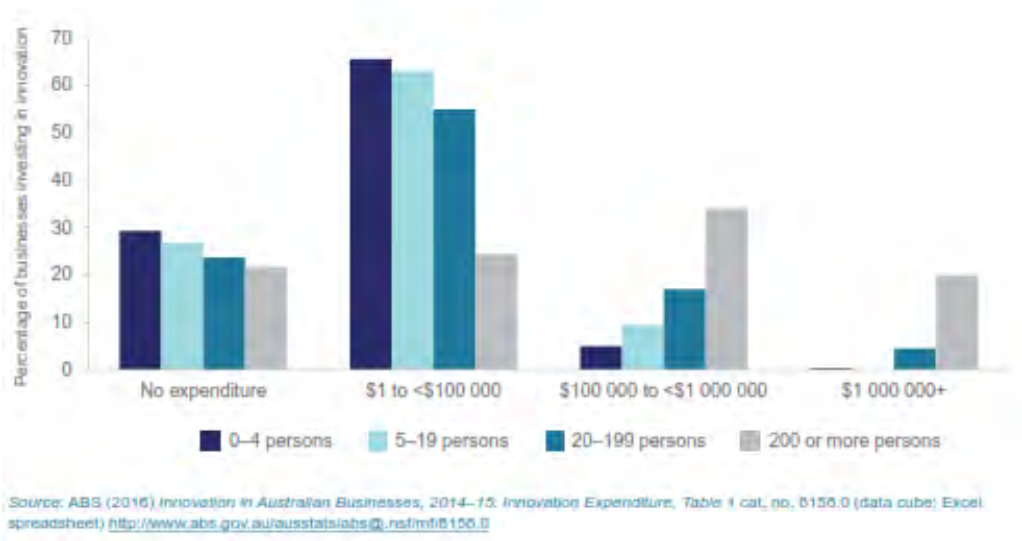
Source: DIIS (2016)

There are established definitions of R+D and intellectual property, and as such investment is relatively simple to measure. In order to measure innovation expenditure, the 2014-15 Business Characteristics Survey defined investment on innovation as comprising all expenditure incurred by businesses on developing or introducing new or improved goods, services, processes or methods, including:

- Acquisition of machinery, equipment or technology (including hardware and software).
- Re-organisation of existing business models, work practices and decision-making processes.
- Training relevant to the development or introduction of new goods, services, processes or methods.
- Marketing activities undertaken to introduce new goods and/or services to the market.
- Research and experimental development for the purposes of developing or introducing innovation.
- Design, planning or testing.
- Acquisition of licences, rights, patents or other intellectual property.
- Other labour costs related to the development or introduction of new goods, services, processes or methods.
- Other activities related to the development or introduction of new goods, services, processes or methods.

The proportion of investment on innovation was observed to be indirectly related to businesses size. In 2014-15, the proportion of innovation-active businesses that reported no expenditure on innovation was 28%. As business size increased, so did the likelihood of greater spending on innovation.

Figure 5.2: Expenditure by Innovation-active Businesses by Employment Size, 2014-15



Source: ABS (2016) *Innovation in Australian Businesses, 2014–15: Innovation Expenditure, Table 1* cat. no. 8158.0 (data cube: Excel spreadsheet) http://www.abs.gov.au/ausstats/abs@.nsf/mf/8158.0

Source: DIIS (2016)

R+D is one element of innovation expenditure which not all innovation-active businesses undertake. Literature suggests a greater number of R+D active businesses are those who operate in international markets, consistent with the relationship between new-to-market innovation and R+D. Manufacturing continues to be the largest contributor to R+D in net investment terms, even though it is declining as a share of economic activity (DIIS, 2016).

The private sector is the largest investor in R+D, followed by the Australian Government which provided $2.8b worth of tax concessions in 2014-15 to industry and to government research agencies.

Harnessing Innovation

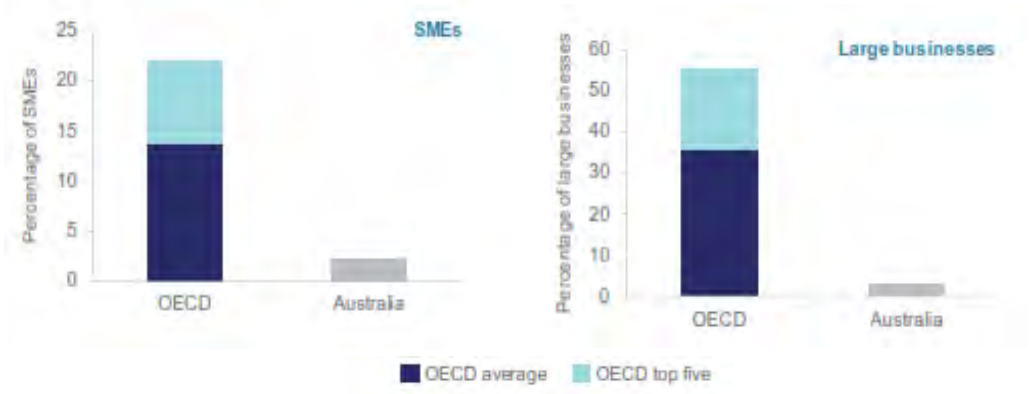
For over two decades, Australia has conceptualised innovation policy in the form of a national innovation system, which is described as the “network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies” and the “elements and relationships which interact in the production, diffusion and use of new and economically useful, knowledge” (OECD, 1997).

There is recognition by government at the Federal level of the importance of harnessing innovation for better productivity, economic growth and ultimately improvement in living standards. There has been significant research and advocacy into improving the take-up of innovative business practices to enhance Australia's international competitiveness. In late 2015, the Commonwealth Government launched the National Innovation and Science Agenda (NISA) which was aimed at developing a more entrepreneurial and innovative Australian economy.

Networking and collaboration activity is critical to a high-performing innovation system. However, network and collaboration activity between participants is overall poor in Australia. Research by the Office of the Chief Economist (DIIS, 2016) found:

- A weakly networked innovation system. Australian industry has low levels of **business collaboration** with respect to trade in goods, services, intellectual property and joint R+D. The percentage of Australian businesses collaborating on innovation activities is lower than the OECD average. The percentage of Australian businesses collaborating with suppliers ranks even worse compared to OECD counterparts.
- Even though **collaboration with business research organisations** (e.g. CSIRO and universities) have been found to more than triple productivity growth (Lane, Salk and Lyles as quoted by DIIS, 2016), Australia fares poorly on collaboration with research institutions (refer to **Figure 5.3**).

Figure 5.3: Business Collaboration on Innovation with Higher Education or Research Institutions, 2010-12



Source: DIIS (2016)

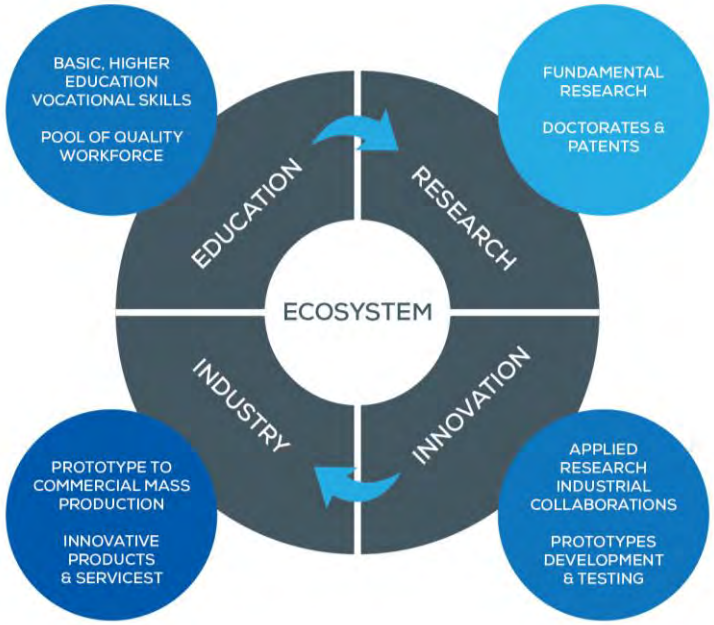
In recognition of Australia's poor levels of collaboration on innovation between industry and researchers, NISA's Entrepreneurs' Programme has initiated 'Innovation Connections' to promote collaboration between Australian businesses and the research sector.

Role and Location of Innovation Clusters

The importance of an innovative culture of doing business is without question. Relevantly, the issue is whether innovation activity is dependent on its physical location within a 'hub' or 'cluster' or if there are broader factors (not related to geography) that influence the absorptive capacity of businesses to implement innovative practices.

The notion of an 'innovation ecosystem' is not a new one. As the name suggests, it is an environment that allows a network of interconnecting and interacting participants to mutually drive innovation outcomes.

Figure 5.4: Innovation Ecosystem



Research identifies an unintended consequence of manufacturing offshoring has been increased risk of failing to capture innovation opportunities during the production process - this risk is greater the more processes are undertaken in separate locations. This has led to a consolidation of production and trade locations in recent years, described previously as the trend of 're-shoring'.

At a simple level, manufacturers, retailers and customers are all part of the automotive industry's ecosystem. The *innovation ecosystem* is comprised of businesses and their supply chains (which encompasses the flow of goods and services from supplier to customer).

Australian innovation-active businesses are not homogenous - every business and sector has a unique set of motivations, resources and challenges. The principle of co-location is therefore broad in geography, relating not necessarily to a physically proximate radius but to a region where effective supply chains can be implemented.

The diffusion of technological and non-technological innovation requires specialisation for innovation ecosystems to grow, both at a national and regional level. The effectiveness of innovation ecosystems therefore depends on:

- Deep collaboration among businesses, public agencies and research and education institutions.
- Increased demand/desire from businesses and industry to enhance their absorptive capacity on innovation.
- Supply of research and skills of educated labour force.

Research into the geography of innovation in Australia (DIIS, 2016) shows that location of innovation activity is:

- Skewed towards major cities, in part due to the location of companies' head offices or where the intellectual property or R+D is registered.
- Influenced by the presence of industry-facing research organisations such as CSIRO or universities that have strategic partnerships with industry.
- Positively related to entrepreneurship churn (total of businesses entries and exits), wherein innovative businesses enter markets and compete with existing businesses and thereby forcing out the less productive businesses.

The next section explores case studies of innovation clusters and hubs, their catalysts and influencing factors.

5.3 CLUSTERS AND INNOVATION HUBS

Clusters are critical to innovation in many sectors. Clusters provide an ecosystem which can help drive innovation, knowledge sharing and collaboration. They allow business that participate to gain access to a large talent pool, to clients and it exposes them to economies of scale usually reserved for large companies. For talent it provides access to a range of potential employers and a tailored retail and amenity offer.

An *Innovation Ecosystem* does not necessarily refer to a physically proximate geography. Silicon Valley (US) for example is an industrial region in the San Francisco Bay Area that spans 32km in length while Changi Business Park (Singapore) spans 1km in length.

An innovation ecosystem *does not* require a 'tight' geographic location to be effective. Where an innovation system is in place, i.e. there is collaboration between participants, genuine desire by business and industry to improve their innovation capacity and available research skills, an environment conducive to innovation can be fostered even on a regional basis. On this basis clusters and innovation hubs are much broader in geography for businesses and their supply chains. Accessibility to transport, labour, clients and suppliers is the major locational driver.

The tech, finance, professional and legal sectors are particularly focused on locating their real estate in tight clusters or innovation hubs. It is therefore important to distinguish the motivations of different sectors for clustering together.

This section explores three types of innovation clusters through a series of case studies: Industrial Sector and Supply Chain clusters, Research and Development clusters and Technology clusters. Case studies are detailed in Appendix D, E and F respectively.

5.3.1 Business and Supply Chains Clusters

Manufacturing uses traditionally located where they could access the labour markets needed to produce goods. With mechanisation and automation changing labour requirements, location requirements also changed.

The industrial sector typically selects locations based on the level of skilled labour required. This can be observed through the clustering of business parks in Sydney's north (e.g. Macquarie Park, Norwest Business Park, Sydney Olympic Park), reflective of the education and skills profile of the white-collar 'executive belt' that lives close by.

In some locations the clustering of certain manufacturing uses over a long period of time has created pools of skilled technical labour which has underpinned the cluster's enduring existence, but this reflects legacy rather than modern location planning.

In recognition of Victoria's strength in advanced manufacturing, engineering, design, digital technology, cyber security, robotics and R+D, the Victorian Government announced its intention to develop a Design, Engineering and Technology Precinct at Fishermans Bend (5km from Melbourne CBD). Government purchased the General Motors Holden site (38ha) in 2016 to develop a centre of excellence to attract innovators in the fields of aerospace, defence, marine design and automotive design (SMH, 2016).

Regional Level

The industrial sector generally gains less agglomeration benefits from being in the same physical location, in terms of attracting talent, knowledge-sharing or accessing clients as knowledge-based sectors do.

Transport accessibility, proximity to clients and suppliers and access to a large labour pool are the main metrics businesses will use in appraising potential sites. These requirements are generally met at a regional level. Industrial uses may cluster in a location because important metrics are met, e.g. proximity to a major transport hub or skilled population, but it is not the existence of the cluster itself that is the driver of the location decision.

Where governments own/control large swathes of land they are able to facilitate the development of an innovation centre at a *regional level* to attract innovators to co-locate and contribute to target sectors/fields. Examples are:

- **Proposed Centre of Excellence at Fishermans Bend** (Melbourne) wherein the VIC Government purchased 38ha of land to develop expertise in the fields of aerospace, defence, marine design and automotive design.

- Working together, Places Victoria and Melbourne Water delivered **Dandenong LOGIS** (154ha) within the Dandenong National Employment and Innovation Cluster. It is Victoria's first integrated eco-industrial business park that offers businesses unique masterplanned features in innovation, sustainability and urban design. The business park is sold out.

  Also located within the Dandenong National Employment and Innovation Cluster is **Innovation Park** which is a 74ha masterplanned business park. Developed by private developer Pellicano, vacant blocks or land and building packages are available for purchase. Estate amenities include café with dine-in and takeaway facilities, wide roads for truck access, pedestrian and bike paths.

- The Greater London Authority owned 35ha of brownfield land in East London (**East Plus**) and entered into a partnership with SERGO to renew the land for modern industrial uses to meet demand. While it generally focused on urban logistics and light industrial users, it also incorporated an Innovation Village for start-ups, SMEs and large corporates and a Sustainable Industries Park for occupiers with sustainability credentials.

Individual Business Level

Business innovation usually occurs on an asset-by-asset basis with individual companies implementing new methods to improve marketing or organisational structures, and/or technological innovation. Innovation activity could occur in a warehouse in Regents Park, it could equally occur at a company's head office in North Sydney.

Case study examples of business-level innovation occurring at an asset level include:

- **Sony UK Technology Centre** (UK)
  The Sony UK Technology Centre is the only facility outside East Asia that produces high definition camera units. It manufactures high value, small items which are easy to transport worldwide to a niche customer base. Fast turnaround speed and the ability to draw on expert engineers, technicians and operators

  The business saw an opportunity to form a Business Incubation Centre which shared the factory's on-site facilities. The intention was to offer start-up companies involved in a range of sectors (logistics, media, gaming and digital tech companies) the opportunity to locate on-site and share facilities.

  The innovation cluster of 32 start-up businesses is successful because it has a strong anchor tenant and sustains a highly specialised workforce. The products made in the facility are high-value, low-volume and they compete in a niche market internationally.

- **Amazon Logistics Warehouse** (Germany)
  Currently under construction, the warehouse will provide Amazon the capability to offer customers greater product selection in a shorter delivery time. Chosen due to its accessibility to Germany's main motorway network and proximity to German cities, the warehouse will be 'smart', enriched with technology to track and process stock as efficiently as possible with jobs on-site to include logistics managers, engineers, IT, personnel and dispatch staff. The tech-rich format of the warehouse and use of robots will mean warehouses will need secure, fast internet connectivity and efficient, tall buildings.

For detailed description of case study examples refer to Appendix D.

Similar examples of business-level innovation can be observed in Sydney and indeed Cumberland.

- **Toshiba**'s facility in Greystanes is one of Australia's newest 'dark warehouse', utilising a state-of-the-art automated picking system which has reduced the need for manual supervision. Various warehousing centres across metropolitan Sydney have been consolidated at Greystanes, with Toshiba additionally seeing value in co-locating with their logistics partner Aero on-site. This provides the business with logistical efficiencies.

  In the highly dynamic environment of consumer electronics, Toshiba recognises the need to constantly upgrade their facility with the latest technology to retain existing clients and attract new clients. What might have been just warehousing space in the past is now required as space to showcase products.

  The site is understood to have approval for additional 2,500sqm of commercial office floorspace (for up to 250 additional employees); however, this is dependent on market conditions and the success of new product lines. While Greystanes is well located to the orbital road network (Prospect Highway, Reservoir Road), the lack of public transport options in Greystanes could influence the delivery of additional commercial space.

Toshiba's head office is in North Ryde, the location decision driven by the requirements of their high-knowledge workers for a level of amenity not available at Greystanes. Furthermore, from a brand awareness perspective, Toshiba considers it necessary to have a presence in a major office market to remain globally competitive.

- **Thomas Global Systems** in Regents Park is an aeronautical electronic manufacturing and repair business. Its business functions are housed in the same facility (head office, manufacturing, R+D, warehousing) whose location was selected due to availability of a local train station for its skilled workforce, proximity to Bankstown Airport and surrounding defence/aeronautical sector as well as its central location within metropolitan Sydney.

  Due to its business operations on-site, a relatively high proportion of office space (40%) is required. The business employs advanced digital technology in its manufacturing activity and is recognised in its field, understood to have won multiple prestigious industry awards.

Various forms of innovation can be observed throughout Cumberland (through different businesses interviewed) with technologically-driven innovation only a component of overall business innovation.

Imported Expertise

Technological innovation could be designed and implemented by engineers employed by the business at its warehouse in, say, Regents Park, or it could be by software engineers employed by an external software provider whose workers sit in Pyrmont offices.

Specialist software companies develop new technology (e.g. big data programmes, robotics intelligence) which are subsequently applied to a multitude of sectors and industries once they are tried, tested and matured. The reach of these businesses is global and they do not necessarily need to be physically proximate to their clients. Section 5.3.3 examines geographic clustering in the tech sector.

5.3.2 Research and Development Clusters (R+D Cluster)

Research organisations (e.g. CSIRO), hospitals and universities are typical catalysts for businesses to cluster in a location. Macquarie Business Park is a good example, wherein Macquarie University was its catalyst. Macquarie Park grew from providing a base for the commercialisation of university research ideas. Today, Macquarie Park is recognised as a leading R+D cluster with high volumes of patent applications lodged from the area.

High-tech business parks typically accommodate a much higher proportion of 'clean' office floorspace compared to traditional business or industrial estates. High-tech business parks are also generally found in locations where access to tertiary educated and skilled talent is available.

From a review of high-tech business parks and R+D clusters, the following common characteristics are observed:

- Presence of research organisation, hospital or university.
- Strong transport links (road and rail) with national and international export markets.
- Accessibility to highly skilled knowledge workforce.
- Excellent communications, internet, ICT infrastructure.
- Local area and personal worker amenity.
- Retail and entertainment options.
- Recreational facilities (active and passive).

The amenity requirements of high-tech business parks are generally higher than those of traditional business/ industrial estates. The availability of train transport and urban amenity are important requirements. The review of case study high-tech business parks highlights the importance of these key elements and supporting infrastructure. Almost without exception, high-tech business parks have been delivered by a single developer who owns/controls majority of the land.

For a full description of high-tech business parks and their critical elements, refer to Appendix E.

5.3.3 Technology and Creative Clusters

As industry seeks innovative and more productive ways to do business, an array of 'technology businesses' emerge to create and develop solutions that disrupt conventional practices and transform business-as-usual. These businesses are generically referred to as "the tech sector" who leverage both technology and knowledge to provide solutions to improve efficiencies and overall competitiveness.

The Tech Sector relates to research, development and distribution of technologically based goods and services. It could provide solutions to support manufacturing activity (e.g. advanced manufacturing, medtech and pharma, food and agribusiness) or indeed any enterprise (e.g. financial services, digital communications, consumer retail, media and entertainment, etc.).

As with any sector, the Tech Sector requires suitable accommodation to occupy and tends to gravitate to co-location opportunities. Location and site selection factors for tech clusters depend on the industries they service, connections with external organisations (e.g. universities, CSIRO) and overall worker amenity requirements.

The Tech Sector (which incorporates many creative industries) relies upon more specialist talent than traditional office occupiers such as professional services and banking firms. Each creative worker brings a unique set of skills that often cannot easily be replicated from what is a smaller talent pool for these types of workers. If a business loses an HR manager, a real estate agent or a business administrator, for example, these may be more readily replaceable than a key coder, an AI programmer or creative designer.

Given their high degree of specialisms, tech businesses draw from an international pool of talent and the overall talent pool is smaller. Because of the importance of talent to the Tech Sector, the battle for the best talent is very intense. The young, internationalised and cosmopolitan workforce they need is increasingly motivated by non-monetary factors. This includes lifestyle, for example, whether they can commute to work on foot or whether their offices are situated in an area with lots of amenity, flexible working arrangements and annual leave allowances.

Businesses are using the location of their real estate as a recruitment tool, as well as ensuring that their workspaces themselves are engaging and user-focused environments where talent wants to spend time. Given the greater ability to attract specialist, skilled talent which comes from locating within an innovation hub, coupled with the other benefits of clusters such as promoting knowledge sharing, building networks and sharing facilities, innovation hubs are a major focus for the Tech Sector.

Tech Cluster Success Requirements

From a review of case studies of Tech Clusters, a number of common requirements underpin their success.

- **Government Vision and Leadership**
  A clear vision for the development, strong mandate and transparent communication is crucial for effective implementation. The availability of dedicated government support for an innovation hub is advantageous. Tech City UK was a UK government affiliated agency tasked with accelerating the growth of the Shoreditch digital cluster. Having the ability to incentivise investment (e.g. tax breaks or other support) is also a key factor.
- **Availability of Land for Development**
  Private sector led delivery is key. In the case of Kings Cross Central and Changi Business Park, government owned land was envisioned for development into a Tech Cluster. Through its ownership in the land, government was able to influence and shape delivery of its vision for a tech cluster.
- **Amenity**
  A high quality urban environment to match a curated land-use mix is essential. If companies are to win the war for talent, they need to locate in a quality area that talent will want to spend their time.

  Purpose-built innovation hubs reserve a high proportion of land for open space and invest in quality public realm. Within buildings themselves, on-site health and fitness facilities, are important components of amenity.
- **Range of Floorspace**
  Real estate is an enabler of innovation hubs. It cultivates a community of innovative firms of all sizes, from fledging start-ups right through to multi-nationals that can evolve into an eco-system that supports itself. This

includes co-working, incubation and accelerator offices mixed with medium and large floorplates for scale-up or established firms with flexibility to respond to the rapid pace of occupier growth.

- **Accessibility**
  Walking, cycling and public transport are increasingly important to the skilled workforce. Successful innovation hubs are highly accessible by a range of transport modes other than the private car. This supports the imperative of creating a high quality urban realm to promoting walkability. It also means individual assets must make provision for cycle racks and quality end-of-trip facilities for workers.
- **Critical Mass**
  Ultimately for an innovation hub to be successful it requires a critical mass of occupiers and talent. As the cluster gains in size and gathers momentum, critical mass becomes a self-reinforcing process. More occupiers bring more talent to the area which in turn increases its appeal to other occupiers and so on.

For a detailed description of the case studies refer to Appendix F.

Sydney's Limited Success

Sydney has had limited success in fostering and developing a Tech and Innovation Hub on a large scale. Tech businesses are observed to cluster in small degrees in Sydney CBD and City Fringe markets including Surry Hills, Redfern and Pyrmont.

Start-ups and emerging tech businesses generally locate where the cost of space is affordable, lease terms are flexible and where business support services are available (e.g. printing, copying, meeting facilities, etc.). This has led to the proliferation of co-working space providers, accelerators and incubators who offer different types of support on different commercial arrangements.

At the other end of the growth spectrum, established tech occupiers such as Google, Atlassian, Quantium, Data Republic occupy prime quality space in the Sydney CBD (or close to) with some in Pyrmont where the environment is 'less corporate'. These established businesses use their real estate decisions to attract and retain talent and accordingly have the financial capacity to pay for 'the right space'. FinTech businesses are observed to chase accommodation in the Sydney CBD to be close to the financial services sector.

The City of Sydney has implemented a Tech Startups Action Plan (City of Sydney, 2016) to provide support for Sydney's technology start-ups, recognising that the largest tech start-up ecosystem in Australia is in Sydney. Several new developments in Sydney CBD are observed to incorporate a floor or two of commercial office space to be dedicated to the City of Sydney for the purposes of accommodating start-up businesses.

Despite demand for space by technology occupiers and the City of Sydney's best endeavours to encourage and support growth of the technology sector, the lack of large scale, contiguous sites has made it difficult for a tech cluster/ecosystem of significant scale to establish in Sydney.

5.4 COMPETITIVE OPPORTUNITY FOR CUMBERLAND

Cumberland's employment and innovation lands are well placed to support innovation through each of the following clusters.

Business and Supply Chain clusters

This is the greatest opportunity for Cumberland's employment and innovation lands to support innovation. This could be on an individual asset level or at a regional level if a site is of significant scale.

Cumberland's excellent location on both the orbital and arterial road networks, and proximity to Parramatta the Central City already makes it an attractive location. The diversity of physical and locational characteristics in the employment precincts suits a wide range of businesses (including sectors of advanced manufacturing, food and beverage manufacturing and freight and logistics). In many respects, businesses located in Cumberland have done so because its location aligns with their individual supply chain requirements. Many existing businesses are conceivably already applying innovation to various parts of their business, whether technological or non-technological.

In order to influence large scale, regional influence on innovation, Council could work with major landowners who are considering future options for their land. In the East Plus case study (London), the Greater London Authority was able to directly effect an outcome as landowner.

Indirect initiatives could include:

- Facilitating collaboration networks for businesses with industry and research experts.
- Assisting with connecting businesses with the right skills and labour.
- Implementing infrastructure/accessibility improvements to improve the commercial prospects of development.
- Providing flexible planning controls which allow occupiers greater freedom to design and built their own properties and allowing densification through flexible height controls.

  Whilst multi-storey logistics warehouses may not yet be viable in Cumberland, if capital values continue their strong rate of growth and as the population expands rapidly, they may be a realistic prospect in the future to deliver the logistics capacity that will be needed.

Ultimately, it is the 'innovation system' that will determine how much businesses invest in innovation - deep collaboration between businesses, public agencies, research and education institutions. As research has found, investment into innovation by Australian businesses is relatively low. An awareness by business of the opportunities and benefits of implementing innovation and access to the right skills and labour are equally critical.

Research and Development clusters

R+D clusters require close proximity to a hospital, university or research agency to benefit from the co-locational qualities of close collaboration and ultimately result in the commercialisation of ideas. The success of these clusters is sensitive to distance, with competitive advantage quickly diluted with distance.

The co-location of University of Sydney's Faculty of Health Sciences and TAFE Lidcombe College at Lidcombe presents a potential opportunity to nurture a learning cluster that incorporates R+D activity and helps showcase vocational achievements. The following courses and facilities are incorporated in the Lidcombe campuses:

- **University of Sydney (USYD) Faculty of Health Sciences**

  The Lidcombe campus offers undergraduate, graduate, specialist and research degrees in health sciences. The following facilities are also available at the campus.

  - Exercise, health and performance research with nine laboratories.
  - Medical radiation sciences with 3D virtual reality learning suite.
  - Speech science laboratory.

  The Faculty of Health Sciences boasts strategic partnerships and collaborations with local communities:

  - SCIA NeuroMoves is embedded within the faculty to build community-based service delivery.
  - ANSTO (Australian Nuclear Science and Technology Organisation) collaboration.
  - Broken Hill partnership which facilitates student placements in schools.

- **TAFE Lidcombe College**
  Lidcombe College offers over 50 courses with study areas focused on IT, timber trades, electrical trades and English language. Industry partnerships are understood to be in place, where apprentices are sent for training.

  The Lidcombe College accommodates a State Centre for Training focused on:

  - Furniture finishing.
  - Upholstery.
  - Plastering.
  - Glass and glazing.

The University of Notre Dame (School of Medicine Sydney) operates the Auburn Clinical School which is a new facility adjacent to the Emergency Department of Auburn Hospital. Completed in 2013, the new clinical school forms the base for students in their clinical years (third and fourth years).

Council could explore the development and nurture of an education cluster at Lidcombe given existing co-location of educational institutions together. Growth of such a cluster will be subject to individual organisational needs and objectives.

TAFE Granville College is located on William Street in Granville and offers a diversity of courses and off-the-job training in the following areas: accounting and finance, architecture, automotive, business, butchery, beauty therapy, community welfare, hairdressing, interpreting, refrigeration, electronics, etc.

Given the proximity of TAFE Granville to Council's Granville Community Hub both of which are centrally located and accessible by train, establishment of a Creative Learning Precinct in Granville is opportune. This will help foster an environment of collaboration and collective learning which is instrumental in promoting a culture of innovation.

Technology and Creative clusters

The Tech Sector typically requires commercial office space that is in an amenity-rich location. Cumberland is disadvantaged in this respect without a major CBD. While a tech cluster of significant scale (like Kings Cross or Shoreditch in the case studies) is unlikely, niche tech and creative clusters can be facilitated in Cumberland where transport and retail amenity is present or can be improved.

As a greater number of high knowledge workers will increasingly want to work close to Parramatta, the sectors of digital technologies/media, advanced knowledge services and creative industries would be well catered to in these clusters. Those businesses attracted to a Technology and Creative Cluster in Cumberland are unlikely to require traditional, corporate office floorspace such as that found in Parramatta CBD. These businesses are conceivably more likely to require commercial office floorspace that is 'less corporate' in a business park-type building rather than an office tower. Many of these businesses are observed in Surry Hills and South Sydney (Alexandria, Rosebery) where many still incorporate a warehouse component to their business.

A niche tech and creative cluster in Cumberland would conceivably require not only good public transport connections and retail amenity, the presence or growth of artisanal industry in the immediate area will help give the cluster a unique identify and character. This is akin to locations like Surry Hills and Alexandria where the proliferation of small scale artisans (e.g. antique furniture restoration, craft beer brewing, bespoke clothing design, ethnic food craft and manufacture, etc.) have contributed to the 'soul' of the locale.

Artisan Industry

The artisan industry is not one that receives much attention or is targeted for development given the generally low economic value of the industry. Notwithstanding, the growth and nurture of Cumberland's artisans is important not just on an individual level but for Cumberland's overall uniqueness, identity and soul.

With Cumberland's diverse resident population (fewer than 45% are Australian-born), there exists a valuable opportunity for Council to help nurture and leverage artisanal skills that could contribute to the overall uniqueness and attractiveness of Cumberland. Artisanal skills could include: clothing and jewellery design, furniture and artwork restoration, bread and beer manufacture, curation of ethnic spices and herbs, pottery and sculpture.

In locations such as Surry Hills, Darlinghurst, Paddington and more recently Alexandria and Rosebery in South Sydney, the contribution of the artisan industry is unmistakable. Artisan bakers and food producers, craft beer brewers, bespoke fashion and jewellery designers, antique furniture restorers, etc. have collectively contributed to a uniqueness of place that is not replicated elsewhere in Sydney. This contributes to a 'layering' of character, giving these places a unique vibe that is attractive to residents, workers and visitors alike.

The growth of artisan industry and community can occur anywhere where rent is affordable and there is a mix of work space, storage and display areas for the public to visit. Live-work opportunities in residential areas that adjoin employment areas could function together with employment locations and should be close to existing centres where synergies can be built.

6. A VISION FOR THE FUTURE

This Chapter outlines a vision for the future of Cumberland's employment and innovation lands. This includes strategic opportunities, future needs and land use considerations.

6.1 STRATEGIC OPPORTUNITIES AND CLUSTERS

This section highlights the key benefits that broader, district-level strategic planning will bring to the economic success of Cumberland's employment precincts, as well as how Cumberland's employment and innovation lands can contribute towards the NSW Government's strategic priorities for Metropolitan Sydney.

Proximity to the Central City

The NSW Government is planning for a 'three cities' metropolis structure for Greater Sydney, focused on Greater Parramatta, the growing Central City.

Under this strategic planning process, the strategically important location that the Cumberland employment and innovation lands hold and their potential to evolve and support the growth in the economy of Greater Sydney, especially the Central City, is acknowledged.

There is an opportunity to leverage the proximity of Parramatta CBD and GPOP to grow Cumberland's employment offering. Growth of the Central City will naturally have flow on economic benefits for Cumberland.

Transport Accessibility

The LGA is located centrally in Greater Sydney and a number of the employment and innovation lands have good access to key freight routes. Girraween and Greystanes in the west of the LGA have access to the M4 and M7 interchange and the Lidcombe and Parramatta Road (Auburn) Precincts have direct access to Great Western Highway and WestConnex.

The Yennora Intermodal Terminal provides an opportunity for improved freight accessibility. Council should work with Government to ensure the long-term future of the Yennora Intermodal terminal as well ensure that future residential development in the LGA responds appropriately to the existing freight function of this facility.

Residential Growth

Sydney is undergoing rapid residential development in and around Cumberland and within GPOP in particular.

Ensuring Cumberland's employment and innovation lands provide enough jobs and a diversity of jobs for the local population is important to help achieve the '30 minute city' and an increasingly dense residential population in the adjoining areas.

Educational Establishments

Cumberland includes TAFE Lidcombe campus, University of Sydney Cumberland Campus in the south east of the LGA and the TAFE Granville campus. The University of Notre Dame's clinical school is embedded in the Auburn Hospital. Educational establishments act as anchors that draw in other complementary businesses. This relationship should be exploited and reflected in planning principles.

Bankstown Airport

The employment and innovation lands in the south have good access to Bankstown Airport, which is reflected in some of the existing aeronautical businesses.

Western Sydney Airport

The Western Sydney Aerotropolis is expected to transform and create the emerging Western City. Government is currently investigating strategic planning for more jobs, homes, services and infrastructure to support the economic viability of the future airport around Badgerys Creek.

The western employment precincts in Cumberland have excellent accessibility to the future Western Sydney Airport and surrounding aerotropolis.

6.2 PROJECTED FUTURE OF CURRENT INDUSTRY

6.2.1 Greater Sydney

Five yearly projections of employment for Greater Metropolitan Sydney[1] (Greater Sydney) to 2041 were developed by AEC using the approach outlined in Appendix G. A summary of these projections is presented in Table 6.1 with the following discussion examining projected growth between 2016 and 2041.

Total employment is projected to increase to more than 3.04 million jobs by 2041, representing an increase of around 33% from 2016 (or around 760,000 additional jobs). Key growth industries between 2016 and 2041 are projected to be:

- Health care & social assistance, increasing by approximately 129,800 jobs, or 17.1% of the total jobs growth.
- Education & training, increasing by approximately 103,900 jobs, or 13.7% of total jobs growth
- Professional, scientific & technical services, increasing by approximately 96,800 jobs, or 12.7% of total jobs growth.
- Accommodation & food services, increasing by approximately 65,600 jobs, or 8.6% of total jobs growth.

Employment projections have been aggregated to the eight target industry sectors, which are also presented in Table 6.1. Allied Health is projected to record the largest increase in employment in Greater Sydney between 2016 and 2041 (around 79,900 jobs), followed by Advanced Knowledge Services (64,500 jobs) and Creative Industries (62,300 jobs).

Of the eight target industry sectors, the three in which Cumberland is assessed as having a competitive edge are projected to record the lowest growth. Advanced Manufacturing is projected to decline slightly in jobs to 2041, while Food & Beverage Manufacturing is projected to record a modest increase of 3,100 jobs. Freight & Logistics is projected to increase by 39,600 jobs, but this will represent growth of just 19.2%, well below the other five target industry sectors growth rate over the period.

Comparatively slower growth in the three target industry sectors in which Cumberland has a competitive advantage can primarily be attributed to a combination of anticipated technological advances and competition from higher value land uses, which are expected to constrain jobs growth in these sectors.

While growth in these three target industry sectors in Greater Sydney overall is not expected to be as high as for the other five target industry sectors, there will still be opportunities for Cumberland to expand or consolidate in these sectors and be one of the pre-eminent destinations in Greater Sydney for investment in these sectors.

[1] Greater Metropolitan Region can be taken as a proxy to represent Greater Sydney Region.

Table 6.1. Greater Metro Sydney Employment Projections by Industry and Key Sectors, 2016 to 2041

Industry	2006	2011	2016	2021	2026	2031	2036	2041
Agriculture, Forestry and Fishing	7,942	7,457	7,755	7,629	7,431	7,223	7,016	6,825
Mining	3,905	4,910	4,624	5,139	5,528	5,852	6,095	6,264
Manufacturing	181,919	183,255	170,368	167,948	164,978	161,706	158,286	154,967
Electricity, Gas, Water and Waste Services	16,056	19,211	20,405	21,249	22,035	22,752	23,447	24,113
Construction	126,458	152,642	169,704	180,241	191,199	200,612	207,993	213,879
Wholesale Trade	106,209	113,727	112,178	117,639	122,760	127,491	132,086	136,466
Retail Trade	196,302	209,441	231,670	243,291	254,064	264,702	275,816	286,932
Accommodation and Food Services	110,211	131,680	138,139	151,107	164,074	177,052	190,334	203,704
Transport, Postal and Warehousing	101,282	116,114	121,041	127,766	134,026	139,815	145,405	150,756
Information Media and Telecommunications	57,166	64,343	65,543	66,818	68,463	70,094	71,418	72,631
Financial and Insurance Services	122,755	138,989	156,085	164,638	172,849	180,696	188,528	196,148
Rental, Hiring and Real Estate Services	35,265	37,431	42,910	47,531	52,295	57,102	61,985	66,910
Professional, Scientific and Technical Services	170,346	204,841	248,823	269,570	290,121	309,226	327,636	345,592
Administrative and Support Services	63,342	75,317	83,106	90,991	98,898	106,720	114,614	122,499
Public Administration and Safety	106,997	121,170	129,576	139,877	150,050	159,637	168,862	177,746
Education and Training	136,887	162,147	187,280	207,080	227,291	247,840	269,283	291,170
Health Care and Social Assistance	186,426	231,752	271,171	294,755	320,092	346,262	373,632	400,938
Arts and Recreation Services	27,547	34,615	40,858	45,507	50,298	55,215	60,382	65,696
Other Services	70,313	77,881	81,790	89,261	96,727	104,153	111,762	119,403
Total	1,827,328	2,086,923	2,283,030	2,438,036	2,593,180	2,744,149	2,894,579	3,042,636
Key Sectors								
Advanced Manufacturing	72,351	74,497	73,599	73,839	73,545	72,410	70,848	69,124
Food and Beverage Manufacturing	32,759	37,472	37,991	39,621	40,287	40,763	40,999	41,098
Digital Technologies/ Media	69,362	86,222	112,686	120,752	129,101	137,191	144,823	152,245
Advanced Knowledge Services	81,992	100,381	121,697	134,653	147,711	160,448	173,274	186,151
Creative Industries	107,302	132,617	162,661	175,008	187,746	200,232	212,630	224,976
Fashion	64,110	74,642	82,359	87,950	93,202	98,349	103,659	109,006
Allied Health	87,721	107,819	129,259	143,274	158,505	174,555	191,637	209,187
Freight & Logistics	186,247	202,405	201,336	210,637	219,259	226,984	234,252	240,950

Source: AEC

6.2.2 Cumberland LGA

In addition to projections for Greater Sydney, indicative employment projections to 2041 for Cumberland were also developed, based on existing trends and projected population growth. The approach used to derive these indicative projections is outlined in Appendix G.

These projections do not take into consideration potential strategies and interventions to facilitate greater innovation or attracting investment to Cumberland, and should be considered a view of what Cumberland could look like in the future if the status quo is maintained.

Key outcomes of the projections include:

- Overall, the indicative projections suggest Cumberland's employment could increase by around 20,500 jobs between 2016 and 2041 (28.3% growth).
- Health care and social assistance, education and training, accommodation and food services, retail trade and construction are projected to be the largest contributors to jobs growth, accounting for 12,500 of total additional jobs.
- Of the eight target industry sectors, the largest increases are projected to be recorded in Allied Health, Freight and Logistics and Advanced Knowledge Services.
- Advanced Manufacturing is projected to record a decline in growth, in line with the broader Greater Sydney experience. Food and Beverage Manufacturing is also projected to record a modest increase in line with broader Greater Sydney projections.
- Cumberland's contribution to overall Greater Sydney employment change in the eight target industry sectors is projected to be strongest in its most prominent sectors of Advanced Manufacturing, Food and Beverage Manufacturing and Freight and Logistics.
- Conversely, Cumberland's contribution to Digital Technologies/ Media growth in Greater Sydney is projected to be just 1.0% (387 additional jobs in Cumberland compared to a total increase of 39,600 jobs in Greater Sydney).

These projections suggest that without proper planning and strategies to attract growth and investment, Cumberland is expected to lag behind growth in Greater Sydney. Identifying appropriate sectors for investment attraction and providing appropriate planning and actions to retain existing key sectors and facilitate business investment will thereby be crucial to ensuring Cumberland keeps pace.

Table 6.2. Indicative Cumberland LGA Employment Projections by Industry and Key Sectors, 2016 to 2041

Industry	2006	2011	2016	2021	2026	2031	2036	2041
Agriculture, Forestry and Fishing	83	64	72	73	73	72	71	70
Mining	31	55	55	61	65	68	71	72
Manufacturing	15,386	14,232	13,470	13,265	12,982	12,687	12,390	12,107
Electricity, Gas, Water and Waste Services	303	351	377	393	411	427	442	457
Construction	4,961	6,161	6,777	7,173	7,582	7,927	8,191	8,396
Wholesale Trade	6,607	6,575	6,510	6,772	7,016	7,237	7,450	7,650
Retail Trade	6,553	7,142	7,864	8,259	8,624	8,982	9,352	9,717
Accommodation and Food Services	2,445	2,984	3,147	3,553	3,963	4,374	4,795	5,216
Transport, Postal and Warehousing	6,937	7,453	7,822	8,113	8,382	8,622	8,845	9,050
Information Media and Telecommunications	838	728	723	736	758	782	802	821
Financial and Insurance Services	1,083	1,106	1,465	1,621	1,775	1,924	2,076	2,224
Rental, Hiring and Real Estate Services	919	809	878	973	1,072	1,170	1,269	1,368
Professional, Scientific and Technical Services	2,421	2,421	2,939	3,217	3,501	3,773	4,040	4,305
Administrative and Support Services	1,342	1,866	2,098	2,302	2,505	2,706	2,907	3,109
Public Administration and Safety	2,042	2,310	2,548	2,790	3,031	3,262	3,488	3,709
Education and Training	4,601	5,080	5,827	6,449	7,087	7,732	8,400	9,073
Health Care and Social Assistance	4,523	5,281	6,293	6,956	7,672	8,415	9,192	9,965
Arts and Recreation Services	526	620	736	862	993	1,128	1,270	1,416
Other Services	2,621	2,947	3,027	3,312	3,597	3,878	4,164	4,447
Total	64,222	68,185	72,627	76,883	81,088	85,167	89,217	93,170
Key Sectors								
Advanced Manufacturing	5,475	5,387	5,442	5,446	5,372	5,248	5,100	4,946
Food and Beverage Manufacturing	2,666	2,903	2,960	3,060	3,093	3,116	3,126	3,130
Digital Technologies/ Media	919	918	1,156	1,231	1,313	1,394	1,470	1,543
Advanced Knowledge Services	2,327	2,200	2,672	2,961	3,265	3,570	3,881	4,194
Creative Industries	1,119	1,200	1,546	1,697	1,854	2,010	2,169	2,329
Fashion	1,848	1,786	1,994	2,158	2,313	2,467	2,626	2,784
Allied Health	2,294	2,678	3,249	3,650	4,091	4,558	5,056	5,566
Freight & Logistics	12,151	12,399	12,497	12,928	13,325	13,670	13,986	14,266

Source: AEC.

6.3 COMPETITIVE CLUSTERS

A range of potential competitive clusters for Cumberland are identified. These include the following areas.

Business and Supply Chain

Cumberland's natural locational qualities, serviced by the orbital and arterial road networks positions it strongly to play a major role in accommodating a range of innovative businesses and their supply chain networks. These businesses will be able to service metropolitan Sydney from a base that is central to the '3 cities' - Parramatta, Sydney and Western Sydney Aerotropolis.

Most business and supply chain clusters occur at a regional level and support a range of industries and sectors including those of Advanced Manufacturing, Food & Beverage Manufacturing and Freight & Logistics. Cumberland's employment and innovation lands already accommodate regional and site-specific clusters that facilitate individual business supply chains.

Innovation will occur in different ways depending on the sector and individual business circumstances. Building an Innovation System in Cumberland will be key to assisting existing businesses implement innovation as well as attracting new businesses to a mutually supportive culture of innovation.

Research and Development

R+D clusters are catalysed by a university, hospital or research organisation. An existing education cluster exists at Lidcombe where university and vocational education providers USYD and TAFE are. This presents a natural opportunity for partnerships between education and industry to build the skills base of future workforce.

The location of TAFE and Council's multi-purpose community centre at Granville presents an excellent opportunity for the establishment of a Learning Precinct specifically to foster a culture of collaboration and innovation in Cumberland. Strategic partnerships with Western Sydney University (Launch Pad), USYD, TAFE as well as industry research partners and businesses will be necessary to develop a programme of events/opportunities to foster learning and collaboration between companies and individuals to promote innovation outcomes.

Granville's central location, close to Parramatta CBD, M4 Motorway, Parramatta Road and train line makes it accessible for a range of target participants.

Technology and Creative Industries

As the Central City continues to rise in significance, so will the need to accommodate and grow high knowledge and creative jobs. Creative industries typically gravitate to non-traditional commercial accommodation where the environment combines retail amenity, good pedestrian and transport access and other support infrastructure, such as quirky and unique spaces within which to recreate.

As a location that offers good proximity and access to Parramatta CBD, Cumberland's employment and innovation lands can be positioned to accommodate higher knowledge jobs that seek accommodation in a non-CBD setting with access to the arterial and orbital road network as well as proximity to unique retail and personal amenity.

Growing sectors such as advanced knowledge services, digital technologies/media and creative industries in Cumberland's employment and innovation lands will enable a diversification of the local economy and enable productive output from a greater number of sectors.

Artisan Industry

The ethnic diversity of Cumberland's resident population presents a valuable opportunity to leverage artisanal skills to contribute to the overall uniqueness and attractiveness of Cumberland. Artisanal skills could include: clothing and jewellery design, furniture and artwork restoration, bread and beer manufacture, curation of ethnic spices and herbs, pottery and sculpture.

The growth of artisan industry and community can occur anywhere where rent is affordable and there is a mix of work space, storage and display areas for the public to visit. These locations should be close to existing centres

where synergies can be built. Locales such as Regents Park and Parramatta Road (and areas off Parramatta Road such as Lidcombe and Granville) could be suitable for growing an artisan community.

6.4 A VISION FOR INNOVATION

An Innovation System (or ecosystem) facilitates deep collaboration among its participants - businesses, research and education institutions, and government agencies. Businesses that seek to enhance their capacity to implement innovation, are able to access labour force skills they require and tap into research expertise where they need to.

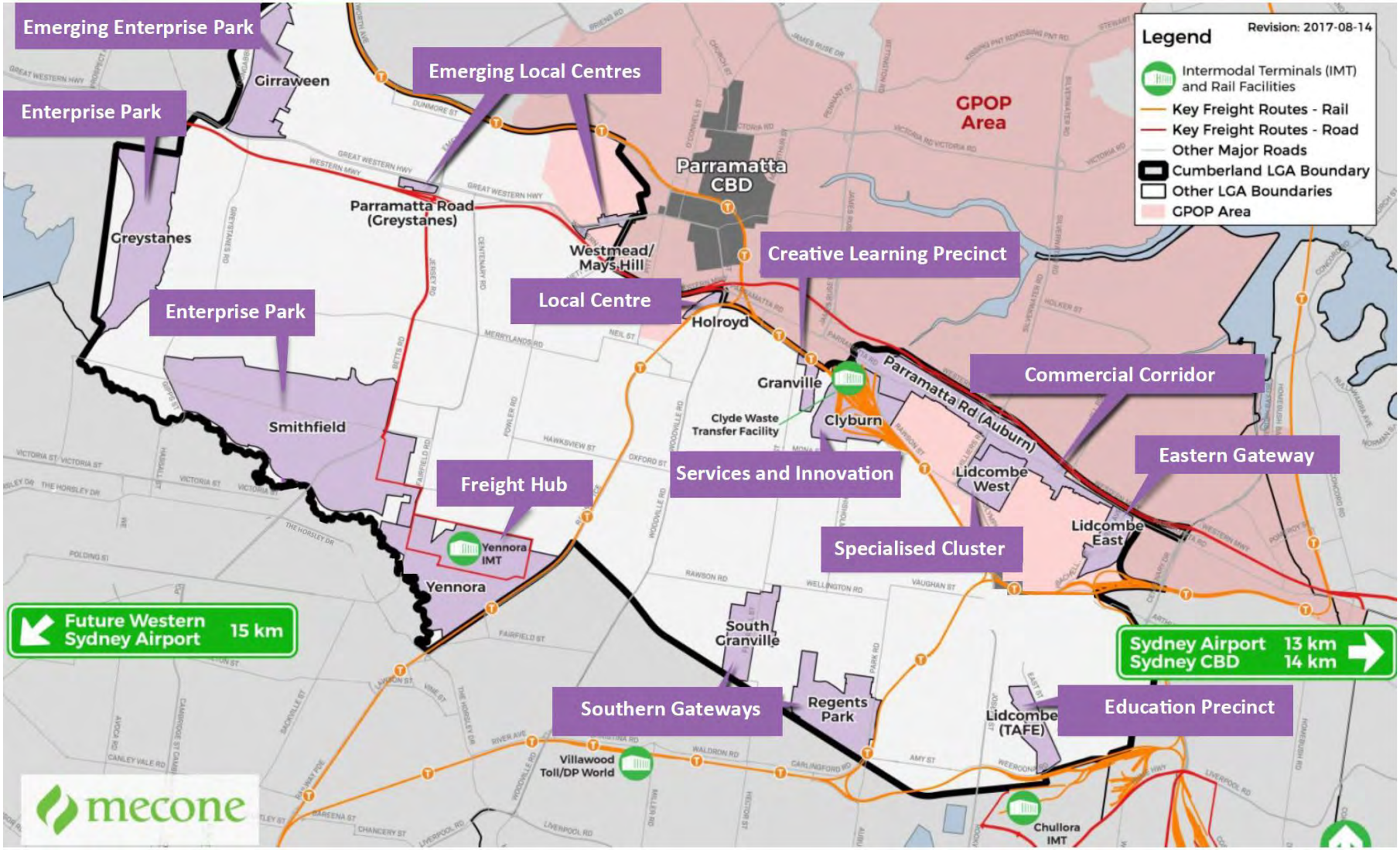
Through a comprehensive programme of learning, skills-building and access to funding, Cumberland's employment and innovation lands can accommodate a wide range of business activity that is responsive to economic and market change. These businesses have the desire and capacity to implement innovation that is effective for their agility and profitability.

Cumberland's employment and innovation lands benefit from competitive features that position them well to support and facilitate business innovation. Building upon naturally occurring sectors and clusters in different locations will be important.

The following vision themes are intended to reinforce existing successful industries in the immediate term while outlining an aspirational vision for the longer term. The aspirational visions anticipate businesses will continue to embrace innovation and identify particular locations where employment and innovation lands can support this. Notwithstanding, the vision themes are not mutually exclusive in the locations identified and could be realised across Cumberland.

A summary of the precinct visions is provided in **Figure 6.1**. Further information on the precincts is provided below.

Figure 6.1: Cumberland, Vision Themes for Employment and Innovation



Source: AEC/Mecone

Enterprise Parks

Excellent road connections and centrality within the Central City district make Girraween, Greystanes (Pemulwuy) and Smithfield valuable locations for businesses to not only service Western Sydney but the growing northern portion of the Central City district. Catering to different types of businesses, these locations accommodate competitively priced space and technology-rich facilities and are able to support innovation outcomes at various levels.

Comprising older and ageing stock, Girraween has the potential to renew and in time accommodate businesses' contemporary floorspace requirements. In contrast, Greystanes which is a new estate continues to accommodate national occupiers whose new facilities are technology-responsive. Smithfield provides an area with a mix of older and newer buildings with redevelopment and modernisation underway.

Figure 6.2 provides a visualisation of what future development potential at Girraween could look like.

Figure 6.2: Visualisation of Employment and Innovation Lands at Girraween

*perspective visualisation of 2-10 Amax Avenue from Fox Hills Golf Club on Toongabbie Road
Source: Urban Possible

Freight Hub

The employment and innovation lands at Yennora are dominated by freight and logistics occupiers, facilitating the growing sector of urban logistics across metropolitan Sydney. This location is overall desirable to businesses that require excellent road connections and access to the freight rail infrastructure.

Major elements of industry innovation include greater automation of processes and use of higher knowledge workers to implement more productive processes and systems. Businesses will only invest large capital amounts where they are convinced of the sustainability and tenure of their location.

Keen development activity at Smithfield and Yennora demonstrates their already desirable location and attributes to business. The capacity of these lands to support innovation outcomes in the long term though, is tied to their ability to be viable and sustainable as employment and innovation lands. It is imperative for Council to work with major landowners and State Government to ensure the lands particularly at Yennora are sustainable and the requisite interventions are made where required.

Figure 6.3 provides a visualisation of what future development at Yennora could look like.

Figure 6.3: Visualisation of Employment and Innovation Lands at Yennora

*perspective visualisation westward from Loftus Road (close to corner Norrie Street)
Source: Urban Possible

Commercial Corridor, Specialised Cluster and Eastern Gateway

Lidcombe (East and West) and Corridor West Auburn (along Parramatta Road Corridor) benefit from having the greatest proximity to Sydney and the GPOP area. Already desirable as locations for businesses' head office and operations, these areas will expectedly benefit from the various infrastructure improvements to the region and serve as a conduit between the Eastern City and Central City.

Figure 6.4 provides a visualisation of what future development at Lidcombe could look like.

Figure 6.4: Visualisation of Employment and Innovation Lands at Lidcombe

*perspective visualisation of 93-97 St Hilliers Road from Parramatta Road
Source: Urban Possible

Opportunities for higher knowledge workers and creative industries to come together could occur along Parramatta Road and within the employment and innovation lands at Lidcombe (East and West). The vision is for uses along and off Parramatta Road to be renewed for productive and intensive employment uses, including but not limited to sectors such as digital technologies/media, advanced knowledge services and creative industries.

The Commercial Corridor, Specialised Precinct and Eastern Gateway could provide for an environment high in amenity, connected by Parramatta and Sydney for uses in a collaborative environment not akin to a traditional CBD setting. This could be supported by an artisan community complementing the already occurring cluster of food and beverage manufacturing.

Southern Gateways

Regents Park and South Granville offer businesses the locational advantage of proximity to Sydney's South and South West districts. Direct connections to strategic infrastructure such as Bankstown Airport, Moorebank Intermodal Terminal and Hume Highway to the south have appealed to a number of prominent businesses that have co-located their head office and operations in the same location.

There is an opportunity for the artisan industry to locate within the finer grain light industrial zone of Regents Park along Park Road. This would support small scale activities such as artisan bread and food manufacturing, fashion and jewellery design, craft beer brewing, assembly of spices, herbs and other food craft. This could have synergy with the Regents Park town centre to the east.

Services and Innovation

The services and innovation sector includes business whose activities are crucial to a city's metabolism occur. This includes manufacturing, rail maintenance, waste management and recycling, wholesale and logistics, and new industries. Although these uses may not employ a high intensity of workers, they are nevertheless important for a city to function.

A critical focus of activities in the precinct is the Clyde Waste Transfer Terminal which is a designated intermodal terminal. Operational since 2004, the Clyde Waste Transfer Terminal is a significant piece of state infrastructure which utilises the freight rail network for transport and waste treatment in other locations. It is part of the resource recovery activities and forms part of Sydney's long-term waste strategy. The facility supports existing source separated initiatives such as curbside recycling and provides access to Veolia's Woodlawn Bioreactor and Mechanical Biological Treatment Facility.

The location of Clyburn adjacent to the Clyde Waste Transfer Terminal and Sydney Trains marshalling yards functions is a naturally occurring cluster of these complementary activities.

This location also has the potential to evolve with other innovation and support service industries. Planning controls in this area could also evolve to enable different land use activities to support employment and innovation.

Emerging Local Centres

The corridors on the Great Western Highway (Wentworthville) and Westmead (Mays Hills) could serve as future overflow areas for Parramatta Road's bulky goods and large format retail role. These corridors would support Westmead and Wentworthville planned precincts. The availability of affordably priced space would additionally help nurture the growth of emerging artisans.

Education Quarter and Creative Learning Precinct

An Education Quarter and Creative Learning Precinct are critical to developing and fostering an Innovation Ecosystem. It would support:

- Collaboration opportunities for businesses:
    - Within industry and between businesses.
    - With researchers and education organisations.

- Skilling and training:
  - For Cumberland residents and workers alike.
  - For business decision makers seeking to gain knowledge in various interest areas.
- Building education and awareness:
  - By experts in different subject matters.
  - For available Government assistance programmes.
- Community participation:
  - By artisanal community and practitioners.
  - For transitional career skills.

Despite the efforts of governments, there remain many barriers to innovation which prevent businesses from investing time and resources in exploring or implementing different practices.

Council's multipurpose community hub at Granville could play a pivotal role in establishing a Creative Learning Precinct.

The existence of educational facilities in Lidcombe is able to facilitate an evolving education quarter.

6.5 BARRIERS TO INNOVATION INVESTMENT

Section 5.2 identified many challenges that face Australian businesses when implementing innovation. Overall, compared to OECD counterparts, Australian industry has low levels of business collaboration (e.g. with suppliers and trading partners) and equally poor collaboration with business research organisations (e.g. CSIRO, universities). Much of Australian business innovation is focused around new-to-business innovation rather than new-to-market innovation, implying that overall Australian business is an innovation follower rather than an innovation leader.

From a survey of businesses (DIIS, 2016), the top three barriers to innovation for businesses are identified as:

- Difficult access to additional funds.
- Lack of skilled persons.
- Cost of development, introduction and implementation.

Access to Finance

Young innovative businesses can often encounter difficulties in obtaining seed funding because of a lack of track record or asset collateral.

Banks generally operate business models suited to providing debt finance to established businesses. Venture capital therefore plays an integral role around the world in stimulating innovation and spurring entrepreneurship.

Since the GFC, the volumes of venture capital funding available for early-stage/seed/start-up investment is noted to have fallen. The rate of venture backing per thousand businesses is low compared to other OECD countries, with Australia having the lowest investment in high-risk, early-stage venture capital (i.e. seed, start-up and other early-stage investment) compared to other OECD countries. This measure is observed for both the number of businesses invested in and the proportion of money invested (DIIS, 2016).

Access to Skills

Innovation-active businesses have reported shortages/deficiencies in all skill types, not just in STEM (science, technology, engineering and mathematics). Lack of access to skills was listed as the second highest barrier to innovation in 2014-15, although this percentage is noted to have been falling over the last decade (DIIS, 2016).

This is consistent with industry and business feedback received - businesses are acutely aware of the influence location and quality of accommodation have on their ability to attract and retain skilled labour.

Australia's ability to attract skilled migrants is a major advantage as is its high share of international university students. With a growing skills base (both Australian born and migrants) this barrier should diminish in significance over time.

Need for Intervention

Ultimately, businesses and industry will embrace innovation to the extent they are convinced of the cost-benefit imperative. Some innovative technologies may indeed be too expensive for SMEs to afford, however, reticence about innovation may be due to poor awareness of available innovative solutions which may not be as costly.

Governments have an important role to play in supporting innovation. The Commonwealth Government's National Innovation and Science Agenda (the Agenda) is aimed at supporting the birth and development of new ideas that could transform how people live and work. The pursuit of innovation is to support economic growth which will ultimately underpin an improvement in living standards. The Commonwealth Government's Agenda is focused around four key initiatives:

- **Culture and capital** - new tax breaks to remove business reluctance to innovate.
- **Collaboration -** more university funding allocated to research carried out in partnership with industry.
- **Talent and skills -** changes to the visa system to attract entrepreneurial and research talent.
- **Government as exemplar -** making information available to make it easier for start-ups and small business.

As part of the Agenda to improve collaboration between businesses and researchers, Innovation Connections provides SMEs the access to expert technology advice that can help businesses identify opportunities for new ideas or address knowledge gaps that may prevent business growth. An Innovation Facilitator is assigned to businesses that apply and there is also grant funding available to businesses willing to invest in innovation.

While tax breaks for R+D are part of the suite of government innovation incentives available, there remains a low level of understanding or awareness in many businesses of potential innovation solutions and the corresponding benefits as well as the means through which to collaborate/obtain assistance.

Council has an important role to play in driving a culture of innovation. This involves being the active conduit and facilitator for industry, research and skills to foster an environment of collaboration and growing knowledge. While planning policy is not a silver bullet, Council also has a role to play through ensuring the Land Use Planning Framework is supportive of businesses that seek to implement innovation through their business.

The following chapter explores these potential interventions as well as Part B on the Land Use Planning Framework.

7. INNOVATION AND INVESTMENT ATTRACTION STRATEGY

7.1 DRIVING INNOVATION

Driving and encouraging a culture and environment of innovation within Cumberland will require a long-term commitment to working with and supporting local businesses increase their awareness of innovation and adoption as well as encouraging innovative businesses in the identified key sectors to relocate to Cumberland.

Innovation is borne from a single individual, but is enabled and encouraged by skills development, engagement and interaction with others. Providing innovative environments and support systems assists to encourage innovative attitudes and also supports the development of new ideas and solutions. Such an environment will see innovation develop internally from those stakeholders within the region, but also from those who relocate to Cumberland to facilitate their ideas.

There are four key aspects or work areas within an innovation development framework:

Figure 7.1: Driving the 'Innovation Ecosystem'

Source: AEC

Building the Skills and Awareness of the Individual

Human resource development and skills base development are important at both the business and industry level. Technology and innovation are interlinked with the skills and capacity of workers to develop or operate new technology. It is critical the skills base of the region is developed to raise the capacity and capability of the region to recognise innovative opportunities and achieve them.

Identifying and Drawing Innovation at the Business Level

Bringing people together to find new solutions for existing problems is a key component of developing innovation at a firm level. Frequently businesses understand their products, markets and operating environments. However, they are often also focussed on their particular areas of technical expertise and do not fully recognise alternative and/or new ways for old processes, or indeed new solutions for old problems.

There is a role for Council to assist in facilitating existing industry to identify what it is '*that they don't know*' to support innovation at the business level. Bringing together external expertise or cutting-edge research to address existing industry processes or problems is important in identifying where there may be new solutions to either old or assumed to be insurmountable problems.

Simple initiatives such as making businesses aware of government agency support and assistance could make a significant difference. Engagement with businesses to build awareness of government programmes that are available (e.g. Innovation Connections), the opportunities and benefits of innovation and different types of innovation could serve to seed ideas that do not necessarily cost much to implement.

Opportunities to network, collaborate and hear different subject matter experts will help business owners and decision makers to hear and learn about new things.

Developing New Industries (by creating new supply chains)

Where new processes or solutions are identified within an existing business' operations, they should be explored further to identify the market opportunity throughout the industry, as well as through other industries that utilise similar processes or technologies. This process is equivalent to the development of new industry value chains and relationships.

Council, through the innovation discovery process at the business level, can then support and facilitate the development and commercialisation of the innovation at a sectoral level. The key role of Council in this aspect will be to link industry and research/commercialisation organisations (e.g. in partnership with Western Sydney University and research organisations).

Funding

Transforming innovative ideas into innovative activities in reality requires substantial amounts of funding, particularly in the formative stages. For many innovators, access to funding is usually a key obstacle in launching a new idea into the commercial realm. In overcoming these obstacles, a number of different programs have the potential to be generated within Cumberland to assist with funding innovation, such as:

- **Innovation Commercialisation Fund**: Establishing an innovation commercialisation fund in Cumberland would assist businesses in transforming their innovative ideas into commercial activities. Businesses accessing the fund would have a pre-existing specific and identified innovative opportunity, have already developed the product, tested the market and developed a robust business case for the launch of the product or idea. The Innovative Commercialisation Fund would then allow for these businesses to take their product to the next level. Establishment of an Innovation Commercialisation Fund would rely heavily upon the region's major partners to fund the innovation-commercialisation process, which can (but must not always) include government.
- **Angel Network**: Establishing an Angel Network would assist Cumberland to encourage innovation at its most infant stages. This network would encourage early innovators to pursue their ideas by assisting funding of experimentation and market testing in its early stages.

  Establishment of an Angel network relies upon key partners for provision of bursaries and small grant funds for early stage entrepreneurs. This network is also important for connecting early stage innovators with the right networks and collaborators to assist incubating early stage ideas, prior to connection with the Innovation Commercialisation Fund.

7.2 BUILDING THE ENVIRONMENT

Section 7.1 focused on how Council can help foster a culture of innovation among existing and new Cumberland businesses. This section examines how Council can attract new investment from high-value and innovative businesses that may not presently have a presence as well as facilitate growth/expansion of existing businesses in Cumberland.

This transition process from processed-based manufacturing to high value-adding employment land uses will require a detailed and ongoing action and work plan across three core economic development and investment attraction activity areas, including:

- **Ongoing Market Research** to remain up to date and aware of key opportunities and industry happenings.
- **Proactive Marketing** of Cumberland to identified target markets/sectors, focussing on their key points of interest and attraction and the competitive advantage of Cumberland for the sector.
- **Active Stimulation and Encouragement of Investment**.

A natural level of growth, expansion or new business should be expected to occur without the involvement of government organisations like Council. However, Council team members can play an important role in influencing decision makers and facilitating the desired outcome.

The following sections provide an overview of the economic development and investment attraction framework for Cumberland and its implementation partners to deliver the best outcomes for the region in line with the opportunities associated with the priority target sectors and their associated supply chains.

In the initial stages of implementing this program the generation of leads will be challenging. As a result, the priority initially centres on relationship building and setting the foundation for future success, with lower expectations around lead generation. It is estimated that the lead generation targets should build over time, and by the third to fifth year more significant results should be achieved.

7.2.1 Stratagic Priority 1 - Market Research

Purpose: To enhance a detailed understanding of the target industry sectors and maintain a current understanding of market trends and opportunities to assist in generating and responding to investor leads.

Table 7.1: Market Research Activities

Key Activity	Purpose and Description
Subscribe to and review industry publications in key target sectors to build in-depth understanding about opportunities in the target market	• The purposes of conducting industry research is to develop market knowledge about business expansion plans and trends that are impacting upon the industry. • It will be necessary to subscribe to relevant industry publications or source targeted information online. • Research will be required to identify the most suitable publications most relevant to the key sectors. The publications list should be reviewed annually to ensure they are relevant and beneficial.
Gather and analyse industry data as it becomes available	• There is a range of different socio-economic datasets that are updated monthly, quarterly, annually or every 5 years, depending on the source. • Having access to the latest data about the local area and key sectors aids engagement and understanding.
Host forums with local industry stakeholders to build understanding about challenges and opportunities facing the local industry	• Hosting local industry forums will contribute greatly to understanding industry needs as well as to promoting economic activity within the LGA. • By hosting forums locally Cumberland has the opportunity to lead the discussion about the future of the target sectors in the LGA, bring together all the relevant stakeholders at an industry and government level, and to leverage these events to promote the capabilities of local businesses. • Most importantly the forums must target the recognition of national and international industry leaders from outside the region. These leaders should be invited to the forums so that they can see firsthand the opportunities and capabilities that exist in Cumberland. • These events have the potential to raise the profile of the Cumberland in the target sectors.
Undertake lead generation initiative	• Lead generation is a specific market research tool, which identifies leads or prospective investors based on a series of qualifying criteria. • The process requires access to business databases and an analysis of various factors. • The leads that are generated are provided in the form of company profiles including all relevant contact information, description of business, employment numbers, revenue and a senior level contact and an email address where available.

Source: AEC

The Market Research stage of the program addresses the initial market research required, but it is important to stay aware and update relevant information as it becomes available.

7.2.2 Strategic Priority 2 - Pro-active Marketing

Purpose: To raise the profile of Cumberland as a business destination that supports high-value and innovative businesses. Through the development of targeted marketing material and active participation in various networking activities, Council can reach a large audience and promote a consistent message as to why Cumberland is an attractive location for businesses to relocate and/or expand.

Table 7.2: Pro-active Marketing Activities

Key Activity	Purpose and Description
Develop specific marketing collateral/ tools including industry prospectus, fact sheets and web-based information	• Investment prospectus to include: o Graphically designed in line with existing branding where available. o Maps and other general information regarding Cumberland. o Highlights of local and regional strategic assets and other strengths. o Relevant socio-economic data. o Call-to-action and contact details of persons who will facilitate enquiries. • Targeted sector profiles to include: o Graphically designed in line with existing branding where available. o Specialised data and information relevant to the target industry. o Highlights of local and regional strategic assets and other strengths to the target sector. o Specific information about the opportunities available in Cumberland to these sectors. • Targeted website to reflect and support the other marketing collateral. • Regular news and updates to produce news stories and provide information about the local economy and topics likely to impact the LGA. • A video will visually represent the Cumberland LGA and opportunities to the target sectors. The majority of messaging and content will already have been developed in the preparation of other marketing tools however the video provides a more interactive and engaging way of representing this information.
Proactive marketing program to generate interest and raise the profile of Cumberland in identified target sectors	The purpose of this activity is to deliver specific focused stories about Cumberland, through the following activities: • Email campaigns - facilitated as a way to stay in regular contact with leads generated, and provide an opportunity to keep the contact up-to-date with new and relevant information about Cumberland. These types of campaigns would be conducted monthly and present an excellent way to keep Cumberland front of mind with contacts established in the target market. The type of information to be included in these emails: o Articles from local newspapers/publications that highlight relevant local activities and/or local business success stories. o Highlights of upcoming events. o Highlights of recent business relocation/expansion stories. • Advertising and editorial placements are an excellent way to promote positive news stories about Cumberland. Key publications should be identified and engaged through the Market Research stage to identify opportunities to place advertisements and run editorials about the region and local success stories. • Public relations Host industry-specific journalists from relevant publications to promote existing investment opportunities and planned developments. These journalists can come from identified industry publications and/or other relevant news outlets, such as The Australian or The Australian Financial Review.

Source: AEC

7.2.3 Strategic Priority 3 - Stimulate Investment

Purpose: To identify and engage with investors (prospective new businesses and also existing local businesses) about local opportunities to secure investment activity.

Business Retention and Expansion Program

- Meet with existing businesses in target sectors.
- Connect local businesses with State and Federal government programs.
- Connect local businesses with education and research-related organisations.
- Host/facilitate local capability building events, e.g. supply chain events, business workshops, etc.

In most local/regional economies, existing businesses are usually responsible for up to 80% of new employment creation and investment. The business retention and expansion program should not forego the opportunity of maximising the potential of existing businesses that are operating in target sectors and/ or those local businesses with significant growth and investment.

To successfully deliver this initiative, Council staff will need to build close working relationships with a range of industry stakeholders to ensure they have strong understanding of the factors driving opportunities for local growth, and in turn develop initiatives to assist in facilitating outcomes.

There are a range of different government programs available to support the expansion of business, but the most effective focus for Council is to build a relationship and links with local businesses, ensure there are open lines of communication and then connect them with existing programs to meet their needs. The types of programs that could be developed include:

- **Workforce Development Programs**
  To understand the current and future employment needs of industry and then work with suitable training providers (e.g. TAFE, WSU) to help address these needs.
- **Capability Building Programs**
  After engaging with businesses certain common themes may emerge in relation to gaps in the capabilities of businesses, and Council can facilitate the development of programs to address these gaps.
- **Supply Chain Development**
  Bringing together the various stakeholders across the different parts of the supply chain can help to identify opportunities to work together and build the LGA's capabilities and chances of being successful.
- **Facilitate Connections**
  Not all businesses are aware of the services and programs different government departments offer. Therefore, the opportunity exists for Council to become the intermediary between local businesses and other levels of government to promote opportunities to participate in various government programs as they arise.

Trade and Investment Missions

- Conduct domestic trade and investment missions.
- Meet with prospective investors.
- Generate new investment leads.
- Meet with business intermediaries.

Trade and investment missions can be conducted to promote the capabilities and opportunities in Cumberland and also to engage with prospective investors and to generate new investment leads. Trips to key locations where the target sectors operate should be conducted to assist in identifying investors. These missions present the opportunity to engage directly with existing leads and also to facilitate events where the chance exists to promote the Cumberland LGA.

The targets for meeting prospective investors and generating new investment leads increase each year as the first year will set the foundations for future success through a stronger focus on relationship building. It is anticipated that as relationships and contacts develop so will the leads.

Trade Shows and Conferences

Industry specific trade shows and conferences are a good way to engage with many potential investors in a short period of time in the one location, given these events bring together decision makers from across key industry sectors. Research should be done in advance of the event to identify targets to contact during the event. Depending on the trade show/conference there may also be the opportunity to host an event with participating delegates and present as part of the overall program. It is also a good idea to organise meetings outside of the trade show/ conference with existing or potential investment leads that are based in the area hosting the event.

It is not expected all sectors are targeted via trade shows at the same time. A key aspect of this is to measure the number of contacts and real leads generated to ensure the participation was valuable.

Industry Networks and Associations

There will be a number of peak industry organisations/ associations that businesses from within target sectors are members. These present an opportunity to build relationships, develop an understanding about the drivers of the industry, generate investment leads for Cumberland and also attract events by becoming a member of these organisations.

Membership will also present the opportunity to target and attract national and/ or state based conferences and events to expose members of these industry associations to the strengths associated with Cumberland LGA. Thereby presenting the opportunity to showcase specific highlights through a range of activities such as regional tours, dinners, networking events, etc.

Some research needs to be conducted to ensure any group Council is going to become a member of is the group where the most opportunities can be generated. Once the right groups are identified it is then important to proactively participate in these groups, this includes attending industry networking events, participating in their annual conference, etc. Any opportunity that presents the chance to raise the profile of Cumberland LGA should be proactively pursued. A commitment for longer term participation is key.

Host Targeted Industry Events

Council should host senior executives from prospective investors and target companies in Cumberland for special boardroom style events. These events should be very targeted and viewed as quite exclusive and a must-attend event to learn about new opportunities in Cumberland.

Facilitate Investment Opportunities

Council has an important role to play in facilitating investment opportunities, and working with interested investors to help them navigate the relevant processes and applications they need to complete in order to establish in Cumberland.

A large part of the program framework up until now has been about promoting and building the profile of Cumberland. This key activity is about making sure the service provided once they are attracted is effective and efficient, because delays in the relocation process costs businesses money, and ultimately could lead to a bad reputation for Cumberland.

This process includes the following types of assistance:

- Assist prospective investors with customised information and site identification.
- Liaise with Council stakeholders to manage the development and application process.

7.3 POSITIONING CUMBERLAND

Building an Innovation Ecosystem is about creating a culture of innovation, rather than a ‘bricks and mortar’ centre. Part of building a culture of innovation is getting businesses to collaborate with other businesses (suppliers, customers) and with researchers. It is about connecting businesses with the right skills and tools to identify where there are gaps in their processes or methods which could be improved.

Governments have a distinct role to play. By providing a robust local framework to support investment and jobs, governments can actively encourage a pro-business environment that is conducive to industry growth and innovation.

Brand Cumberland

Analysis in Chapter 3.2 suggests there is a regional disadvantage for Cumberland, conceivably a legacy of Western Sydney being perceived as secondary to Sydney. An active campaign to raise Cumberland’s profile and reposition it in the minds of industry, businesses and investors is important.

Developing various forums (e.g. at the Creative Learning Precinct, trade shows and conferences, through targeted marketing campaigns) is critical for Cumberland's profile-raising and brand-building.

- **Local Case Studies**
  A series of interviews with local businesses has demonstrated how existing businesses in Cumberland have embraced innovation, technology and change. These would help make innovation real to other businesses that could encourage them to seek out practical applications within their own businesses.

  Businesses or speakers could be introduced or invited to portray how others have successfully embraced innovation (technological or non-technological).

- **Centre to Showcase New Technologies**
  Beyond technologies at a business level, Cumberland could become the centre for showcasing new technologies. For example, Cumberland could be a demonstration location for new food science technologies or other technologies that would have a wide application across businesses.

- **Connections and Networks**
  Engagement and collaboration between businesses and within the supply chain is critical, as is collaboration between industry and research organisations and universities. A focal point for events, networking functions and special keynote talks will assist to establish a culture of engagement. This level of involvement and support from Council will be a valuable boon to each business' innovation journey.

- **Access to Technology and Ideas**
  Ensuring local businesses have access to technology and ideas if they require, will assist in uptake and transfer. While Council cannot be the beacon of all knowledge, it can act as the conduit to industry and research organisations. Opportunities to generate outreach from these organisations should be developed to open up access for local business.

- **Capacity and Skills**
  An insufficient level of skills was identified as a key barrier to innovation by business. Capacity building and learning programmes could be developed to target different skill levels - from executives (decision makers) to unskilled workers in a range of topics.

- **Service Levels**
  Incentives to encourage growth/expansion and relocation of new business in Cumberland will be well received, particularly if financial or planning incentives are available to support investment in innovation.

Planning for the Future

Driving a culture of innovation which is part of an Innovation Ecosystem also requires a land use planning framework that is responsive and certain. Equally important is a planning framework that is holistic and strategic - one that plans for the infrastructure requirements of competing land uses. Businesses will only invest large sums of capital in innovation (where it involves real estate) when they are convinced of the long-term sustainability of a location. They also need security of tenure and accordingly either purchase land or assume long term leases.

The nature of economic activity in Cumberland is generally consistent and former LGA boundaries play very little role in the day-to-day operations of a business, nor do they impact a business' decision of where to locate their operations. It is more about location and access by road and rail.

Road and rail infrastructure is fundamental to the ability of employment and innovation lands to support business and enterprise, as well as industry's desire to implement innovation outcomes. Where the operating conditions of employment lands are compromised, for example, if businesses' hours of operation or truck access is limited, or if there are land use conflicts with residential or other sensitive uses, these lands will struggle to be sustainable in the long term.

Various planning initiatives are considered in Chapter 8 that are focused around ensuring the primacy and viability of the employment and innovation lands as well as ensuring development flexibility for businesses that may innovate.

BRIDGE BETWEEN PART A (EILS) & PART B (LUPF)

This section links economic, innovation and business outcomes for Cumberland's employment and innovation lands (Part A) with the proposed Land Use Planning Framework (Part B).

Recognition of the Importance of Lands for Employment and Innovation

Cumberland's employment and innovation lands play a vital role in the functioning of the Greater Sydney Region and respond to the diversification of both the local and regional economy. In planning for these lands, the need to provide locations where innovation can occur is crucial and the EILS seeks to create a land use framework that facilitates the close collaboration of like-minded businesses and new entrants to drive a diversified economy.

The EILS recognises that the introduction of flexibility in land use planning for Cumberland's employment and innovation lands will encourage growth of existing industries and businesses while also providing opportunities for diversification through new entrants and the transition of traditional uses to higher value-adding activities.

The Greater Sydney Commission's paper *A Metropolis that Works* (GSC, 2018c) recognises the importance of taking a broader strategic view, considering precincts or locations of employment lands as "networked places, operating across and deeply embedded within, a range of spatial scales." The EILS is founded on this principle and provides a framework for Cumberland upon which industry and business in the various locations are linked in a manner that will drive economic growth, innovation, and job creation at the local level.

It is noteworthy that the GSC recognises Greater Sydney "is now the manufacturing capital of Australia with an industry gross value added output of $21.5 billion" which demonstrates its importance.

The Central City District Plan indicates the largest employment lands in Cumberland LGA include the following:

Employment and Innovation Lands in Cumberland LGA

No.	Location	Undeveloped Land (ha)	Developed Land (ha)	Total (ha)
1	Pemulwuy (Greystanes)	45	118	162
2	Smithfield (North)	7	345	353
3	Yennora	1	187	188
	Total	53	650	703

Source: GSC (2018b), DPE (2017)

The Central City industrial and urban services lands account for 35% of all jobs despite being part of only 8% of land across Greater Sydney that is zoned for non-residential uses. The evidence suggests the important contribution of these lands to the national gross domestic product (GDP) and productivity through infrastructure, business and utility provision in intermodal and logistics hubs. The importance of local proximity for many of these activities is implicit in many of the activities.

The EILS identifies the need for a strategic approach to land use planning for employment and innovation lands. The introduction of greater flexibility into local environmental plans (LEPs) to facilitate businesses and industry transitioning to higher order industrial, technology, creative and logistics uses. This forward-looking approach is supported by the findings of the Greater Sydney Commission.

The Greater Sydney Region Plan incorporates strategies for industrial lands which include the need to review and manage these lands for intermodal and logistics uses, as well as the land use requirements of the transport network. These strategies influence the viability of industry activities as well as ongoing operations and long-term growth.

The Cumberland EILS responds to the strategies of the Greater Sydney Region Plan and will facilitate the delivery of the applicable regional strategies outlined in the plan with resultant benefits for local economic development and growth. Opportunities for diversification of jobs and employment for the community in Cumberland will also be enhanced as the EILS is implemented. In this regard, the intermodal terminals at Yennora and Clyde will continue to play a major role in supporting planned improvements to port activities in the Eastern City and the freight and logistics sector across the metropolitan region and westwards to the future Western City and Aerotropolis.

Approach to Supporting Employment and Innovative Outcomes

In taking a strategic approach to planning for the employment and innovation lands, the Cumberland EILS recognises these lands as 'precincts' rather than merely by the specific zoning. The EILS acknowledges land as a valuable place-based asset for supporting local economic development and employment growth in Cumberland.

The EILS is underpinned by a strong economic analysis that is coupled with a robust land use planning framework and implementation strategy. As a result, the EILS provides an opportunity for managing the future of Cumberland's employment and innovation lands to facilitate new land uses and accommodate innovation, flexibility and adaptability. It also provides opportunity to create greater amenity on these lands through land use planning (such as facilities and services that employees can use).

The intent is to deliver local economic development outcomes and a diversity of jobs. Taking an innovative approach in planning for these lands will create a distinct flavour and character for each location while attracting the appropriate cohorts of businesses, industries and employees. The EILS identifies specific characteristics for each of the locations of employment and innovation lands where place-based planning to achieve the vision for each location can occur. Land use planning can also reflect provisions that will facilitate the evolution of these locations into employment precincts that reflect the visions identified in the strategy's land use planning framework.

Planning for Employment and Innovative Land Uses

The land use planning framework provides for the diversification of businesses that are currently not strongly represented in the LGA but have been identified as industries in which Cumberland's young and increasingly tertiary-educated demographic is interested. This includes knowledge-intensive industries such as digital, design, media, creative arts and fashion and allied health and research and development.

Another cohort in Cumberland that has indicated a desire to develop small business enterprises is the artisanal community. This involves residents from around the world who have settled in Cumberland and have potential to succeed by making products for sale in world markets. In an increasingly inter-connected environment, markets are no longer geographically-bound and business and industry able to tap into global talent to grow enterprise.

The Greater Sydney Commission identifies the importance of safeguarding employment and innovation lands from the "wider pressures of land value uplift not only in terms of current needs and functions but also to ensure they have capacity to respond to future shocks, technological and economic transformation and community needs."

The EILS' land use planning framework guides strategic planning for employment and innovation lands in Cumberland, enabling the LGA to respond to evolving needs of business and industry, while also allowing for the changing needs for employment within the community.

The land use planning framework provides a set of planning principles for each location, identifies target activities, addresses any barriers for lands in that specific location, and outlines the actions required to deliver the vision.

The employment lands and innovation precincts include:

- Eastern Gateway
- Specialised Cluster
- Education Quarter
- Commercial Corridor
- Southern Gateways
- Services and Innovation
- Freight Hub
- Creative Learning Precinct
- Enterprise Parks
- Emerging Local Centres

Looking Forward

The EILS provides a framework for ensuring that the significance of Cumberland's employment and innovation lands is maintained and continues to provide opportunities for business and industry investment, growth and diversification.

This land use planning approach will support the strategic directions set out in the EILS as business and industry transition to more technologically advanced activities or diversification that includes new knowledge-intensive, creative or artisanal activities.

The EILS also aligns with Council's Community Strategic Plan's strategies for local economic development and a diversity of local jobs, as well as the objectives and actions for productivity that are set out in the Central City District Plan.

PART B: LAND USE PLANNING FRAMEWORK (LUPF)

8. LAND USE PLANNING FRAMEWORK

8.1 STRATEGIC POSITION WITHIN CENTRAL CITY DISTRICT

The vision themes aim to reinforce existing industries in the immediate term while outlining an aspirational vision for the longer term. The vison themes will help achieve the priorities and actions identified in district and regional plans and help guide ongoing strategic planning in Greater Sydney.

The Greater Sydney Commission is planning for a three cities metropolis. This strategy sees significant urban transformation in the Central City, with Parramatta CBD and the GPOP at its heart. The innovation themes will ensure that Cumberland can tap into the vision for the Central City, by facilitating the evolution of its employment and innovation lands to capture advanced manufacturing and innovation-driven enterprises in support of the city.

The vision themes will help achieve the productivity directions and key priorities set in the Central City District Plan:

- The vision themes present a significant opportunity to respond to the transforming nature of 21st Century businesses given Cumberland's centrality within the Central City and accessibility to the transport network and subsequently the Central and Western Cities.
- The employment and innovation lands in Cumberland could play a role in providing high value jobs in accessible areas to improve on the principle of a '30-minute city'.
- Development of the vision themes will help develop a better understanding and opportunities within these employment and innovation lands by identifying areas for further research and strategic planning.
- The visions also clearly indicate opportunities for a collaborative approach across Government and Council to ensure these innovation vision themes will be realised.

8.2 ACHIEVING THE VISION: AN OVERVIEW

The land use strategies demand flexible thinking in how employment and innovation lands operate and are able to respond to a changing economy and city. Ultimately, the aim is to provide the best environment for businesses to operate, innovate/change and grow over time.

The strategy's framework will cascade from high-level priorities at the LGA and District-level, through common strategies for employment clusters, to specific ideas for individual precincts, as follows:

- **Council-wide Strategies** that apply to all employment precincts, and include recommendations for Council to engage with Government to ensure Cumberland is represented appropriately in regional/district planning.
- **Cross-precinct Strategies** that may apply to a number of like-precincts, or corridors.
- **Location-specific Strategies** that apply to a precinct, locale, or individual site.

The following Land Use Planning Framework comprises the following items:

- **Vision** - the overarching vision for Cumberland's employment and innovation lands and how this will play out at the local level. The visions include a viable statement for reinforcing the existing successful industries in the short to medium term and outline an aspirational vision for the longer term. The aspirational vision anticipates businesses will continue to embrace innovation, and identifies how employment and innovation lands can support this change;
- **Planning Principles** - a number of key principles to guide land use change into the future and foster innovation at the local level;
- **Target Activities or Sectors** - drawn from Council's suite of target business activities;
- **Barriers to Innovation** - the key planning matters or 'hurdles' that will need to be addressed by Council to achieve the vision;
- **Actions** - the key steps that Council will need to enact to facilitate change, linked to timeframes.

8.2.1 Council-wide Land Use Strategy

The Cumberland Local Government Area holds a strategic location within the Central City District. It is located to the south of Parramatta CBD, the growing Central City, and forms the southern peripheral areas of the GPOP area, which is the focus of Government planning for jobs, homes and transport infrastructure.

Planning Principles

The following planning principles are relevant to the various employment innovation lands across the LGA:

- Elevate the strategic importance of Cumberland's employment and innovation lands within the context of strategic planning for Greater Sydney and the Central City District and identify their role and function.
- Recognise the importance of the freight network in supporting the ongoing viability of employment and innovation lands to ensure the major freight routes and facilities are not unnecessarily constrained by residential growth in the vicinity e.g. the noise and amenity impacts of freight movements to and from employment areas on residential uses.
- Seek new ways of facilitating the growth of innovative businesses, such as through the development of an 'Innovation Toolbox' of planning mechanisms and policies.
- Ensure the land use planning framework for employment and innovation lands promotes innovation and target industries.
- Promote the health of employment and innovation lands as an ongoing concern and in response to population growth, land use change and infrastructure provision.

Target Activities or Sectors

Council has identified a number of target industries that it would like to see augmented within Cumberland's employment and innovation lands. These target sectors include:

- Advanced manufacturing.
- Food and beverage manufacturing.
- Digital technologies and media.
- Advanced knowledge services.
- Creative industries.
- Fashion.
- Allied health.
- Freight and logistics.

The Study has identified how growth in target industries could be suited to the employment and innovation lands after considering the nature of existing businesses in the locale, the existing infrastructure and urban context, and any Government-led strategic land use and infrastructure planning and investment that will benefit the locale. For example, target activities have been selected where the opportunity exists for complementarity in business activities, such as promoting research and development in allied health near existing educational and health institutions.

Barriers to Achieving the Vision

These have been identified as including:

- Land use conflicts with residential development, particularly those areas located on the key freight transport routes or near freight facilities.

- Competition for land, considering that often the development cycle favours residential/mixed use, over employment.
- Public transport accessibility to employment areas, given knowledge workers require high public transport accessibility and areas of high urban amenity.

Actions

The following actions are identified for further consideration by Council:

- Undertake a review of the statutory planning framework for employment and innovation lands to ensure a level of consistency across zones (where appropriate). In the land use table, embed an appropriate level of flexibility to ensure the planning framework enables the growth of target industries. This may or may not be done as part of a comprehensive review and consolidation of the three LEPs.
- Ensure amenities and support services, such as cafés, gyms, and child care services and convenience retail, are available in line with the growth of innovation businesses to ensure areas remain attractive to knowledge and skilled workers.
- Engage with the NSW Government to improve transport accessibility within the LGA, which will make Cumberland more desirable for businesses.
- Review the health, role, and function of employment and innovation lands as an ongoing priority. This will become increasingly relevant with time and in response to population growth, infrastructure provision, and maturation of the nearby Parramatta CBD, Sydney Olympic Park and urban renewal across the broader GPOP.
- Work with the Transport NSW and RMS to map the most important freight routes and connections within the LGA and consider the freight network in land use decision-making, particularly for site-specific planning proposals.
- Engage with the NSW Government in regard to freight network planning to support the viability of freight and logistic businesses, including their relationship to Inter-modal Terminals, such as Moorebank IMT.
- Develop an ‘Innovation Toolbox’ of planning mechanisms and policies that may be available to Council to incentivise, capture, and grow innovative businesses within the employment and innovation lands.
- Develop and implement a set of criteria to be used when assessing planning proposals. The criteria should ensure planning proposals are in line with the overarching or precinct-specific vision, and do not negatively impact the viability of employment and innovation lands. They must also be consistent with the Central City District Plan, the Greater Sydney Region Plan and any applicable State Government planning policy on employment and/ or industrial lands.

Innovation Toolbox

A key aim of the Land Use Planning Framework is to ensure the right conditions for existing businesses to prosper, while encouraging the growth of target ‘productive industries’. It is recommended Council explore a number of tools and mechanisms that may be implemented through the planning system to unlock the employment and innovation lands to more high-knowledge workers over time. The tools will require further discussion across Council, supported by an analysis of the economic impacts of each tool.

A key action to be further explored by Council is to:

- Develop an ‘Innovation Toolbox’, containing the suite of mechanisms and ideas that will help to grow and support innovative activities within the employment and innovation lands into the future.

There is also an onus on Council officers to facilitate discussions with existing businesses and to openly explore alternate and unique development scenarios with applicants when the opportunity presents itself. For example, a negotiation with the proponent of a planning proposal may lead to a discussion as to whether space for target industries may be incorporated into a development through some incentive-based controls. Those incentives would, of course, need to support the overarching vision and not negatively impact the functioning of the employment area.

The types of incentives that could be explored in the planning 'toolbox' include:

- **Floor space/Land Use incentives** for target industries and R&D space to encourage innovation industries and smart jobs. Council would need to develop criteria to ensure consistency in determining whether a business meets the requirements. For example business and commercial premises are prohibited in B7 and IN2 zones in Marrickville and Leichhardt LEPs, but are an additional permitted use if being utilised by a creative or cultural industry. By contrast, existing non-residential buildings in General Residential R1 zones in the City of Sydney can be redeveloped for office or business uses for creative industries (otherwise prohibited).
- **Live-work opportunities** could be investigated by Council for some areas adjacent employment precincts where the potential for land use conflicts are limited.
- **Exemptions from Development Application fees and waivers/deferral of local infrastructure** (Section 7.11) contributions may provide incentives to tech start-ups and creative industries with limited funds for business set up. Council would need to ensure that the necessary local infrastructure and amenity improvements are in place to make this an attractive offering.
- **'Affordable employment' spaces**, which may include subsidised floorspace for start-ups and creative industries. Again, this would likely need to be incentivised through the provision of additional commercial floorspace and/or additional flexibility in the development controls e.g. through renewal for mixed use development.
- **Incentive-based LEP provisions** may be considered for individual sites or precincts. These may include additional permitted uses and floor space bonuses for certain uses, on the proviso 'innovation' space is provided as part of future development.

  A number of Sydney councils utilise incentive-based controls, particularly within employment generating lands. Incentive based provisions can also enable the rejuvenation of older stock by incentivising existing landowners to redevelop. This can also then enable public domain improvements such as footpath upgrades, through-site links or cycle paths.

8.2.2 Location-specific Visions and Strategies

(1) Lidcombe Education Quarter

Vision

The Education Quarter will play an important role in bridging the gap between education and industry. Partnerships with TAFE, University of Sydney, and Western Sydney University will explore opportunities to exhibit and showcase achievements and support the realisation of ideas and entrepreneurship.

Planning Principles

- Grow the Lidcombe TAFE and University of Sydney Cumberland Campus into a specialised 'Education Quarter' by ensuring the primacy of education and support services.
- Work with educational institutions to ensure the long-term viability of the Quarter for educational purposes.
- Encourage health services to co-locate with the educational institutions, by leveraging the nearby health and educational opportunities at the University of Notre Dame campus and Auburn Hospital.
- Promote a vibrant and active Quarter for students and workers, including improved public transport accessibility by encouraging a mix of health and education-related businesses, ancillary health and education services, retail and commercial uses to support the primary education uses.
- Investigate opportunity for student accommodation within the precinct; however restrict residential uses to the surrounding area.

Target Activities

- Higher education and support services.
- Allied health, retail and commercial that support the education precinct.
- Consider the potential for some ancillary student accommodation, if provided as part of a genuine health and education commercial enterprise.

Barriers to Vision

The zoning of the land is inconsistent with the vision for the Education Quarter and is a legacy of the Standard Instrument LEP framework and associated policy that promoted the use of the adjoining zone for infrastructure purposes.

The precinct is currently zoned as R3 Medium Density Residential with a 9m height limit and FSR of 0.75:1. Commercial uses are prohibited in the residential zones, however minor ancillary retail permitted through Neighbourhood Shops. Commercial and retail uses that are ancillary to the primary education uses may be permitted, but they would be a minority. This is considered a major hurdle to the growth of this precinct.

It is understood the land is owned by the Crown (i.e. NSW Government), so the risk residential uses would replace the education uses is considered low.

Transport accessibility to the precinct is also an impediment to its growth as an education precinct.

Actions

The following actions are identified for further consideration by Council:

- Review the permissible land uses to ensure the long-term use of the land for education/health and related businesses is assured.
- Consult with the educational institutions to ensure the planning controls and other conditions support the ongoing use of the land for education and related activities.
- Review the range of uses permitted in the R3 Medium Density Residential zone and look to either rezone the land to a business zone, or introduce additional permitted uses or local provisions that allow greater flexibility for health and education support services.
- Review the density controls to permit some intensification of educational and supporting facilities.
- Prepare an overarching structure plan for the Education Quarter that leverages existing uses and promotes growth in innovation activities.
- Engage with Notre Dame and Auburn Hospital to accommodate support services and synergies across employment areas.

Potential Planning Interventions

- No change to zone.
- Update Schedule 1 - Additional Permitted Uses to include ‘retail premises’, ‘tourist and visitor accommodation’, ‘information and education facility’ and ‘business premises’;
- If supported by a future Structure Plan, increase maximum height and floor space controls.

(2) Southern Gateways (Regents Park and South Granville)

Vision

Regents Park and South Granville will become the Southern Gateways.

The Southern Gateway offers businesses the strategic locational advantage of proximity to Sydney’s South and South West and access to the strategic infrastructure of Bankstown Airport and Moorebank Intermodal Terminal.

Planning Principles

- Protect and enhance the primacy of the industrial land uses and ancillary support services.
- Encourage growth in employment amenity support services.
- Plan for artisan Industry in close proximity to the Regents Park Station, which may include 'live-work' opportunities in adjoining residential areas and retail showrooms (however continue to prohibit residential uses elsewhere in the employment and innovation lands).
- Encourage higher-density employment uses in the health and pharmaceutical industries that would require office-style accommodation in the South Granville Precinct.

Target Activities

- Retain the existing pharmaceutical industry and businesses.
- Allied health and pharmaceutical industries, advanced manufacturing, food and beverage industries.
- Artisan industries such as furniture restoration, sculpturing/pottery, art restoration near Regents Park Station.

Barriers to Vision

The Regents Park centre requires revitalisation to improve the desirability of the broader locality for businesses. Council should look to encourage revitalisation of the centre to the east of the Regents Park employment area to improve amenity and the attractiveness of the adjacent employment area.

Actions

The following actions are identified for further consideration by Council:

- Develop incentive-based planning tools for key target industries and R&D, including 'affordable employment' spaces.
- Council to investigate a 'live-work' development typology in the residential areas adjoining the IN2 Light Industrial zone near Regents Park station. Ensure ancillary retail and office uses are permissible in the live-work buildings to allow artisan-style and creative businesses to operate. The permissibility of work activities in residential buildings should be explicitly linked to the operation of target industries and not operate in and of themselves.
- Explore additional permitted employment uses in the planning framework to ensure diverse businesses can occupy these precincts (including office uses).

Potential Planning Interventions

In Regents Park:

- Additional local provision to permit business and commercial premises in IN1 zone for 'innovation industries' and additional 0.5:1 FSR.
- Additional local provision to permit business and commercial premises in 1N2 zone for 'cultural and creative industries'.
- Additional local provision to permit 'live-work dwellings' (not shop-top housing or RFBs) in adjoining residential areas.

In South Granville:

- Additional local provision to permit business and commercial premises in IN1 zone for 'innovation industries'.
- Remove 12m height control.

(3) Freight Hub (Yennora)

Vision

The strategic importance of Yennora and Smithfield should be recognised and strengthened. Government intervention into strengthening road and rail networks as well as minimising conflicts with sensitive uses is critical for the long-term sustainability of these precincts.

There is an opportunity for Council to work with major landowners to renew old assets and to ensure long term productive employment. Additionally, there is potential for an 'Innovation Park' in either of these precincts, which will align with the state's freight requirements.

Planning Principles

- Move to properly integrate land use and freight planning to provide for the best operating environment possible and ensure the freight network is considered as part of land use decision-making.
- Protect and enhance freight and logistics land uses and ancillary support services.
- Engage with landholders and the NSW Government to maintain the long-term sustainability of freight and logistics activities around the Yennora Intermodal Terminal. This includes a review of the freight service to Yennora.
- Encourage research and development land uses to enhance manufacturing productivity.

Target Activities

- Retain existing freight and logistics land uses.
- Target ancillary businesses, such as advanced manufacturing, digital knowledge, and food and beverage, to support the freight and logistics businesses, particularly 'R&D'.

Barriers to Vision

- The Yennora employment and innovation lands consist of poorer quality stock and require intervention to rejuvenate the precinct.
- Market feedback shows that some tenants avoid the Yennora employment area due to land use conflicts and traffic congestion. Council should ensure surrounding developments do not exacerbate this conflict.

A key barrier that needs to be addressed through the planning framework is minimisation of development intensity in the areas surrounding the employment lands.

Actions

The following actions are identified for further consideration by Council:

- Engage with NSW Government regarding the freight network (road and rail) to ensure the long-term viability of the Yennora freight industry is incorporated into strategic planning.
- Ensure the major freight routes are mapped and understood and are a matter for consideration in decision-making on development applications and planning proposals.
- Investigate incentive-based tools to encourage key target activities and 'R&D'.
- Respond to NSW Government planning for the Western Sydney Freight Line and seek to leverage this investment through intervention in the planning controls.
- Investigate planning framework amendments to the residential and centres zones surrounding Yennora and Smithfield lands to ensure proposed developments do not undermine the vision for freight and logistics.

Potential Planning Interventions

- Permit ancillary retail and office uses.
- Restrict to 'ancillary' through a maximum GFA proportion in Miscellaneous Provisions (Part 5) 'Controls relating to miscellaneous permissible uses'.

(4) Commercial Corridor, Specialised Cluster and Eastern Gateway (Lidcombe West, Corridor West Auburn, Lidcombe East)

Vision

The Commercial Corridor, Specialised Cluster and Eastern Gateway includes the lands in the north east of the local government area that are complementary to each other and provide an environment that is high in amenity, well connected, with premium high-tech units closely aligned with the Commercial Corridor between Parramatta and Sydney. It facilitates uses that need a collaborative environment and not a traditional CBD setting, providing an Eastern Gateway to the LGA.

The vision is for uses along and off Parramatta Road to be renewed for continued productive employment uses, including but not limited to sectors such as digital technologies/ media, advanced knowledge services and creative industries. The vision should also draw on the synergies between food and beverage businesses and the Tooheys Brewery in particular.

Planning Principles

- The Lidcombe East, Lidcombe West and Corridor West Auburn locales complement each other. Council should work with Government to improve transport and amenity to help make it as an attractive commercial employment area that is 'non-corporate' and well connected.
- Protect and enhance industrial land uses, particularly major landholders in Lidcombe West, and foster supporting food and beverage businesses in the overall precinct to complement the existing industries.
- Encourage the development of a Creative Cluster along St Hilliers Road (corner Parramatta Road) that would encourage creative industries and digital media.
- Reinforce the Parramatta Road (Auburn) corridor lands as an established and consolidated retail / bulky goods corridor for strong employment growth in the medium term.
- Prioritise amenity improvements along Parramatta Road, in line with the PRUTS, including open space and a cycleway along Duck Creek.
- Work to attract media and digital communications companies away from Macquarie Park and South Sydney to the Creative and Commercial Corridor, noting that transport accessibility is a considerable hurdle.
- Support the growth of industrial land uses in the Lidcombe West Precinct, particularly food and beverage.

Target Activities

- Reinforce the retail / bulky goods land uses in the short term. Target activities include 'creative industries' and 'digital knowledge' jobs including media and digital communications companies.
- Encourage the retention of existing industrial land uses, including the Tooheys Brewery. Target advanced manufacturing, supporting food and beverage, and creative industries. Target additional uses along St Hillier's Road, including retail showrooms/storage and warehousing on ground (e.g. artisan foods display), high-tech industrial units and creative office suites on upper levels.

Barriers to Vision

A number of hurdles to achieving the vision have been highlighted in the PRUTS and investigations undertaken by NSW Government. Significant improvements need to be made to both transport connectivity and amenity before the precinct would become desirable to the key target industries and employees.

The planning framework currently supports industrial uses in the Lidcombe East and West Precincts, and bulky goods uses/ large floor plate retail along Parramatta Road. The planning framework does not currently support or explicitly encourage innovative high tech or creative businesses.

Actions

The following actions are identified for further consideration by Council:

- Ensure alignment of PRUTS and planning controls for these precincts.
- Review potential for 'Affordable employment' spaces (incentivised with additional FSR).
- Council to work with NSW Government to plan for transport, amenity, and public domain improvements along Parramatta Road. This includes the consideration of incentives for developers to deliver some of these improvements.
- Corridor West (Auburn): Review incentive bonuses in the planning controls to ensure feasibility and to encourage target industries, rather than traditional office and hotel uses.
- Lidcombe East and West: Investigate new incentive schemes to promote key target activities and creative uses.
- Corridor West (Auburn): Council to amend the Parramatta Road (Auburn) precinct as B6 Enterprise Corridor and B1 Neighbourhood Centre concurrently with implementation of traffic and amenity improvements along Parramatta Road. This amendment should consider whether an incentive scheme for target industries is appropriate.
- Lidcombe West: Ensure planning controls maintain the primacy of industrial lands, however allow for more diverse uses along St Hilliers Road.
- Lidcombe West: Council to investigate additional permitted uses, increased height and density to the St Hilliers Road frontage to allow uses that require a mix of retail showrooms / storage and warehousing on ground, high-tech industrial units and creative office suites on upper levels. Note the mix of land uses in Alexandria may be a suitable case study.

Potential Planning Interventions

- Extend the B6 zone along Parramatta Road in accordance with PRUTS.
- Permit an additional 0.5:1 FSR for 'creative industries' and 'digital knowledge' jobs.
- Permit additional height and floor space (15%) for development applications subject to the provision of public domain upgrades associated with site (e.g. through-site-link, cyclepath) along St Hilliers Road.
- Required public domain upgrades to be identified on Council's comprehensive DCP.

(5) Services and Innovation (Clyburn)

Vision

The vision for the Clyburn Precinct is to provide for services and innovation; high-value activities crucial to the city's metabolism including manufacturing and maintenance, rail maintenance, waste management and recycling, wholesale and logistics.

Planning Principles

- Maintain functional industrial and logistic uses to support the important transport, freight and waste recycling function of the Precinct.
- Support the evolution of the precinct to meet future eployment and innovation needs for Cumberland.

Target Activities

- Target continued transport and logistics/freight industries.
- Support employment uses and businesses that can co-exist within the transport and freight environment.

Barriers to Vision

Businesses are currently constrained by poor vehicular access across the railway. Council should engage with NSW Government about options for new rail crossings.

Residential growth in the surrounding area could create land use conflicts with logistics, rail and waste transfer activities.

Actions

The following actions are identified for further consideration by Council:

- Retain employment uses in line with the vision, Services and Innovation.
- Council to engage with NSW Government to include cross rail transport accessibility into strategic planning.
- Review planning controls (as required) to support future employment and innovation activities.

Potential Planning Interventions

- Retain sufficient and adequate buffer areas to ensure long term sustainability of this important precinct for activities that support the city's metabolism.

(6) Enterprise Parks (Greystanes, Girraween and Smithfield)

Vision

Greystanes, Girraween and Smithfield are on the western and southern edges of Cumberland and located in highly accessible locations near the M4 and M7 motorways.

Greystanes and Smithfield are Enterprise Parks that already accommodates technology-rich facilities and contemporary business requirements.

Girraween's excellent road connections and competitive prices present it with key valuable opportunities - to accommodate emerging businesses who service the growing northern portion of the Central City district as well as with renewal opportunities given the age of some buildings. The notable renewal activity that is observed in Yennora (where old and dilapidated buildings are redeveloped into modern buildings that meet contemporary business requirements) could also occur in Girraween given its excellent desirability as a location to do business.

Planning Principles

In Greystanes (Pemulwuy) and Smithfield:

- Develop and attract businesses that co-locate and consolidate business units;
- Encourage and develop new purpose-built facilities with large floor plates;
- Encourage ongoing high-end industrial and light industrial land uses;
- Permit small-scale ancillary retail and health support services.

In Girraween:

- Build and enhance area for population servicing industries.
- Target research and development in the food and beverage industry to leverage off the prominent chicken industry in the precinct, good access, older buildings and associated lower rents.

Target Activities

- Target food and beverage, advanced manufacturing and digital industries in both precincts.
- Target some employment amenity services e.g. medical centres.

Barriers to Achieving the Vision

The Greystanes (Pemulwuy) and Smithfield Precinct have an existing planning framework that supports the vision, and is already developing with many high-tech businesses.

However, Girraween has a number of barriers to achieving the vision. These are not necessarily related to the planning framework, which already allows a variety of uses. Girraween is less well perceived in the market in terms of 'image', owing to the old and dated buildings that subsist and the prevalence of a number of chicken hatcheries.

Actions

The following actions are identified for further consideration by Council:

- Review planning controls to support future needs of precincts.
- Investigate incentive-based tools for target activities, particularly 'R&D' in food and beverage manufacturing.

The following medium-term actions are recommended:

- Allow commercial premises in the Girraween Precinct to allow a broader range of businesses (retail, food and beverage are already permissible).

Potential Planning Interventions

- Permit height and floor space bonuses for 'research and development industries' for food and beverage manufacturing.
- Additional Local Provision to permit ancillary office uses.
- Restrict to 'ancillary' through a maximum GFA proportion in Miscellaneous Provisions (Part 5) 'Controls relating to miscellaneous permissible uses'.

(7) Local Centres (Corridor West Holroyd)

Vision

Corridor West Holroyd could play an 'overflow' role for Parramatta Road large format retail.

Planning Principles

- Encourage appropriate development by clustering light industrial and bulky goods premises that would not impact on the amenity of the surrounding residential area.
- Review the planning controls with reference to PRUTS.
- Encourage ancillary retail support services including food and beverage and health services to support the surrounding residential area.

Target Activities

- Target bulky goods retailing, ancillary retail, food and beverage and health services.
- Potential to target fashion and other artisan industries that require affordable work space close to Granville.

Barriers to Vision

There is strong demand for residential uses in the areas surrounding Parramatta CBD, which threatens the precinct vision for employment uses. The PRUTS envisages a mix of residential and employment uses in this precinct.

The planning framework is currently flexible to allow for a variety of employment uses; however, office uses should be considered to allow businesses that co-locate with their head offices. Bulky goods and retail premises are already permissible in the B5 Business Development zone, however commercial premises and entertainment facilities should be considered to allow a greater flexibility of business types.

Actions

The following actions are identified for further consideration by Council:

- Review and reconcile the land use planning framework with PRUTS and planning for GPOP, including the desirability of ancillary office uses, density and height controls.

Potential Planning Interventions

- Permit ancillary retail and office uses.
- Restrict to 'ancillary' through a maximum GFA proportion in Miscellaneous Provisions (Part 5) 'Controls relating to miscellaneous permissible uses'.

(7) Local Centres [Westmead (Mays Hills), Great Western Highway (Greystanes)]

Vision

Westmead (Mays Hill) and Great Western Highway (South Wentworthville) will support the anticipated urban renewal in the NSW Government's Planned Precincts by providing a mix of businesses along road corridors.

Planning Principles

- Work with NSW Government to ensure that both precincts support population and employment growth within nearby Planned Precincts.
- Make the area attractive for businesses and workers.
- Restrict residential development at ground level so that it does not limit future employment growth and responds to amenity issues at ground level along the busier road corridors.
- Consider opportunities for seniors/ key worker housing in close proximity to Westmead planned precinct.

Target Activities

- Target bulky goods retailing, ancillary retail, food and beverage and health services.
- Potential to target fashion and other artisan industries.
- Opportunity for seniors/ key worker housing.

Barriers

Council should engage with the NSW Government to ensure the visions for these precincts are consistent with the emerging visions for the Planned Precincts before undertaking any detailed strategic planning for these areas.

The main stream fashion industry is in decline in Australia, and is unlikely to become a key industry or job provider unless Council supports its development. Community-based fashion and design may have growth potential due to diversity by Cumberland's community.

The zoning of these precincts already allows for a variety of uses, which should be retained in the planning framework.

Actions

The following actions are identified for further consideration by Council:

- Engage with DPE and GSC to ensure a collaborative planning strategy for the Planned Precincts that incorporates the vision for the mixed business corridors.

- Work with DPE to include any necessary planning framework amendments in to the Planned Precinct process.
- Review planning controls to ensure future employment and innovation needs can be accommodated.

Potential Planning Interventions

- Additional Local Provision to permit Affordable and Seniors Housing (similar to City of Sydney Employment Lands controls).
- Additional Local Provision to permit business and office premises for 'creative and artisan industries'.

(8) Creative Learning Precinct (Granville)

Vision

The Creative Learning Precinct will be critical to encouraging industry collaboration and equipping businesses with the skills that promote innovation outcomes. There is potential for arts and cultural uses to cluster not just in the employment and innovation lands, but also in and around the centre.

Planning Principles

- Maintain lands for primacy of employment uses.
- Promote the development of a creative learning and business networking hub, co-located with Council's community centre.

Key Activities

- Retain existing industrial land uses.
- Target creative industries and digital and media businesses within the Creative Learning Precinct.

Barriers to Achieving the Vision

The planning framework is somewhat limited in allowing for innovation-type uses, and should be made more flexible. To achieve the vision, Council will need to engage directly with key landholders to encourage the targeted activities.

Traffic is currently constrained around the railway line. Congestion decreases the desirability for future businesses and employees.

Actions

The following actions are identified for further consideration by Council:

- Investigate incentive-based tools to encourage key target activities, including creative, media, and training businesses.
- Council to engage with NSW Government to resolve access issues over the railway in this location.
- Develop a concept for the Creative Learning Precinct and review the associated planning controls to instill flexibility in the land use table to allow a mix of industries including some commercial premises, educational establishments, health facilities and community facilities, and the density and height controls.

Potential Planning Interventions

- Additional Local Provision to permit 'Educational Facilities' and 'Information and Education Facilities' and a FSR bonus of 0.5:1.
- Retain ancillary office uses.

8.3 CRITERIA FOR SITE-SPECIFIC PLANNING PROPOSALS

The Greater Sydney Region Plan (the Region Plan) identifies the importance for industrial and urban services land to be planned, retained and managed. “Industrial and urban services land” refers to industrial zoned land and some business zoned land which permits a number of industrial uses.

The Region Plan lists the activity types carried out on industrial and urban services land, identifying their role and uses as well as their location and infrastructure requirements.

Management of industrial and urban services lands in the Central City District will be ‘reviewed and managed’. Notwithstanding, the Region Plan recognises the need to grow and diversify local employment opportunities that does not compromise the operations of existing and planned industrial activities.

This section provides ‘innovation’ criteria for Council to take into consideration in addition to those already included in s9.1 Ministerial Directions.

These ‘innovation’ criteria provide additional considerations that take innovative uses into consideration that may not necessarily fit the traditional industrial or business zone types but may foster innovation and boost the key targeted industries in Cumberland.

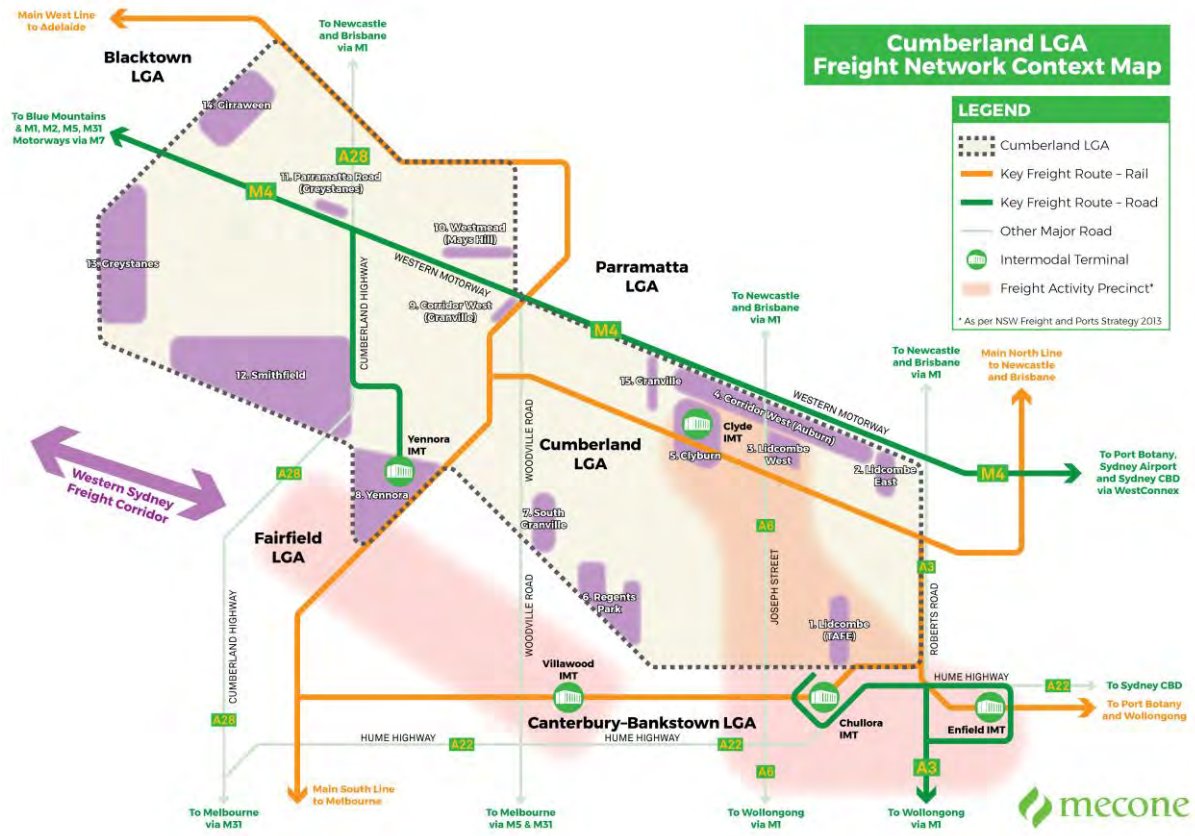
Table 8.1: ‘Innovation’ Criteria for Planning Proposals in Employment and Innovation lands

Criteria	Rationale
Does the Planning Proposal contribute to Objective 23 of the Greater Sydney Region Plan?	Industrial and urban services lands are important to the Greater Sydney economy. Maintaining the primacy and function of these lands will be important as well as creating opportunities for local employment.
Is the Planning Proposal consistent with the Central City District Plan?	Consideration should be given as to consistency with the Productive City priorities in the Central City District Plan. Does the proposal: • Develop a better understanding of the value and operation of employment and urban services land to increase total jobs. • Contribute to achieving a ‘30 minute city’.
Does the Planning Proposal contribute to the locality’s vision?	Council should ensure that any planning proposal in the employment and innovation lands is consistent with the vision for that particular locality.
Does the Planning Proposal support employment and innovation land productivity in Cumberland?	Consideration should be given as to whether the planning proposal would increase or decrease productivity of land stocks in Cumberland, aligned with the precinct vision and focus areas.
Would the Planning Proposal support the key targeted sectors?	Would to proposal accommodate employment in the target sectors, specifically food and beverage manufacturing, advanced manufacturing, digital media, allied health and creative industries.
Does the site a part of, or contribute to a significant employment cluster?	Loss of a major element of a significant business cluster can weaken the viability of the remaining parts of the cluster, resulting in a decline in employment opportunities and the overall health of the local economy.
Does the Planning Proposal consider the Key Freight Transport Accessibility map?	It is important that Council maintain the integrity of the key freight transport routes through Cumberland to ensure businesses have an efficient transport network. Employment and innovation lands located near these key freight routes should be buffered from sensitive uses, nurtured and allowed to prosper. Council should be satisfied that any planning proposals in the areas surrounding the employment and innovation lands along key freight routes should not preclude the continued use of those routes for freight.

Source: Mecone

Figure 8.1 depicts the key freight routes (road and rail). Other major arterial roads are also denoted.

Figure 8.1: Cumberland LGA Freight Network Context Map



Source: Mecone

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APPENDIX A: REVIEW OF EXISTING PLANNING FRAMEWORK

Table A.1: 'Innovation' Criteria for Planning Proposals in Employment and innovation lands

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
Lidcombe (TAFE)									
Auburn LEP (R3 Medium Density Residential)	• To provide for the housing needs of the community within a medium density residential environment. • To provide a variety of housing types within a medium density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents.	Nil	Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Group homes; Multi dwelling housing; Neighbourhood shops; Places of public worship; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Any other development not specified in item 2 or 4	Agriculture; Air transport facilities; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport	N/A	9m	0.75:1	N/A	Commercial premises are prohibited, including retail unless explicitly permitted – e.g. neighbourhood shops

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
				depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies					
Lidcombe East									
Auburn LEP (IN1 General Industrial)	• To provide a wide range of light industrial, warehouse and related land uses. • To encourage employment opportunities and to support the viability of centres. • To minimise any adverse effect of industry on other land uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • To support and protect industrial land for industrial uses. • To minimise adverse effects on the natural environment.	Nil	Building identification signs; Business identification signs; Depots; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Kiosks; Light industries; Markets; Neighbourhood shops; Places of public worship; Restaurants or cafes; Roads; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Agriculture; Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Funeral homes; Health services facilities; Heavy industries; Highway service centres; Home occupations (sex services); Information and education facilities; Marinas; Mooring pens; Moorings; Office premises; Passenger transport facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Retail premises; Rural industries; Signage; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Water supply systems; Wharf or boating facilities.	2,000	N/A	1:1	N/A	*A retail premises as a group term is prohibited, however garden centre, hardware and building supply, kiosks, markets, Restaurants or cafes are permissible. Residential accommodation is prohibited.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
Lidcombe West									
Auburn LEP (IN1 General Industrial)	• To provide a wide range of light industrial, warehouse and related land uses. • To encourage employment opportunities and to support the viability of centres. • To minimise any adverse effect of industry on other land uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • To support and protect industrial land for industrial uses. • To minimise adverse effects on the natural environment.		Building identification signs; Business identification signs; Depots; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Kiosks; Light industries; Markets; Neighbourhood shops; Places of public worship; Restaurants or cafes; Roads; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Agriculture; Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Funeral homes; Health services facilities; Heavy industries; Highway service centres; Home occupations (sex services); Information and education facilities; Marinas; Mooring pens; Moorings; Office premises; Passenger transport facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Retail premises; Rural industries; Signage; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Water supply systems; Wharf or boating facilities.	2,000	N/A	1:1	N/A	*A retail premises as a group term is prohibited, however garden centre, hardware and building supply, kiosks, markets, Restaurants or cafes are permissible. Residential accommodation is prohibited.
Corridor West (Auburn)									
Auburn LEP (B6 Enterprise Corridor)	• To promote businesses along main roads and to encourage a mix of compatible uses.		Building identification signs; Bulky goods premises; Business identification signs; Business premises; Community facilities; Food and drink premises; Garden centres; Hardware and	Agriculture; Air transport facilities; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional	2,000	*27m	1:1	*clause 4.3(2A) Maximum height of office premises and hotel or motel accommodation in the Parramatta	Under clause 6.9 retail premises are permissible with consent. Bulky goods, business, food &

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	• To provide a range of employment uses (including business, office, retail and light industrial uses). • To maintain the economic strength of centres by limiting retailing activity.		building supplies; Hotel or motel accommodation; Kiosks; Landscaping material supplies; Light industries; Markets; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Roads; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	centres; Crematoria; Eco-tourist facilities; Electricity generating works; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Heavy industrial storage establishments; Highway service centres; Home occupations (sex services); Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Research stations; Residential accommodation; Restricted premises; Retail premises; Rural industries; Sewerage systems; Sex services premises; Signage; Tourist and visitor accommodation; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities				Road Precinct is 27m clause 4.4 (2B) Maximum FSR for development for the on land in B6 zone within the Parramatta Road Precinct is: • 1.5:1 for bulky goods premises, entertainment facilities, function centres and registered clubs; and • 3.0:1 for office premises and hotel or motel accommodation. clause 4.4(2D) Maximum FSR for retail premises is 1.5:1 clause 6.9 Retail premises are permissible with development consent on land to which this clause applies in Zone B6. * Key sites map (Sheet KYS_006)	drink, kiosks, markets permissible with consent. Residential accommodation is prohibited.
Clyburn									
Auburn LEP (IN1 General Industrial)	• To provide a wide range of light industrial,	Nil	Building identification signs; Business identification signs; Depots; Freight transport	Agriculture; Amusement centres; Animal boarding or training establishments; Boat sheds;	2,000	N/A	1:1		*A retail premises as a group term is

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	warehouse and related land uses. • To encourage employment opportunities and to support the viability of centres. • To minimise any adverse effect of industry on other land uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • To support and protect industrial land for industrial uses. • To minimise adverse effects on the natural environment.		facilities; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Kiosks; Light industries; Markets; Neighbourhood shops; Places of public worship; Restaurants or cafes; Roads; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Funeral homes; Health services facilities; Heavy industries; Highway service centres; Home occupations (sex services); Information and education facilities; Marinas; Mooring pens; Moorings; Office premises; Passenger transport facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Retail premises; Rural industries; Signage; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Water supply systems; Wharf or boating facilities.					prohibited, however garden centre, hardware and building supply, kiosks, markets, Restaurants or cafes are permissible. Residential accommodation is prohibited.
Regents Park									
Auburn LEP (mostly IN1 General Industrial, small portion IN2 Light Industrial along street frontage)	IN1 • To provide a wide range of light industrial, warehouse and related land uses. • To encourage employment opportunities and to support the viability of centres.	Nil	IN1 Building identification signs; Business identification signs; Depots; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Kiosks; Light industries; Markets; Neighbourhood shops; Places of public worship;	IN1 Agriculture; Amusement centres; Animal boarding or training establishments; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Environmental facilities;	2,000	N/A	1:1		IN1 *A retail premises as a group term is prohibited, however neighbourhood shop, garden centre, hardware and building supply, kiosks, markets,

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	• To minimise any adverse effect of industry on other land uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. • To support and protect industrial land for industrial uses. • To minimise adverse effects on the natural environment. IN2 • To provide a wide range of light industrial, warehouse and related land uses. • To encourage employment opportunities and to support the viability of centres. • To minimise any adverse effect of industry on other land uses. • To enable other land uses that provide facilities or services to meet the day to		Restaurants or cafes; Roads; Warehouse or distribution centres; Any other development not specified in item 2 or 4 IN2 Building identification signs; Business identification signs; Depots; Garden centres; Hardware and building supplies; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Plant nurseries; Markets; Neighbourhood shops; Places of public worship; Restaurants or cafes; Roads; Timber yards; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Funeral homes; Health services facilities; Heavy industries; Highway service centres; Home occupations (sex services); Information and education facilities; Marinas; Mooring pens; Moorings; Office premises; Passenger transport facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Retail premises; Rural industries; Signage; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Water supply systems; Wharf or boating facilities. IN2 Agriculture; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Heavy industries;					Restaurants or cafes are permissible. Residential accommodation is prohibited. IN2 Similar to IN1

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	day needs of workers in the area. • To support and protect industrial land for industrial uses. • To minimise adverse effects on the natural environment.			Highway service centres; Home occupations (sex services); Information and education facilities; Marinas; Mooring pens; Moorings; Office premises; Open cut mining; Passenger transport facilities; Port facilities; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Restricted premises; Retail premises; Rural industries; Sewerage systems; Sex services premises; Signage; Tourist and visitor accommodation; Veterinary hospitals; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities					
South Granville									
Parramatta LEP (IN1 General Industrial)	• To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To facilitate a range of non-industrial land uses that serve the needs of workers and visitors.	Nil	Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities	N/A	12m	1:1		Food & drink premises permissible with consent. Group term 'commercial premises' is prohibited, including retail unless explicitly permitted – e.g. Neighbourhood shops bulky goods, restaurants and cafes are permissible with consent.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
				(major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities					
Yennora									
Holroyd LEP (mostly IN1 General Industrial, small portion IN1 along Railway Terrace)	• To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To facilitate a range of non-industrial land uses that serve the needs of workers and visitors.	Nil	Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities	1,200	N/A	N/A		Food & drink premises permissible with consent. Commercial premises and residential accommodation is prohibited. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.
Corridor West (Holroyd)									
Holroyd LEP (B5 Business Development)	• To enable a mix of business and warehouse uses, and bulky goods premises that	Nil	Bulky goods premises; Child care centres; Food and drink premises; Funeral homes; Garden centres; Hardware and building supplies;	Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching	N/A	15m	1:1		Bulky goods, food & drink premises permissible with consent.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	require a large floor area, in locations that are close to, and that support the viability of, centres. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.		Landscaping material supplies; Light industries; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Self storage units; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Resource recovery facilities; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Storage premises; Tourist and visitor accommodation; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities					Commercial premises & residential accommodation is prohibited. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.
Westmead (Mays Hills)									
Holroyd LEP	• To promote businesses along	Nil	Boarding houses; Bulky goods premises; Business	Agriculture; Air transport facilities; Airstrips; Amusement centres;					Boarding houses, residential flat

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
B6 Enterprise Corridor)	main roads and to encourage a mix of compatible uses. • To provide a range of employment uses (including business, office, retail and light industrial uses). • To maintain the economic strength of centres by limiting retailing activity. • To provide for residential uses, but only as part of a mixed-use development.		premises; Community facilities; Food and drink premises; Garden centres; Group homes; Hardware and building supplies; Hostels; Hotel or motel accommodation; Landscaping material supplies; Light industries; Multi dwelling housing; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Residential flat buildings; Roads; Shop top housing; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Animal boarding or training establishments; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Livestock processing industries; Marinas; Mooring pens; Moorings; Recreation facilities (major); Registered clubs; Research stations; Residential accommodation; Restricted premises; Sawmill or log processing works; Sex services premises; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals; Water recreation structures; Wharf or boating facilities					buildings, shop top housing permissible with consent. Business, food & drink premises permissible with consent. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.
Great Western Highway (South Wentworthville)									
Holroyd LEP (B5 Business Development)	• To enable a mix of business and warehouse uses, and bulky goods premises that	Nil	Bulky goods premises; Child care centres; Food and drink premises; Funeral homes; Garden centres; Hardware and building supplies;	Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching	N/A	15m	1:1		Bulky goods, food & drink premises permissible with consent.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	require a large floor area, in locations that are close to, and that support the viability of, centres. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.		Landscaping material supplies; Light industries; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Self storage units; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Resource recovery facilities; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Storage premises; Tourist and visitor accommodation; Vehicle body repair workshops; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities					Commercial premises & residential accommodation is prohibited. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. Neighbourhood shops, food and drink premises.
Smithfield									
Holroyd LEP (mostly IN1 General	• To provide a wide range of industrial	Nil	Building identification signs; Business identification signs; Depots; Food and drink	Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds;	1,200	N/A	N/A	APU 2 "Gipps Road Sporting Complex"	Food & drink premises

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
Industrial, small portion IN1 Light Industrial)	and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To facilitate a range of non-industrial land uses that serve the needs of workers and visitors.		premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities				Development for the purpose of food and drink premises and function centres is permitted with development consent. APU 12 Development for the purpose of sex services premise is permitted with development consent.	permissible with consent. Commercial premises and residential accommodation is prohibited. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.
Greystanes									
Holroyd LEP (split IN1 General Industrial and IN2 Light Industrial)	IN1 • To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses.	Nil	IN1 Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads;	IN1 Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child	N/A	N/A	N/A		IN1 Food & drink premises permissible with consent. Commercial premises and residential accommodation is prohibited. Retail premises are a subset of commercial premises and

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	• To facilitate a range of non-industrial land uses that serve the needs of workers and visitors. IN2 • To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.		Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4 IN2 Depots; Food and drink premises; Garden centres; Hardware and building supplies; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Timber yards; Warehouse or distribution centres; Any other development not specified in item 2 or 4	care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities IN2 Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open					therefore prohibited, unless explicitly permitted – e.g. Neighbourhood shops, food and drink premises. IN2 Food & drink premises permissible with consent. Commercial premises and residential accommodation is prohibited.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
				cut mining; Recreation facilities (major); Research stations; Residential accommodation; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Tourist and visitor accommodation; Vehicle body repair workshops; Veterinary hospitals; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities					
Girraween									
Holroyd LEP (split into IN1 General Industrial and IN2 Light Industrial)	IN1 • To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To facilitate a range of non-industrial land uses that serve the needs of workers and visitors. IN2 • To provide a wide range of industrial and warehouse land uses.	Nil	IN1 Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4 IN2 Depots; Food and drink premises; Garden centres; Hardware and building supplies; Industrial training	IN1 Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water	N/A	IN1 N/A IN2 26m	N/A	APU 1 Development for the purpose of sex services premise is permitted with development consent.	IN1 Food & drink premises permissible with consent. Commercial premises and residential accommodation is prohibited. IN2 Food & drink premises permissible with consent. Commercial premises and residential accommodation is prohibited. Retail premises are a subset of commercial premises and

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
	• To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.		facilities; Kiosks; Landscaping material supplies; Light industries; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Timber yards; Warehouse or distribution centres; Any other development not specified in item 2 or 4	recreation structures; Water supply systems; Wharf or boating facilities IN2 Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Biosolids treatment facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Eco-tourist facilities; Educational establishments; Electricity generating works; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home businesses; Home industries; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Recreation facilities (major); Research stations; Residential accommodation; Restricted premises; Rural industries; Sewage treatment plants; Sex services premises; Tourist and visitor accommodation; Vehicle body repair workshops; Veterinary hospitals; Waste disposal facilities; Water recreation structures; Water recycling					therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.

LEP (Zone)	Objectives	Permitted without Consent	Permitted with Consent	Prohibited	Min. Lot Size (sqm)	HOB (m)	FSR	APU	Comments
				facilities; Water supply systems; Wharf or boating facilities					
Granville									
Parramatta LEP (IN1 General Industrial)	• To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses. • To facilitate a range of non-industrial land uses that serve the needs of workers and visitors.	Nil	Building identification signs; Business identification signs; Depots; Food and drink premises; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Horticulture; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Places of public worship; Plant nurseries; Roads; Rural supplies; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4	Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Crematoria; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Port facilities; Recreation facilities (major); Registered clubs; Residential accommodation; Rural industries; Signage; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities	N/A	12m	1:1		Food & drink premises permissible with consent. Group term 'commercial premises' is prohibited. Retail premises are a subset of commercial premises and therefore prohibited, unless explicitly permitted – e.g. neighbourhood shops, food and drink premises.

Source: Mecone

APPENDIX B: CUMBERLAND SOCIO-ECONOMIC PROFILE

Appendix B identifies the current industry profile accommodated in Cumberland LGA, benchmarked against Parramatta LGA and Greater Sydney.

Australian Bureau of Statistics Census data (ABS, 2012, 2017) was examined at the statistical geographical boundaries of the Cumberland LGA, with a population-weighted correspondence (ABS) assigning data for newly formed local government areas. Benchmark regions of Parramatta LGA and Greater Sydney were also examined in comparison. Collectively, these regions are referred to as 'the Benchmark Areas'.

EMPLOYMENT PROFILE

In 2011, Cumberland employed over 68,000 employees compared to Parramatta that employed nearly 135,000 workers.

Employment by Industry

In Cumberland, over 20% of these were employed in manufacturing and around 10% employed in retail trade and transport, postal & warehousing each. By comparison, Parramatta's employment profile had greater representation in public administration & safety, financial & insurance services and health care & social assistance. This is consistent with the role of Parramatta as a CBD and with the Westmead Health Precinct located therein.

Table B.2: Employment by Industry, 2011 (19-sector), Cumberland, Parramatta, Greater Sydney

Industry	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2006	2011	2006	2011	2006	2011
Mining	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%
Agriculture, Forestry and Fishing	0.1%	0.1%	0.1%	0.1%	0.4%	0.4%
Electricity, Gas, Water and Waste Services	0.4%	0.5%	0.5%	2.0%	0.9%	0.9%
Arts and Recreation Services	0.9%	0.9%	1.3%	1.6%	1.5%	1.7%
Information, Media and Telecommunications	1.2%	1.1%	2.4%	1.5%	3.1%	3.1%
Rental, Hiring and Real Estate Services	1.3%	1.2%	1.7%	1.4%	1.9%	1.8%
Financial and Insurance Services	1.0%	1.6%	8.4%	10.0%	6.7%	6.7%
Administrative and Support Services	2.3%	2.7%	3.1%	3.2%	3.5%	3.6%
Public Administration and Safety	3.3%	3.4%	10.2%	11.9%	5.9%	5.8%
Professional, Scientific and Technical Services	3.5%	3.6%	5.6%	5.9%	9.3%	9.8%
Other Services	4.1%	4.3%	3.8%	3.6%	3.8%	3.7%
Accommodation and Food Services	4.1%	4.4%	4.0%	3.9%	6.0%	6.3%
Education and Training	6.7%	7.5%	5.3%	5.5%	7.5%	7.8%
Health Care and Social Assistance	7.1%	7.7%	14.0%	14.5%	10.2%	11.1%
Construction	8.2%	9.0%	6.3%	6.2%	6.9%	7.3%
Wholesale Trade	11.0%	9.6%	7.5%	6.3%	5.8%	5.4%
Retail Trade	10.4%	10.5%	8.7%	7.3%	10.7%	10.0%
Transport, Postal and Warehousing	10.6%	10.9%	4.2%	4.1%	5.5%	5.6%
Manufacturing	23.7%	20.9%	12.6%	11.1%	10.0%	8.8%
Total Employed (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Employed	64,073	68,185	117,797	134,646	1,827,328	2,086,923

Source: ABS (2012)

Employment by Occupation

In comparison to the benchmark regions of Parramatta LGA and Greater Sydney, Cumberland has a distinctly higher representation in blue collar occupations such as machinery operators and drivers, labourers and technicians and trades workers.

Table B.3: Employment by Occupation, 2011 (19 sector), Cumberland, Parramatta, Greater Sydney

Occupation	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2006	2011	2006	2011	2006	2011
Managers	12.6%	13.0%	14.0%	14.2%	12.8%	13.1%
Professionals	15.1%	16.2%	24.9%	26.2%	23.9%	26.2%
Technicians and Trades Workers	15.5%	15.4%	12.1%	11.9%	11.1%	10.5%
Community and Personal Service Workers	5.7%	6.6%	8.1%	8.9%	7.8%	8.2%
Clerical and Administrative Workers	17.4%	16.8%	17.8%	17.0%	22.7%	23.5%
Sales Workers	8.8%	8.8%	9.7%	9.1%	8.2%	7.1%
Machinery Operators and Drivers	14.6%	13.8%	5.9%	5.7%	6.0%	5.3%
Labourers	10.3%	9.5%	7.6%	7.0%	7.3%	6.2%
Total Employed (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Employed	64,073	68,185	117,797	134,646	1,827,328	2,086,923

Source: ABS (2012)

Journey-to-work Analysis

The data analysis suggests that in 2011, 25.3% of people employed in Cumberland were Cumberland residents.

- Approximately 35.8% of Cumberland workers travelled from an LGA that shares a border with Cumberland (Blacktown, Fairfield, Parramatta, Canterbury-Bankstown).
- Approximately 15.2% of workers travelled from an LGA that is adjacent to one that shares a common boundary with Cumberland (Penrith, Liverpool, The Hills Shire).

If workers who live in an adjoining LGA are added to the proportion of workers who live in Cumberland, more than 60% of workers are estimated to live within 20km of their place of work.

Table B.4: Journey-to-work by Destination, 2011, Cumberland Workers

LGA of Origin	Workers	% of Workers
Cumberland	17,235	25.3%
Blacktown	8,325	12.2%
Fairfield	5,846	8.6%
Parramatta	5,601	8.2%
Canterbury-Bankstown	4,635	6.8%
Penrith	4,080	6.0%
Liverpool	3,736	5.5%
The Hills Shire	2,518	3.7%
Campbelltown	2,172	3.2%
Inner West	1,333	2.0%
Rest of NSW	12,508	18.3%
From Outside NSW	193	0.3%
Total	68,185	100.0%

Source: ABS (2012)

Further analysis of journey-to-work data indicates that in 2011, 21.5% of Cumberland residents reported Cumberland as their place of work.

- Approximately 33.5% of residents travelled to an LGA that shares a border with Cumberland (Parramatta, Canterbury-Bankstown, Blacktown, Fairfield, Strathfield).

- Approximately 4.4% of residents travelled to an LGA that is adjacent to one that shares a common boundary with Cumberland (Liverpool, The Hills Shire).

If residents who work in an adjoining LGA are added to the proportion of residents who work in Cumberland, 55% of residents are estimated to work within 20km of their place of work.

Table B.5: Journey-to-work by Origin, 2011, Cumberland Residents

LGA of Destination	Workers	% of Workers
Cumberland	17,235	21.5%
Parramatta	12,925	16.1%
Sydney	11,315	14.1%
Canterbury-Bankstown	4,337	5.4%
Blacktown	4,248	5.3%
Fairfield	3,338	4.2%
Ryde	2,832	3.5%
Strathfield	1,995	2.5%
The Hills Shire	1,825	2.3%
Liverpool	1,686	2.1%
Rest of NSW	18,311	22.9%
Total	80,046	100.0%

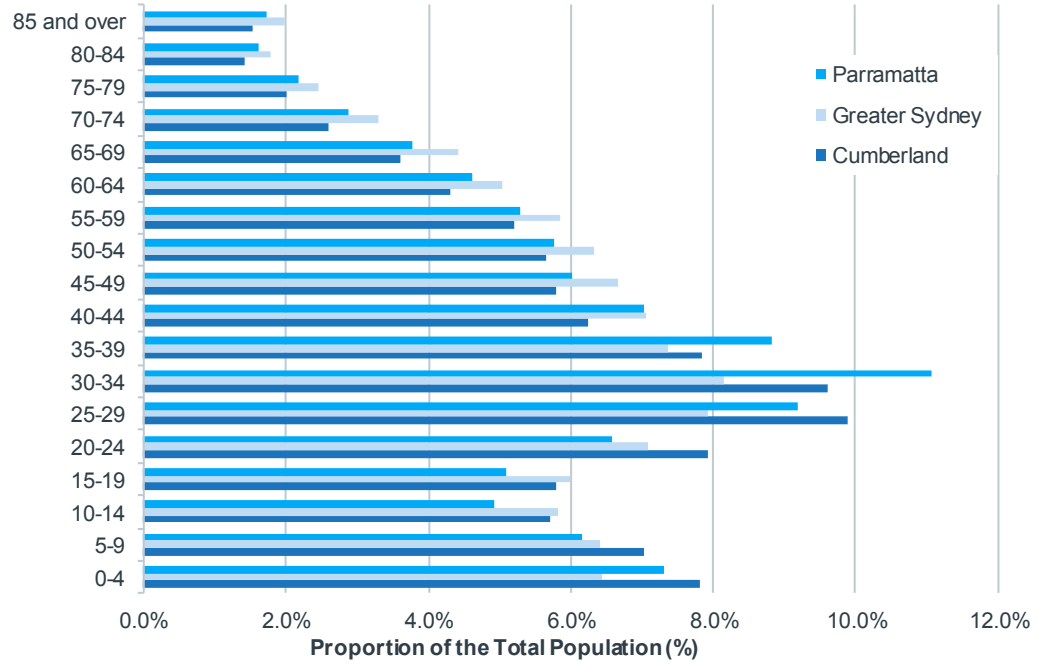
Source: ABS (2012)

SOCIO-DEMOGRAPHIC PROFILE

Population

Cumberland's population is younger than Greater Sydney's with an average age of 35.0 years compared to 37.6 years in 2016. The local population is also younger than Parramatta's which had an average age of 36.5 years.

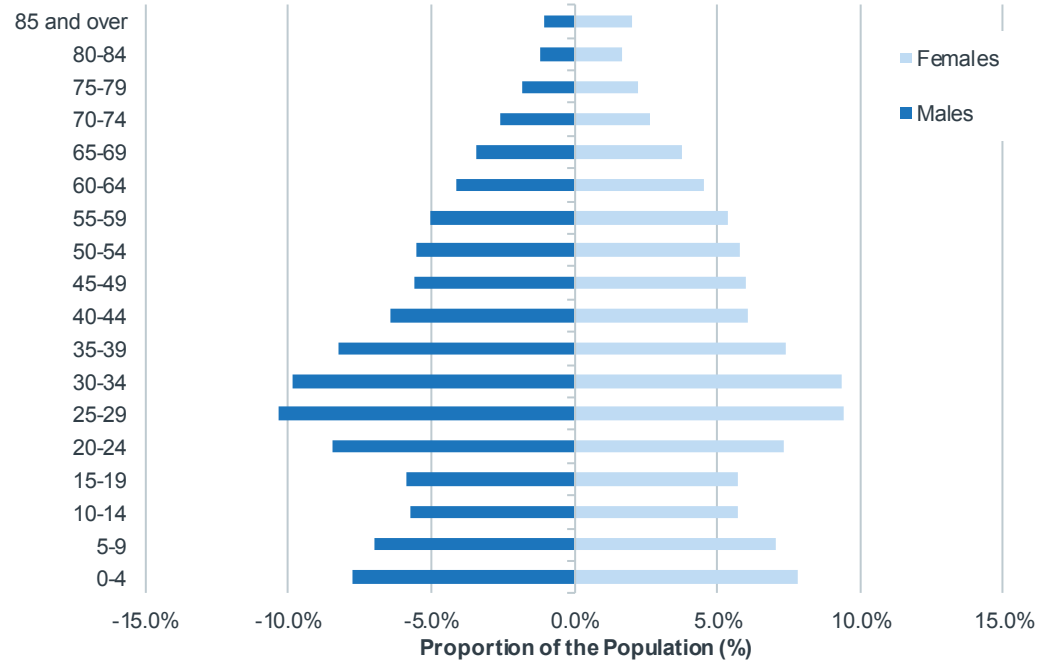
Figure B.2: Population by Age (2016), Cumberland



Source: ABS (2017)

The most common age group in Cumberland is persons aged between 25 and 29 years which represents 9.9% of the population. In 2011 the most common age group was persons aged between 25 and 29 years (9.4% of the population).

Figure B.3: Population by Age and Sex (2016), Cumberland



Source: ABS (2017)

In 2016, approximately 48.7% of Cumberland's residents were born in Australia (down from 48.7% in 2011). This compares to 47.4% and 60.8% in Parramatta and Greater Sydney respectively. Key sources of Cumberland's population were: Southern Asia (14.7%), Middle East (10.8%) and Chinese Asia (8.0%).

Table B.6: Place of Birth (2011-2016), Cumberland, Parramatta, Greater Sydney

Place of Birth	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
Australia	48.7%	44.4%	54.6%	47.4%	63.6%	60.8%
Southern Asia	11.3%	14.7%	9.9%	14.6%	3.7%	5.2%
Middle East	8.6%	10.8%	5.8%	3.7%	3.1%	3.4%
Chinese Asia (includes Mongolia)	7.9%	8.0%	8.6%	13.8%	4.7%	6.2%
Maritime South-East Asia	3.3%	3.0%	3.3%	3.8%	3.0%	3.3%
Mainland South-East Asia	3.1%	3.3%	1.7%	1.3%	2.5%	2.8%
Japan and the Koreas	2.2%	2.2%	2.5%	4.4%	1.2%	1.4%
Central Asia	1.8%	3.1%	0.8%	0.5%	0.2%	0.3%
South Eastern Europe	1.8%	1.4%	1.2%	0.9%	2.1%	1.8%
Southern Europe	1.8%	1.4%	1.0%	0.8%	1.6%	1.1%
Elsewhere	9.5%	7.6%	10.6%	8.7%	14.0%	13.8%
Total Employed (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: ABS (2012, 2017)

Households

The most common household type in Cumberland in 2016 was one family households with only family members present, forming nearly 64% of all households in the area.

Table B.7: Household Composition (2011-2016), Cumberland, Parramatta, Greater Sydney

Household Type	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
One family households with only family members	65.7%	63.9%	66.7%	64.8%	64.8%	63.7%
One family households with non-family members	3.0%	4.6%	2.6%	3.5%	2.3%	2.9%

Household Type	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
Two family households	3.3%	4.4%	2.8%	2.8%	2.3%	2.7%
Three or more family households	0.2%	0.3%	0.1%	0.1%	0.1%	0.1%
Lone person households	19.2%	17.1%	19.8%	19.0%	21.5%	20.4%
Group households	3.5%	4.7%	3.5%	4.4%	4.1%	4.5%
Visitors only	0.7%	0.5%	0.8%	0.8%	0.9%	0.9%
Other households	4.4%	4.4%	3.7%	4.6%	4.1%	4.7%
Total Households	60,250	67,817	62,297	80,155	1,521,055	1,719,702
Average Persons per Household	2.9	3.2	2.9	2.8	2.7	2.8

Source: ABS (2012, 2017)

The most common family type in Cumberland in 2016 was couple families with children aged under 15 years, which formed 37.2% of all families in the area.

Table B.8: Family Composition (2011-2016), Cumberland, Parramatta, Greater Sydney

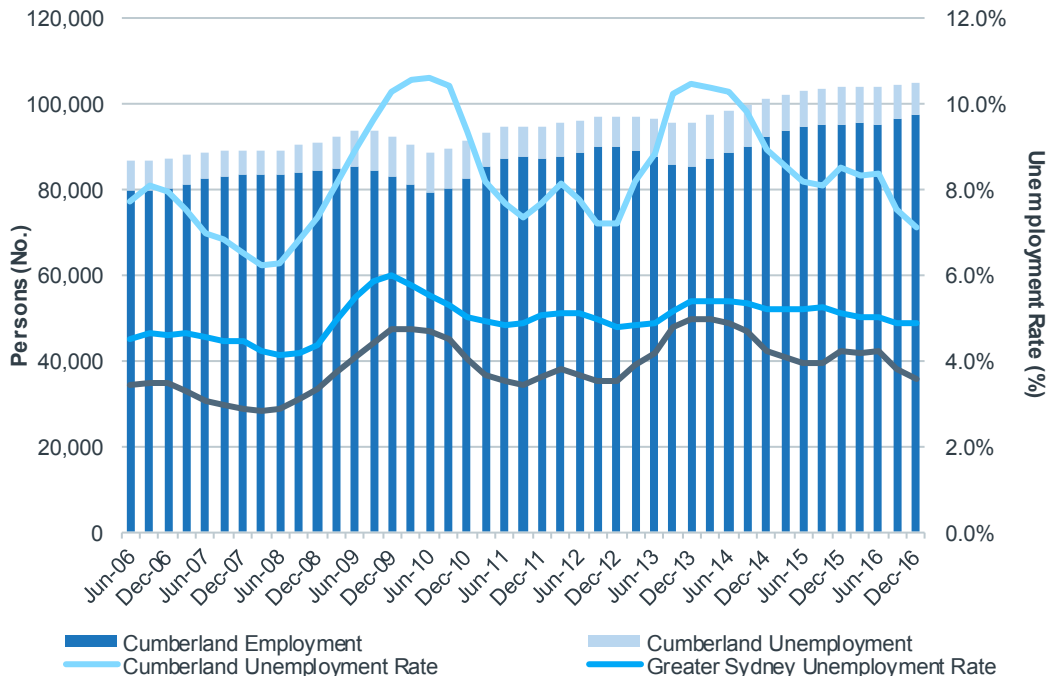
Family Type	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
Couple family with no children	30.0%	26.8%	31.8%	32.9%	33.5%	33.4%
Couple family with children under 15	35.1%	37.2%	35.0%	36.6%	32.5%	32.9%
Couple family with no children under 15	16.0%	17.3%	16.9%	15.6%	16.4%	16.6%
One parent family with children under 15	7.5%	6.8%	6.1%	5.3%	7.3%	6.7%
One parent familywith no children under 15	9.0%	9.4%	8.1%	7.7%	8.4%	8.6%
Other family	2.5%	2.5%	2.0%	1.9%	1.9%	1.8%

Source: ABS (2012, 2017)

Employment and Incomes

In 2011, residents of Cumberland most commonly referred to their labour force status as not in the labour force, representing 39.1% of the population aged over 15 years. Of those who were unemployed and looking for work, most residents were seeking full-time work.

Figure B.4: Employment and Unemployment Rates (2006-2016), Cumberland, Parramatta, Greater Sydney



Source: DoE (2017)

Average personal and household incomes trail those of the benchmark regions of Parramatta and Greater Sydney.

Table B.9: Average Weekly Incomes (2011-2016), Cumberland, Parramatta, Greater Sydney

Incomes	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
Average Personal Income	$433	$501	$620	$722	$619	$719
Average Household Income	$1,532	$1,682	$1,723	$2,031	$1,785	$2,119

Source: ABS (2012, 2017)

Education and Skills

In 2016, 62.1% of residents old enough to have finished school had completed Year 12, compared to 74.1% in Parramatta and 65.0% in Greater Sydney.

In relation to post-secondary school education across Cumberland, in 2011, 48.8% had completed some form of post-school qualification, lower than both Parramatta (55.8%) and Greater Sydney (54.4%).

Table B.10: Educational Attainment (2011-2016), Cumberland, Parramatta, Greater Sydney

Indicator	Cumberland LGA		Parramatta LGA		Greater Sydney	
	2011	2016	2011	2016	2011	2016
High School Completion						
Completed Year 12	60.1%	62.1%	64.5%	74.1%	60.1%	65.0%
Did not Complete Year 12	39.9%	37.9%	35.5%	25.9%	39.9%	35.0%
Post-school Study						
Postgraduate Degree	6.4%	Not available	6.3%	Not available	8.1%	Not available
Graduate Diploma and Graduate Certificate	1.2%		1.8%		1.7%	
Bachelor Degree	16.9%		19.1%		20.5%	
Advanced Diploma and Diploma	9.6%		10.1%		10.5%	
Certificate Level	14.7%		17.1%		14.9%	
No Qualification	51.2%		45.6%		44.2%	

Source: ABS (2012, 2017)

EMPLOYMENT HEALTH INDICATORS

Self-sufficiency and self-containment measure the health of a local economy based on the number of jobs provided.

- **Self-sufficiency** measures the number of local jobs against the labour force (i.e. local jobs divided by the labour force). Cumberland has a self-sufficiency rate of 72.6%, suggesting there are 0.7 local jobs for every local resident participating in the labour force. This is less than Parramatta's self-sufficiency rate of 134.1%.
- **Self-containment** examines where local resident workers are employed. 21.5% of residents live and work in Cumberland compared to 28.7% of Parramatta residents.

The benefits of working close to home are espoused in the draft District Plan, leading to the promotion of the '30-minute city'.

Notwithstanding the proportion of Cumberland residents who work in Cumberland, a large proportion of residents work in LGAs that adjoin Cumberland. This measure of "30 minutes" is already achieved to some degree with analysis indicating more than 50% of Cumberland residents work in Cumberland or in an adjoining local government area.

APPENDIX C: KEY INDUSTRY SECTORS DEFINITION

Appendix C provides definitions of the eight key sectors examined in this study, and the quantum of employment in these sectors. The eight key sectors examined are:

- Advanced Manufacturing.
- Food and Beverage Manufacturing.
- Digital Technologies/ Media.
- Advanced Knowledge Services.
- Creative Industries.
- Fashion.
- Allied Health.
- Freight and Logistics.

ADVANCED MANUFACTURING

Description

There is no one agreed upon definition as to what 'Advanced Manufacturing' incorporates, though in general it is described as the development of products and equipment using a high level of technology and expertise applied throughout a business' value chain.

For the purposes of this study the definition of 'Advanced Manufacturing' is taken to be akin to that used by IP Australia (2017) as follows:

> *"Advanced manufacturing refers to highly specialised products and processes in areas such as medical technology, biopharmaceuticals, mining, agribusiness, aerospace and defence, where Australian expertise is the source of competitive advantage. Just as importantly, it denotes the process by which knowledge-intensive value is added in both the pre- and post-production phase in areas including research and development, concept design, planning, engineering and aftersales service."*
>
> IP Australia (2017), page 7, *A Patent Analytics Study on the Australian Advanced Manufacturing Industry*

In summary, Advanced Manufacturing is considered to refer to manufacturing businesses that use and develop high technology products and equipment, based on advanced science and engineering principles and expertise.

Using the above definition, and review of the businesses and industries that are most prolific developing patent applications, IP Australia (2017) identifies eight advanced manufacturing technology sectors, as follows:

- Materials.
- Chemical engineering.
- Chemistry.
- Pharmaceutical.
- Medical devices.
- Electrical.
- Mechanical engineering.
- Transport.

In terms of classifying ANZSIC industries to Advanced Manufacturing there can be considerable crossover within individual industry groupings between advanced and more traditional manufacturing, as the use and production of high technology products and equipment can differ between businesses within the same industry grouping. Similarly, many of the ANZSCO occupations required within Advanced Manufacturing crossover with more traditional manufacturing.

For simplicity, all ANZSIC industries specific to food and beverage manufacturing were excluded as these are incorporated in the Food and Beverage Manufacturing key sector.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Advanced Manufacturing sector. This list of industries is in line with that used by IP Australia (2017), but also includes advanced materials manufacturing industries such as a range of polymer and rubber product manufacturing industries (1911 to 1920) and non-metallic mineral product manufacturing industries (2010 to 2090) which were excluded from IP Australia's list of ANZSIC industries but are considered relevant industries in this study based on the list of patent applications (IP Australia, 2017).

Scientific research services (6910), engineering design and engineering consulting services (6293) and scientific testing and analysis services (6925) are important contributors to the Advanced Manufacturing sector, developing the patents and designs from which the sector produces high technology products and equipment. However, these industries were excluded from the Advanced Manufacturing sector on the basis they do not manufacture goods and are captured in the Advanced Knowledge Services sector.

Table C.1. 4-Digit ANZSIC Classifications within Advanced Manufacturing, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
1313	Synthetic Textile Manufacturing	3	3
1811	Industrial Gas Manufacturing	181	118
1812	Basic Organic Chemical Manufacturing	8	9
1813	Basic Inorganic Chemical Manufacturing	4	10
1821	Synthetic Resin and Synthetic Rubber Manufacturing	19	19
1829	Other Basic Polymer Manufacturing	0	0
1831	Fertiliser Manufacturing	0	10
1832	Pesticide Manufacturing	18	13
1841	Human Pharmaceutical and Medicinal Product Manufacturing	271	276
1842	Veterinary Pharmaceutical and Medicinal Product Manufacturing	12	0
1851	Cleaning Compound Manufacturing	112	90
1852	Cosmetic and Toiletry Preparation Manufacturing	21	93
1891	Photographic Chemical Product Manufacturing	0	0
1892	Explosive Manufacturing	0	4
1899	Other Basic Chemical Product Manufacturing nec	0	0
1911	Polymer Film and Sheet Packaging Material Manufacturing	148	125
1912	Rigid and Semi-Rigid Polymer Product Manufacturing	316	284
1913	Polymer Foam Product Manufacturing	49	41
1915	Adhesive Manufacturing	0	9
1916	Paint and Coatings Manufacturing	235	244
1919	Other Polymer Product Manufacturing	73	52
1920	Natural Rubber Product Manufacturing	15	0
2010	Glass and Glass Product Manufacturing	194	214
2029	Other Ceramic Product Manufacturing	63	25
2031	Cement and Lime Manufacturing	105	120
2032	Plaster Product Manufacturing	8	11
2033	Ready-Mixed Concrete Manufacturing	66	70
2034	Concrete Product Manufacturing	42	76
2090	Other Non-Metallic Mineral Product Manufacturing	161	124
2311	Motor Vehicle Manufacturing	88	45
2312	Motor Vehicle Body and Trailer Manufacturing	313	80
2313	Automotive Electrical Component Manufacturing	10	3
2319	Other Motor Vehicle Parts Manufacturing	336	156
2391	Shipbuilding and Repair Services	9	15
2392	Boatbuilding and Repair Services	4	20
2393	Railway Rolling Stock Manufacturing and Repair Services	511	799
2394	Aircraft Manufacturing and Repair Services	2	16

4-Digit ANZSIC		2006 Jobs	2011 Jobs
2399	Other Transport Equipment Manufacturing nec	5	0
2411	Photographic, Optical and Ophthalmic Equipment Manufacturing	187	152
2412	Medical and Surgical Equipment Manufacturing	156	170
2419	Other Professional and Scientific Equipment Manufacturing	123	58
2421	Computer and Electronic Office Equipment Manufacturing	107	64
2422	Communication Equipment Manufacturing	67	53
2429	Other Electronic Equipment Manufacturing	67	267
2431	Electric Cable and Wire Manufacturing	15	30
2432	Electric Lighting Equipment Manufacturing	322	86
2439	Other Electrical Equipment Manufacturing	86	198
2441	Whiteware Appliance Manufacturing	27	38
2449	Other Domestic Appliance Manufacturing	36	24
2451	Pump and Compressor Manufacturing	32	18
2452	Fixed Space Heating, Cooling and Ventilation Equipment Manufacturing	84	127
2461	Agricultural Machinery and Equipment Manufacturing	10	0
2462	Mining and Construction Machinery Manufacturing	45	82
2463	Machine Tool and Parts Manufacturing	40	31
2469	Other Specialised Machinery and Equipment Manufacturing	72	110
2491	Lifting and Material Handling Equipment Manufacturing	509	578
2499	Other Machinery and Equipment Manufacturing nec	85	124

Source: ABS (2013a), IP Australia (2017), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Advanced Manufacturing sector. This list represents those occupations that are typically required for the manufacture of goods by Advanced Manufacturing industries. These occupations cover a wide range of skills and skill levels, many of which are also required for traditional manufacturing, and are not necessarily high skill positions (e.g. product assemblers are required regardless of whether a manufacturing business is advanced).

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Advanced Manufacturing in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Advanced Manufacturing industries outlined in Table C.1.

Table C.2. 4-Digit ANZSCO Classifications within Advanced Manufacturing, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1325	Research and Development Managers	4	3
1334	Manufacturers	69	86
1335	Production Managers	200	256
1336	Supply and Distribution Managers	37	48
2331	Chemical and Materials Engineers	0	2
2333	Electrical Engineers	46	56
2334	Electronics Engineers	2	15
2335	Industrial, Mechanical and Production Engineers	111	159
2339	Other Engineering Professionals	0	15
2342	Chemists, and Food and Wine Scientists	13	25
2345	Life Scientists	1	0
2515	Pharmacists	3	3
3123	Electrical Engineering Draftspersons and Technicians	17	14
3124	Electronic Engineering Draftspersons and Technicians	23	28
3125	Mechanical Engineering Draftspersons and Technicians	33	33
3211	Automotive Electricians	10	0
3212	Motor Mechanics	62	91

4-Digit ANZSCO		2006 Jobs	2011 Jobs
3231	Aircraft Maintenance Engineers	0	0
3232	Metal Fitters and Machinists	410	392
3233	Precision Metal Trades Workers	0	4
3234	Toolmakers and Engineering Patternmakers	59	43
3242	Vehicle Body Builders and Trimmers	122	59
3991	Boat Builders and Shipwrights	0	18
3992	Chemical, Gas, Petroleum and Power Generation Plant Operators	22	16
7111	Clay, Concrete, Glass and Stone Processing Machine Operators	55	51
7115	Plastics and Rubber Production Machine Operators	223	139
7119	Other Machine Operators	38	88
7121	Crane, Hoist and Lift Operators	0	0
7123	Engineering Production Workers	67	46
7129	Other Stationary Plant Operators	11	20
8322	Product Assemblers	265	143
8391	Metal Engineering Process Workers	18	14
8392	Plastics and Rubber Factory Workers	69	51
8393	Product Quality Controllers	82	45
8399	Other Factory Process Workers	59	78

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Advanced Manufacturing industries that use specialist Advanced Manufacturing occupations (referred to as Specialist Workers), and the total jobs in Advanced Manufacturing industries that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Advanced Manufacturing businesses). The table below provides a summary, highlighting there were 5,387 jobs in Advanced Manufacturing industries in Cumberland LGA in 2011 (representing 7.9% of total jobs in Cumberland LGA for the year), of which 2,039 were Specialist Workers and 3,348 were Support Workers.

Table C.3. Specialist and Support Advanced Manufacturing Workers, Cumberland LGA, 2011

Occupation Classification	Advanced Manufacturing Industry Workers
Advanced Manufacturing Occupation (Specialist Workers)	2,039 (3.0%)
Non Advanced Manufacturing Occupation (Support Workers)	3,348 (4.9%)
Total Advanced Manufacturing Industry Workers	5,387 (7.9%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), IP Australia (2017), AEC.

FOOD AND BEVERAGE MANUFACTURING

Description

The Food and Beverage Manufacturing sector includes all businesses involved in the manufacture of processed food and beverages for consumption by either humans or animals. It excludes production of fresh produce, as well as all food and beverage preparation services (e.g. cafés and restaurants, fast food eateries).

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Food and Beverage Manufacturing sector. It incorporates all 4-digit ANZSIC industries within the 2-digit ANZSIC sub-division of Food Product Manufacturing, as well as all 4-digit industries in the 3-digit ANZSIC group of Beverage Manufacturing.

Table C.4. 4-Digit ANZSIC Classifications within Food and Beverage Manufacturing, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
1111	Meat Processing	35	53
1112	Poultry Processing	555	679
1113	Cured Meat and Smallgoods Manufacturing	19	48
1120	Seafood Processing	0	31
1131	Milk and Cream Processing	334	343
1132	Ice Cream Manufacturing	5	5
1133	Cheese and Other Dairy Product Manufacturing	164	107
1140	Fruit and Vegetable Processing	168	177
1150	Oil and Fat Manufacturing	12	8
1161	Grain Mill Product Manufacturing	19	8
1162	Cereal, Pasta and Baking Mix Manufacturing	25	20
1171	Bread Manufacturing (Factory based)	113	160
1172	Cake and Pastry Manufacturing (Factory based)	118	101
1173	Biscuit Manufacturing (Factory based)	15	0
1174	Bakery Product Manufacturing (Non-factory based)	67	54
1181	Sugar Manufacturing	16	0
1182	Confectionery Manufacturing	40	13
1191	Potato, Corn and Other Crisp Manufacturing	271	197
1192	Prepared Animal and Bird Feed Manufacturing	24	15
1199	Other Food Product Manufacturing nec	156	128
1211	Soft Drink, Cordial and Syrup Manufacturing	133	159
1212	Beer Manufacturing	303	511
1213	Spirit Manufacturing	0	5
1214	Wine and Other Alcoholic Beverage Manufacturing	75	81

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Food and Beverage Manufacturing sector. This list represents those occupations that are typically required for the manufacture of goods by Food and Beverage Manufacturing industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other manufacturing industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Food and Beverage Manufacturing in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Food and Beverage Manufacturing industries outlined in Table A.4.

Table C.5. 4-Digit ANZSCO Classifications within Food and Beverage Manufacturing, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1334	Manufacturers	27	42
1335	Production Managers	86	123
2342	Chemists, and Food and Wine Scientists	41	28
3511	Bakers and Pastrycooks	90	102
3512	Butchers and Smallgoods Makers	1	30
8311	Food and Drink Factory Workers	344	405
8312	Meat Boners and Slicers, and Slaughterers	1	12
8313	Meat, Poultry and Seafood Process Workers	133	104
8321	Packers	302	310
8393	Product Quality Controllers	28	29

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Food and Beverage Manufacturing industries that use specialist Food and Beverage Manufacturing occupations (referred to as Specialist Workers), and the total jobs in Food and Beverage Manufacturing industries that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Food and Beverage Manufacturing businesses). The table below provides a summary, highlighting there were 2,903 jobs in Food and Beverage Manufacturing industries in Cumberland LGA in 2011 (representing 4.3% of total jobs in Cumberland LGA for the year), of which 1,186 were Specialist Workers and 1,717 were Support Workers.

Table C.6. Specialist and Support Food and Beverage Manufacturing Workers, Cumberland LGA, 2011

Occupation Classification	Food and Beverage Manufacturing Industry Workers
Food and Beverage Manufacturing Occupation (Specialist Workers)	1,186 (1.7%)
Non Food and Beverage Manufacturing Occupation (Support Workers)	1,717 (2.5%)
Total Food and Beverage Manufacturing Industry Workers	2,903 (4.3%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

DIGITAL TECHNOLOGIES/ MEDIA

Description

Digital technologies, which encompasses electronic tools, systems, devices and resources that generate, store, process and/ or display data, is a fast-paced, evolving sector that has changed the way we do business and interact. It includes aspects such as multimedia, social media, digital software and applications designed to enhance productivity and connections, cloud computing, and remote and interconnected systems.

Digital technologies also includes the hardware from which digital media and applications are viewed and interacted with. However, for simplicity, the manufacture of digital devices and hardware has been excluded from the definition of the Digital Technologies/ Media sector for this study as it is incorporated in the Advanced Manufacturing key sector.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Digital Technologies/ Media sector. It incorporates all industries directly associated with the production and distribution of software and digital content.

Table C.7. 4-Digit ANZSIC Classifications within Digital Technologies/ Media, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
5420	Software Publishing	0	0
5621	Free-to-Air Television Broadcasting	4	2
5622	Cable and Other Subscription Broadcasting	17	38
5700	Internet Publishing and Broadcasting	4	0
5801	Wired Telecommunications Network Operation	386	309
5802	Other Telecommunications Network Operation	62	79
5809	Other Telecommunications Services	10	12
5910	Internet Service Providers and Web Search Portals	11	18
5921	Data Processing and Web Hosting Services	10	0
5922	Electronic Information Storage Services	12	24
7000	Computer System Design and Related Services	402	436

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Digital Technologies/ Media sector. This list represents those occupations that are typically required for the delivery of digital services and content by Digital Technologies/ Media industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Digital Technologies/ Media in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Digital Technologies/ Media industries outlined in Table C.7.

Table C.8. 4-Digit ANZSCO Classifications within Digital Technologies/ Media, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1351	ICT Managers	53	88
2324	Graphic and Web Designers, and Illustrators	12	6
2611	ICT Business and Systems Analysts	23	53
2612	Multimedia Specialists and Web Developers	4	4
2613	Software and Applications Programmers	80	107
2621	Database and Systems Administrators, and ICT Security Specialists	10	15
2631	Computer Network Professionals	44	33

4-Digit ANZSCO		2006 Jobs	2011 Jobs
2632	ICT Support and Test Engineers	1	9
2633	Telecommunications Engineering Professionals	19	27
3131	ICT Support Technicians	39	70
3132	Telecommunications Technical Specialists	15	39

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Digital Technologies/ Media industries that use specialist Digital Technologies/ Media occupations (referred to as Specialist Workers), and the total jobs in Digital Technologies/ Media industries that use non-specialised skills (referred to as Support Workers, e.g., sales reps employed by Digital Technologies/ Media businesses). The table below provides a summary, highlighting there were 918 jobs in Digital Technologies/ Media industries in Cumberland LGA in 2011 (representing 1.3% of total jobs in Cumberland LGA for the year), of which 453 were Specialist Workers and 466 were Support Workers.

Table C.9. Specialist and Support Digital Technologies/ Media Workers, Cumberland LGA, 2011

Occupation Classification	Digital Technologies/ Media Industry Workers
Digital Technologies/ Media Occupation (Specialist Workers)	453 (0.7%)
Non Digital Technologies/ Media Occupation (Support Workers)	466 (0.7%)
Total Digital Technologies/ Media Industry Workers	918 (1.3%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

ADVANCED KNOWLEDGE SERVICES

Description

The Australian and global economy has been transitioning towards higher knowledge-intensive industries for decades. Continued growth of the economy, including development of advanced manufacturing industries, is reliant on continued technical and scientific advances. The Advanced Knowledge Services sector encompasses the industries and activities that drive technical and scientific advance.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Advanced Knowledge Services sector. It includes 4-digit ANZSIC industries specialising in scientific and engineering activities, higher education provision, as well as industries that provide research and consulting services to support knowledge advancement.

Table C.10. 4-Digit ANZSIC Classifications within Advanced Knowledge Services, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
6910	Scientific Research Services	51	32
6922	Surveying and Mapping Services	7	19
6923	Engineering Design and Engineering Consulting Services	247	313
6925	Scientific Testing and Analysis Services	302	297
6950	Market Research and Statistical Services	33	78
6961	Corporate Head Office Management Services	99	102
6962	Management Advice and Related Consulting Services	353	110
8101	Technical and Vocational Education and Training	755	795
8102	Higher Education	480	455

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Advanced Knowledge Services sector. This list represents those occupations that are typically required for the delivery of knowledge-based services by Advanced Knowledge Services industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Advanced Knowledge Services in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Advanced Knowledge Services industries outlined in Table C.10.

Table C.11. 4-Digit ANZSCO Classifications within Advanced Knowledge Services, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1321	Corporate Services Managers	6	0
1324	Policy and Planning Managers	0	7
1325	Research and Development Managers	12	13
1344	Other Education Managers	68	67
1399	Other Specialist Managers	16	34
2232	ICT Trainers	4	7
2233	Training and Development Professionals	41	31
2241	Actuaries, Mathematicians and Statisticians	0	7
2242	Archivists, Curators and Records Managers	0	0
2243	Economists	0	0
2244	Intelligence and Policy Analysts	0	0
2245	Land Economists and Valuers	0	0

4-Digit ANZSCO		2006 Jobs	2011 Jobs
2247	Management and Organisation Analysts	35	21
2249	Other Information and Organisation Professionals	0	1
2322	Surveyors and Spatial Scientists	6	19
2323	Fashion, Industrial and Jewellery Designers	0	8
2326	Urban and Regional Planners	0	0
2331	Chemical and Materials Engineers	1	1
2332	Civil Engineering Professionals	24	36
2333	Electrical Engineers	12	22
2334	Electronics Engineers	7	13
2335	Industrial, Mechanical and Production Engineers	32	24
2336	Mining Engineers	1	0
2339	Other Engineering Professionals	2	8
2341	Agricultural and Forestry Scientists	0	0
2342	Chemists, and Food and Wine Scientists	39	21
2343	Environmental Scientists	21	20
2344	Geologists and Geophysicists	0	0
2345	Life Scientists	29	43
2346	Medical Laboratory Scientists	32	45
2349	Other Natural and Physical Science Professionals	0	0
2421	University Lecturers and Tutors	202	204
2422	Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)	376	387
2491	Education Advisers and Reviewers	19	22
3114	Science Technicians	83	124
3121	Architectural, Building and Surveying Technicians	1	22
3122	Civil Engineering Draftspersons and Technicians	1	27
3123	Electrical Engineering Draftspersons and Technicians	12	0
3124	Electronic Engineering Draftspersons and Technicians	4	0
3125	Mechanical Engineering Draftspersons and Technicians	0	0
3129	Other Building and Engineering Technicians	20	19
5111	Contract, Program and Project Administrators	48	49
5121	Office Managers	26	27
5122	Practice Managers	0	0

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Advanced Knowledge Services industries that use specialist Advanced Knowledge Services occupations (referred to as Specialist Workers), and the total jobs in Advanced Knowledge Services that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Advanced Knowledge Services businesses). The table below provides a summary, highlighting there were 2,200 jobs in Advanced Knowledge Services industries in Cumberland LGA in 2011 (representing 3.2% of total jobs in Cumberland LGA for the year), of which 1,333 were Specialist Workers and 868 were Support Workers.

Table C.12. Specialist and Support Advanced Knowledge Services Workers, Cumberland LGA, 2011

Occupation Classification	Advanced Knowledge Services Industry Workers
Advanced Knowledge Services Occupation (Specialist Workers)	1,333 (2.0%)
Non Advanced Knowledge Services Occupation (Support Workers)	868 (1.3%)
Total Advanced Knowledge Services Industry Workers	2,200 (3.2%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

CREATIVE INDUSTRIES

Description

Creative Industries is a term that is widely used and an area of growing interest in economic development and planning as the important contribution of the creative economy becomes increasingly recognised. However, there is no one agreed upon definition of what Creative Industries encompasses.

For the purposes of this study Creative Industries has been defined using a similar approach as outlined by the Creative Industries Innovation Centre (2013), as follows:

> *"While all industries to a greater or lesser extent include an element of creativity, the creative industries can be distinguished in that value for their consumers is driven by creativity. Creative industries operate in a diverse range of sectors including music and performing arts, design and visual arts, television, radio and film, marketing, finance and distribution, social media, software development and interactive content, animation and print, writing, publishing."*
>
> Creative Industries Innovation Centre (2013), page 17, *Valuing Australia's Creative Industries*

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Creative Industries sector. This list of industries is in line with that outlined by the Creative Industries Innovation Centre (2013).

Table C.13. 4-Digit ANZSIC Classifications within Creative Industries, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
1612	Printing Support Services	25	38
2591	Jewellery and Silverware Manufacturing	14	25
5411	Newspaper Publishing	22	18
5412	Magazine and Other Periodical Publishing	91	53
5413	Book Publishing	42	29
5420	Software Publishing	0	0
5511	Motion Picture and Video Production	19	19
5514	Post-production Services and Other Motion Picture and Video Activities	6	4
5521	Music Publishing	0	0
5522	Music and Other Sound Recording Activities	1	0
5610	Radio Broadcasting	14	0
5621	Free-to-Air Television Broadcasting	4	2
5622	Cable and Other Subscription Broadcasting	17	38
5700	Internet Publishing and Broadcasting	4	0
6921	Architectural Services	42	49
6924	Other Specialised Design Services	95	112
6940	Advertising Services	114	135
6991	Professional Photographic Services	128	142
7000	Computer System Design and Related Services	402	436
8212	Arts Education	53	46
9001	Performing Arts Operation	11	3
9002	Creative Artists, Musicians, Writers and Performers	15	43
9003	Performing Arts Venue Operation	0	3

Source: ABS (2013a), Creative Industries Innovation Centre (2013), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Creative Industries sector. This list is in line with that presented by the Creative Industries Innovation Centre (2013), and represents those occupations that are

typically required for the production and delivery of creative content by industries in the Creative Industries sector. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Creative Industries in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Creative Industries sector outlined in Table C.13.

Table C.14. 4-Digit ANZSCO Classifications within Creative Industries, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1311	Advertising, Public Relations and Sales Managers	16	24
2111	Actors, Dancers and Other Entertainers	3	12
2112	Music Professionals	5	14
2113	Photographers	48	61
2114	Visual Arts and Crafts Professionals	2	1
2121	Artistic Directors, and Media Producers and Presenters	25	8
2122	Authors, and Book and Script Editors	4	2
2123	Film, Television, Radio and Stage Directors	9	11
2124	Journalists and Other Writers	29	31
2242	Archivists, Curators and Records Managers	0	0
2251	Advertising and Marketing Professionals	21	20
2321	Architects and Landscape Architects	16	15
2323	Fashion, Industrial and Jewellery Designers	0	2
2324	Graphic and Web Designers, and Illustrators	52	87
2325	Interior Designers	24	2
2326	Urban and Regional Planners	0	0
2339	Other Engineering Professionals	0	0
2611	ICT Business and Systems Analysts	23	53
2612	Multimedia Specialists and Web Developers	4	4
2613	Software and Applications Programmers	83	106
3121	Architectural, Building and Surveying Technicians	22	25
3993	Gallery, Library and Museum Technicians	0	0
3994	Jewellers	0	22
3995	Performing Arts Technicians	5	14
3996	Signwriters	0	22
3999	Other Miscellaneous Technicians and Trades Workers	3	2
4518	Other Personal Service Workers	0	0

Source: ABS (2013b), Creative Industries Innovation Centre (2013), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in industries within the Creative Industries sector that use specialist Creative Industries occupations (referred to as Specialist Workers), and the total jobs in industries within the Creative Industries sector that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Creative Industries businesses). The table below provides a summary, highlighting there were 1,195 jobs in industries within the Creative Industries sector in Cumberland LGA in 2011 (representing 1.8% of total jobs in Cumberland LGA for the year), of which 537 were Specialist Workers and 658 were Support Workers.

Table C.15. Specialist and Support Creative Industries, Cumberland LGA, 2011

Occupation Classification	Creative Industries Workers
Creative Industries Occupation (Specialist Workers)	537 (0.8%)
Non Creative Industries Media Occupation (Support Workers)	658 (1.0%)
Total Creative Industries Industry Workers	1,195 (1.8%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), Creative Industries Innovation Centre (2013), AEC.

FASHION

Description

In its broadest sense, the Fashion industry is a global industry worth over a trillion dollars (Joint Economic Committee, 2015) that encompasses the design, manufacturing, distribution, marketing, retailing, advertising and promotion of all types of apparel and accessories, as well as services catering to personal image.

For the purposes of this study, the Fashion sector has been defined based on the definition presented by the Joint Economic Committee (2015), which encompasses the following industries:

- Fashion design.
- Apparel manufacturing.
- Apparel wholesale merchandising.
- Apparel retailers.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Fashion sector. These industries incorporate all 4-digit ANZSIC industries that match those outlined by the Joint Economic Committee (2015) of fashion design, apparel manufacturing, apparel wholesale merchandising and apparel retailers. Two additional 4-digit industries were also included as relevant for the Fashion sector – Clothing and Footwear Repair (9491) and Hairdressing and Beauty Services (9511).

Table C.16. 4-Digit ANZSIC Classifications within Fashion, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
1340	Knitted Product Manufacturing	0	0
1351	Clothing Manufacturing	414	297
1352	Footwear Manufacturing	33	40
2591	Jewellery and Silverware Manufacturing	14	25
3712	Clothing and Footwear Wholesaling	302	243
3732	Jewellery and Watch Wholesaling	21	2
4251	Clothing Retailing	415	477
4252	Footwear Retailing	60	71
4253	Watch and Jewellery Retailing	67	77
4259	Other Personal Accessory Retailing	11	9
6924	Other Specialised Design Services	95	112
9491	Clothing and Footwear Repair	22	26
9511	Hairdressing and Beauty Services	396	408

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Fashion sector. This list represents those occupations that are typically required for the delivery of fashion services and production of fashion goods by Fashion industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Fashion in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Fashion industries outlined in Table C.16.

Table C.17. 4-Digit ANZSCO Classifications within Fashion, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1421	Retail Managers	82	124
2113	Photographers	3	1
2323	Fashion, Industrial and Jewellery Designers	36	58
3911	Hairdressers	275	281
3931	Canvas and Leather Goods Makers	25	14
3932	Clothing Trades Workers	40	64
3994	Jewellers	10	32
4511	Beauty Therapists	82	98
4515	Personal Care Consultants	0	0
4518	Other Personal Service Workers	2	1
6211	Sales Assistants (General)	236	292
6215	Retail Supervisors	0	0
6217	Street Vendors and Related Salespersons	0	0
6391	Models and Sales Demonstrators	14	0
7114	Photographic Developers and Printers	0	0
7116	Sewing Machinists	149	42
7117	Textile and Footwear Production Machine Operators	54	17
8393	Product Quality Controllers	14	12
8399	Other Factory Process Workers	29	19

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Fashion industries that use specialist Fashion occupations (referred to as Specialist Workers), and the total jobs in Fashion industries that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Fashion businesses). The table below provides a summary, highlighting there were 1,786 jobs in Fashion industries in Cumberland LGA in 2011 (representing 2.6% of total jobs in Cumberland LGA for the year), of which 1,054 were Specialist Workers and 732 were Support Workers.

Table C.18. Specialist and Support Fashion Workers, Cumberland LGA, 2011

Occupation Classification	Fashion Industry Workers
Fashion Occupation (Specialist Workers)	1,054 (1.5%)
Non Fashion Occupation (Support Workers)	732 (1.1%)
Total Fashion Industry Workers	1,786 (2.6%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

ALLIED HEALTH

Description

Allied Health typically refers the broad range of health professionals whose services are aimed at preventing, diagnosing and treating a range of conditions and illnesses, but excluding doctors, dentists and nurses. These professionals provide integral services within the health care system to support the health and wellbeing of individuals and society.

For the purposes of this study the Allied Health sector has been expanded to incorporate all health-related professionals (including doctors, dentists and nurses) that work outside of hospitals, as well as veterinarians.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Allied Health sector. It includes all industries relating to the prevention, diagnosis and treatment of a range of conditions and illnesses (in both humans and animals), excluding hospitals.

Table C.19. 4-Digit ANZSIC Classifications within Allied Health, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
6970	Veterinary Services	44	54
8511	General Practice Medical Services	564	499
8512	Specialist Medical Services	82	91
8520	Pathology and Diagnostic Imaging Services	205	268
8531	Dental Services	169	229
8532	Optometry and Optical Dispensing	56	79
8533	Physiotherapy Services	47	71
8534	Chiropractic and Osteopathic Services	18	19
8539	Other Allied Health Services	127	193
8591	Ambulance Services	126	83
8599	Other Health Care Services nec	9	29
8601	Aged Care Residential Services	765	958
8609	Other Residential Care Services	84	105

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Allied Health sector. This list represents those occupations that are typically required for the delivery of health services by Allied Health industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Allied Health in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Allied Health industries outlined in Table C.19.

Table C.20. 4-Digit ANZSCO Classifications within Allied Health, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1342	Health and Welfare Services Managers	30	39
2346	Medical Laboratory Scientists	23	19
2347	Veterinarians	9	17
2511	Dietitians	3	4
2512	Medical Imaging Professionals	34	58
2513	Occupational and Environmental Health Professionals	1	0
2514	Optometrists and Orthoptists	28	25

4-Digit ANZSCO		2006 Jobs	2011 Jobs
2515	Pharmacists	0	0
2519	Other Health Diagnostic and Promotion Professionals	0	0
2521	Chiropractors and Osteopaths	5	16
2522	Complementary Health Therapists	19	19
2523	Dental Practitioners	61	69
2524	Occupational Therapists	7	7
2525	Physiotherapists	22	63
2526	Podiatrists	7	17
2527	Speech Professionals and Audiologists	4	12
2531	Generalist Medical Practitioners	170	170
2532	Anaesthetists	0	4
2533	Specialist Physicians	2	14
2534	Psychiatrists	14	8
2535	Surgeons	6	11
2539	Other Medical Practitioners	15	41
2541	Midwives	3	10
2542	Nurse Educators and Researchers	0	1
2543	Nurse Managers	7	23
2544	Registered Nurses	302	274
2723	Psychologists	4	32
3112	Medical Technicians	64	77
4111	Ambulance Officers and Paramedics	63	64
4112	Dental Hygienists, Technicians and Therapists	14	5
4113	Diversional Therapists	18	21
4114	Enrolled and Mothercraft Nurses	2	1
4115	Indigenous Health Workers	0	0
4116	Massage Therapists	10	30
4117	Welfare Support Workers	49	53
4231	Aged and Disabled Carers	89	164
4232	Dental Assistants	79	96
4233	Nursing Support and Personal Care Workers	259	308
4234	Special Care Workers	0	0
5122	Practice Managers	33	61

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Allied Health industries that use specialist Allied Health occupations (referred to as Specialist Workers), and the total jobs in Allied Health industries that use non-specialised skills (referred to as Support Workers, e.g., receptionists employed by Allied Health businesses). The table below provides a summary, highlighting there were 2,678 jobs in Allied Health industries in Cumberland LGA in 2011 (representing 3.9% of total jobs in Cumberland LGA for the year), of which 1,835 were Specialist Workers and 843 were Support Workers.

Table C.21. Specialist and Support Allied Health Workers, Cumberland LGA, 2011

Occupation Classification	Allied Health Industry Workers
Allied Health Occupation (Specialist Workers)	1,835 (2.7%)
Non Allied Health Occupation (Support Workers)	843 (1.2%)
Total Allied Health Industry Workers	2,678 (3.9%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

FREIGHT AND LOGISTICS

Description

Freight and Logistics is an essential component of the national and global economy to ensure goods and services are able to be stored and transported efficiently between the point of origin and point of consumption and meet customer requirements.

4-Digit ANZSIC Classifications

The following 4-digit ANZSIC industries were allocated to the Freight and Logistics sector. The sector is defined to include all wholesale trade industries, all transport industries related to freight movement, and transport and storage support services.

Table C.22. 4-Digit ANZSIC Classifications within Freight and Logistics, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSIC		2006 Jobs	2011 Jobs
3311	Wool Wholesaling	83	55
3312	Cereal Grain Wholesaling	7	9
3319	Other Agricultural Product Wholesaling	125	110
3321	Petroleum Product Wholesaling	71	58
3322	Metal and Mineral Wholesaling	350	287
3323	Industrial and Agricultural Chemical Product Wholesaling	186	142
3331	Timber Wholesaling	137	64
3332	Plumbing Goods Wholesaling	159	78
3339	Other Hardware Goods Wholesaling	530	509
3411	Agricultural and Construction Machinery Wholesaling	172	306
3419	Other Specialised Industrial Machinery and Equipment Wholesaling	332	260
3491	Professional and Scientific Goods Wholesaling	71	60
3492	Computer and Computer Peripheral Wholesaling	198	232
3493	Telecommunication Goods Wholesaling	131	111
3494	Other Electrical and Electronic Goods Wholesaling	663	798
3499	Other Machinery and Equipment Wholesaling nec	257	255
3501	Car Wholesaling	107	86
3502	Commercial Vehicle Wholesaling	24	18
3503	Trailer and Other Motor Vehicle Wholesaling	38	24
3504	Motor Vehicle New Parts Wholesaling	314	223
3505	Motor Vehicle Dismantling and Used Parts Wholesaling	43	36
3601	General Line Grocery Wholesaling	77	91
3602	Meat, Poultry and Smallgoods Wholesaling	170	188
3603	Dairy Produce Wholesaling	20	10
3604	Fish and Seafood Wholesaling	46	59
3605	Fruit and Vegetable Wholesaling	95	128
3606	Liquor and Tobacco Product Wholesaling	45	142
3609	Other Grocery Wholesaling	396	507
3711	Textile Product Wholesaling	54	52
3712	Clothing and Footwear Wholesaling	302	243
3720	Pharmaceutical and Toiletry Goods Wholesaling	520	536
3731	Furniture and Floor Covering Wholesaling	180	211
3732	Jewellery and Watch Wholesaling	21	2
3733	Kitchen and Diningware Wholesaling	60	83
3734	Toy and Sporting Goods Wholesaling	42	53
3735	Book and Magazine Wholesaling	39	4
3736	Paper Product Wholesaling	207	180

4-Digit ANZSIC		2006 Jobs	2011 Jobs
3739	Other Goods Wholesaling nec	226	284
3800	Commission-Based Wholesaling	110	81
4610	Road Freight Transport	3,176	3,308
4710	Rail Freight Transport	37	109
4810	Water Freight Transport	7	15
4900	Air and Space Transport	24	20
5101	Postal Services	831	781
5102	Courier Pick-up and Delivery Services	214	222
5211	Stevedoring Services	36	22
5212	Port and Water Transport Terminal Operations	4	9
5219	Other Water Transport Support Services	0	0
5220	Airport Operations and Other Air Transport Support Services	0	0
5291	Customs Agency Services	13	2
5292	Freight Forwarding Services	344	319
5299	Other Transport Support Services nec	316	228
5301	Grain Storage Services	0	0
5309	Other Warehousing and Storage Services	545	790

Source: ABS (2013a), AEC.

4-Digit ANZSCO Classifications

The following 4-digit ANZSCO occupations were allocated to the Freight and Logistics sector. This list represents those occupations that are typically required for the delivery of logistics services by Freight and Logistics industries. These occupations cover a wide range of skills and skill levels, many of which are also required for other industries.

The job estimates for 2006 and 2011 indicate the total number of jobs in occupations relevant to Freight and Logistics in Cumberland LGA for these years. This only includes employment in these occupations that is specific to the Freight and Logistics industries outlined in Table C.22.

Table C.23. 4-Digit ANZSCO Classifications within Freight and Logistics, and Jobs in Cumberland LGA (2006 and 2011)

4-Digit ANZSCO		2006 Jobs	2011 Jobs
1333	Importers, Exporters and Wholesalers	202	367
1336	Supply and Distribution Managers	270	295
1494	Transport Services Managers	136	127
2311	Air Transport Professionals	0	0
2312	Marine Transport Professionals	0	0
5612	Couriers and Postal Deliverers	433	332
5911	Purchasing and Supply Logistics Clerks	533	510
5912	Transport and Despatch Clerks	256	337
7213	Forklift Drivers	638	607
7311	Automobile Drivers	160	188
7312	Bus and Coach Drivers	3	8
7313	Train and Tram Drivers	35	25
7321	Delivery Drivers	343	331
7331	Truck Drivers	1,551	1,716
7411	Storepersons	1,193	1,235
8911	Freight and Furniture Handlers	105	95

Source: ABS (2013b), AEC.

Specialist and Support Workforce

The cross section of industry and occupation classifications can be used to identify the total jobs in Freight and Logistics industries that use specialist Freight and Logistics occupations (referred to as Specialist Workers), and the total jobs in Freight and Logistics industries that use non-specialised skills (referred to as Support Workers, e.g., accountants employed by Freight and Logistics businesses). The table below provides a summary, highlighting there were 12,399 jobs in Freight and Logistics industries in Cumberland LGA in 2011 (representing 18.2% of total jobs in Cumberland LGA for the year), of which 6,172 were Specialist Workers and 6,228 were Support Workers.

Table C.24. Specialist and Support Freight and Logistics Workers, Cumberland LGA, 2011

Occupation Classification	Freight and Logistics Industry Workers
Freight and Logistics Occupation (Specialist Workers)	6,172 (9.1%)
Non Freight and Logistics Occupation (Support Workers)	6,228 (9.1%)
Total Freight and Logistics Industry Workers	12,399 (18.2%)

Source: ABS (2017), ABS (2013a), ABS (2013b), BTS (2013), AEC.

APPENDIX D: INNOVATION/CHANGE IN INDUSTRIAL AREAS

SONY UK TECHNOLOGY CENTRE (PENCOED, UK)

Location: Pencoed, South Wales, UK

Area: 30,000sqm of light industrial, commercial, logistics and ancillary floorspace

Tenants: Sony, 32 start-up companies

Evolution and Overview:

The Sony UK Technology Centre (UKTEC) serves as a global hub for broadcast and professional camera systems and is the only facility outside of East Asia that produces high definition camera units. It is a freestanding facility incorporating a mix of light-industrial, office and logistics uses.

The facility was opened in 1992 to function as the Sony UK's sole operation. Originally its purpose was to construct Sony's Trinitron TVs for the European market. Its evolution since then reflects the concentration of specialist labour and advanced manufacturing research which has built up around it. The video camera manufacturing process is highly skilled with many parts of the production process undertaken by hand. Video cameras are relatively high-value, small items which are easy to transport worldwide to a niche customer base. They are not the mass produced, labour-heavy manufacturing processes suitable for being off-shored.

Key Elements and Supporting Infrastructure:

The presence of Sony UK and the specialist nature of the manufacturing facility has encouraged 32 start-up companies to locate within a Business Incubation Centre. Space is available for occupiers on flexible lease terms and the start-up companies present are involved in a range of different sectors including logistics, media, gaming and digital tech companies. On-site facilities are shared by all occupiers who gain access to conference rooms, a café, gym, shower facilities and admin support which they may not be able to afford if they were to locate in isolation.

The site also supports a Customer Service Centre which allows Sony to offer a UK service and repair solution to retail and end-user customers. This ensures a fast turnaround to domestic customers in a way that an overseas facility would not be capable of. Turnaround speed and the ability to draw on expert engineers, technicians and operators means that customers pay a premium to use this service.

Advanced manufacturing processes and products, the requirement for hands-on skilled labour, relatively low output volume and the ability to service higher paying domestic customers make this facility viable, even in a rural location. It also blends different sectoral offerings, for example by offering a media lifecycle solution to convert older media formats to digital, on top of its manufacturing and repair function. Having a diversified mix of quasi-industrial and office uses at the Sony UK Technology Centre assists to support its long-term viability.

Source: Sony (2016)

This innovation cluster has been successful because it has a strong anchor tenant and sustains a highly specialised workforce. The products made in this facility are high-value, low-volume and they compete in a niche market internationally.

AMAZON LOGISTICS WAREHOUSE (RHINELAND, GERMANY)

Location: Rhineland, Germany

Area: Regional distribution centre with 50,000sqm of warehouse space

Tenant: Amazon

Employees: Estimated 1,000 employees (equivalent to ratio of 1 job/50sqm)

Evolution and Overview:

Amazon is on a major expansion program across Europe to deliver a more responsive and expedient supply chain. In doing so it is seeking to gain a competitive edge attracting trade via its Amazon Prime platform which, for a regular subscription fee, provides customers with same day delivery on many items. Amazon is at the vanguard of the new wave of consumer-centric retail supply chain which is driving demand for industrial land. An example of the nature of that demand is Amazon's logistics warehouse in Rhineland, Germany, which is currently under development and due to complete in late-2017. Given the inevitable focus on supply chain logistics that will come in Australia, it provides a useful case study on what types of logistics facilities will be required.

The warehouse will provide Amazon with additional capability to offer customers a greater product selection in a shorter delivery time. It will also enable Amazon to offer delivery as a service to other online retailers via its "Fulfilment by Amazon" storage and shipping service. Given the pressure on urban land and the growing demand for logistics capacity from all types of sectors, it is likely that more logistics centres will emerge that serve local areas from a range of different retailers, rather than those retailers each developing a separate local fulfilment centre.

Key Elements and Supporting Infrastructure:

The site was chosen primarily due its accessibility to Germany's main motorway network and its proximity to West German cities in the Rhine-Rhur area. The warehouse will be 'smart', enriched with technology to track and process stock as efficiently as possible in order to fulfil e-commerce orders. Robots will be deployed to pick, pack and process orders as well as human operatives. The jobs created will be multi-faceted with a broad range of salaries. Jobs will include logistics managers, engineers, IT and personnel experts as well as dispatch staff.

Source: PropertyWeek (2017)

As Amazon ramps up its expansion into the largely untapped Australian market it will need to develop a multi-nodal supply chain to service customers. A warehouse of this scale may not be feasible within an urban area, but a scaled down version capable of fulfilling the last mile to end customers could be. The tech-rich format of the warehouse and the use of robots operatives will mean warehouses will need secure, fast internet connectivity and efficient, tall buildings.

EAST PLUS (LONDON, UK)

Location: East London, UK

Area: 35ha with an estimated yield of 130,000sqm of new industrial floorspace

Employees: Estimated 4,400 employees (equivalent to ratio of 1 job/30sqm)

Evolution and Overview:

The Greater London Authority (GLA) permitted the re-purpose of industrial sites in some East London locations in order to facilitate new mixed-use developed tied to infrastructure. However, it also recognises the imperative of providing new industrial land within the urban area capable of serving the needs of an expanding population, particularly in the context of rising e-commerce. The East Plus project seeks to ensure that sufficient provision is made for industrial and logistics uses in the future.

East Plus encompasses five brownfield sites owned by the GLA. The GLA agreed a partnership with SERGO, an industrial Real Estate Investment Trust, to redevelop the land for modern industrial uses aligned to occupier demand. Development is currently underway and to be phased over a 10 year period.

Key Elements and Supporting Infrastructure:

The new industrial floorspace to be built will be aligned towards urban logistics and light industrial users. It is intended to satisfy demand from a range of business sectors. Features of the redevelopment plans include:

- A mix of floorspace sizes from 46sqm to 14,000sqm;
- An ‘innovation village’ catering for start-ups, SMEs and large corporates;
- Large format retail, logistics and hotel uses on land fronting the A13, the areas main road access link;
- A ‘sustainable industries park’ which will cater for occupiers who can prove they have sustainable credentials;
- Various speculative and design and built opportunities for warehousing and logistics uses. These seek to ensure agility and flexibility meaning that occupiers can develop purpose built premises specifically to their needs.

Infrastructure improvements are a central component of East Plus. The area benefits from direct access to the A13 but the integrated strategy will focus on accessibility by foot, bicycle and public transport too. This is intended to embed the industrial uses in the surrounding residential area and labour market. An important part of the regeneration process is a training and education program which seeks to up-skill and recruit the local workforce.

Source: SERGO (2016)

The planning philosophy behind the rejuvenation of land at East Plus is embodied in the strategy laid out in the Greater London Plan. This guides development within London and is a material planning consideration.

In terms of industrial land the Greater London Plan recognises that:

"Even an increasingly service-based economy needs space for less high-value activities crucial to sustaining the city's metabolism, including 'services for the service sector', manufacturing and maintenance, waste management and recycling, wholesale and logistics. Sufficient space to accommodate demand for workspace suitable for SMEs and for new and emerging industries is also required including for the needs of micro-firms". (Mayor of London, 2016, Para 4.18).

It recognises the potential for industrial land to meet the city's growing housing needs. It seeks to achieve a balanced approach by making more efficient use of industrial capacity by densifying industrial development on appropriate sites whilst releasing surplus industrial capacity for strategic development, primarily housing. Surplus industrial land should be focused on public transport nodes.

SILVERTOWN (EAST LONDON, UK)

Location: East London, UK

Area: 79ha of industrial land in East London being re-purposed

Tenant: Under development

Employees: Estimated 21,000 employees (all non-industrial)

Evolution and Overview:

Silvertown is a suburb of east London, situated on the northern banks of the River Thames and adjacent to London City Airport. Manufacturing uses were first established in the area in the 19th century with factories producing rubber, chemical, petroleum and sugar. At its peak 100,000 people were employed in the area (BBC, 2015).

The area's fortunes changed in the 20th century with the UK's structural shift away from manufacturing uses. In addition, the emergence of containerisation meant water-based logistics needed deeper water ports. Trade moved eastward towards the North Sea to London Gateway, meaning the accessibility benefits of Silvertown as an industrial location were vastly diminished. Accessibility was restricted to the local road network which was over-capacity.

Source: http://www.silvertownlondon.com/

In 2015, the London Borough of Newham Council permitted a £3.5 billion redevelopment of the area to deliver new offices, 3,000 new homes and community uses. This change of use reflects the significant demand for housing and office space in London in addition to infrastructure improvements facilitating transformation. Crossrail, London's new high capacity east-west rail-link, is due to commence operations later in 2018. A new station near to Silvertown significantly increases its potential to accommodate dense residential and commercial uses.

Key Elements and Supporting Infrastructure:

Silvertown is an example of an industrial area transitioning to alternative mixed uses. Due to the changed operational factors explored previously, the industrial land in this location had lost its appeal to industrial occupiers. The underlying characteristics which made the location viable for industrial uses had largely been eroded and it was not well aligned to the emerging opportunities in the logistics sector. The redevelopment was infrastructure driven, largely as a result of Crossrail but also as a means of capitalising existing connections on the Docklands Light Railway (DLR). Derelict warehousing on site offered ripe potential to be adaptively re-used for retail, commercial and residential uses.

The Silvertown area was previously zoned as a Strategic Industrial Location (SIL) in local planning documents. It was publicly owned by the Greater London Authority (GLA). In order to deliver new housing in the area the GLA changed the permissible land uses to allow mixed-use development. Other SIL sites deemed to be misaligned to industrial uses or which were deemed to be capable of delivering a better community outcome through redevelopment in conjunction with the new Crossrail project were also rezoned. In total 79 hectares of SIL land were released in East London, with 10 ha of new SIL land designed (Greater London Authority, 2013). The net loss of 69 ha represented a 24% reduction in total SIL designated land which had previously existed.

Source: http://www.silvertownlondon.com/

MULTI-STOREY WAREHOUSING (PARIS, FRANCE)

Location: Inner city Paris, France

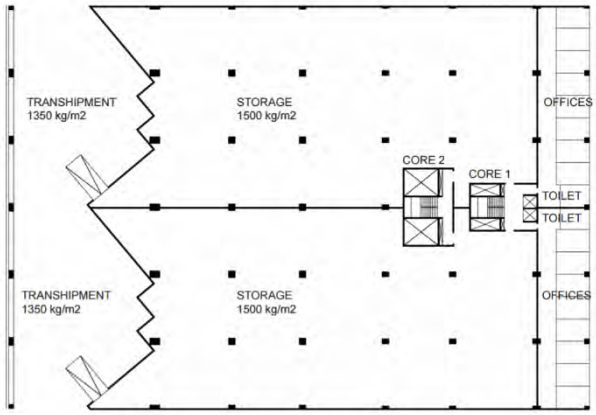
Area: Multi-storey warehousing of 120,000sqm in Entrepôt Ney

Evolution and Overview:

Entrepôt Ney is three-storey ramped warehouse situated in inner city Paris. It is an example of new models of industrial warehousing which may be seen more widely to satisfy the need for logistics uses in dense urban areas. The site is situated adjacent to a junction of a major vehicle route and has direct rail access, albeit the rail line is not currently in use.

Key Elements and Supporting Infrastructure:

The Entrepôt Ney warehouse facility is operated by GEODIS, a global supply chain operator. With more and more companies of all sizes needing logistics capacity, business outsourcing of logistics function is growing. The model GEODIS delivers logistics as a service which occupiers paying as they need it, rather than paying to maintain their own supply chain which may not be feasible for smaller businesses. Entrepôt Ney sustains around 40 different companies in sectors ranging from fashion to transport and logistics. Typical floorplates are 3,000sqm each. The highest rents achieved on the lowest floors and rental levels decrease on each upper levels.



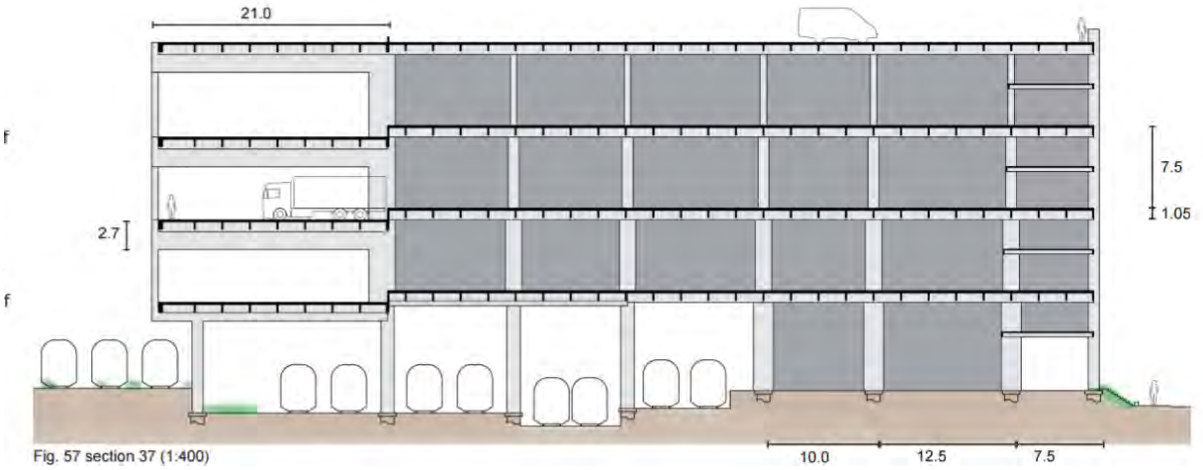


Fig. 57 section 37 (1:400)

Source: Lennart Snoek (2014)

MULTI-STOREY WAREHOUSING (PARIS, FRANCE)

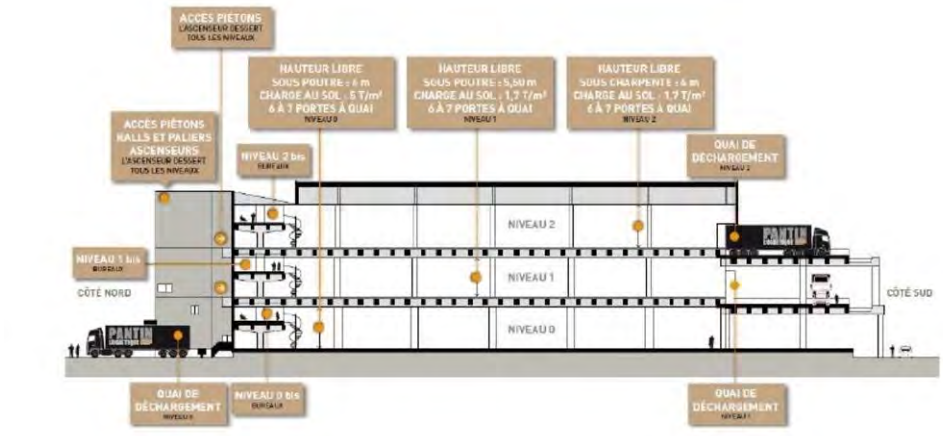
Location: Inner city Paris, France

Area: Multi-storey warehousing of 150,000sqm in Pantin Logistique

Tenants: GEODIS, Hermès, La Poste, Louis Vuitton

Evolution and Overview:

Another Parisian multi-storey warehouse facilities is Pantin Logistique, Périphérique. This larger facility functions primarily to service the fashion sector. Louis Vuitton and Hermès use this facility to fulfil their Paris stores and online orders. La Poste, France's equivalent to Australia Post, also operates from Pantin Logistique. Rental values for ground floor space is approximately double that of top floor space.



Source: JLL (2017)

Demand for outsourced supply chain operators will increase with the growing integration of e-commerce and other platforms. Many retailers and other businesses will need to invest heavily in supply chains to meet the changing expectations of consumers. This is likely to fuel strong demand for supply chain operators. These facilities also have the advantage of making efficient use of land because the product fulfilment needs of a suburb can be served from one site, rather than needing to provide a separate industrial site for business.

APPENDIX E: HIGH-TECH BUSINESS PARKS

The Case Study Analysis carries out a review of business parks located in Australia. Reviewing what has been done elsewhere and critical elements required for development will assist in determining the strengths, challenges and competitiveness of precincts in Cumberland to be attractive to groups who require tenancies in business parks.

NORWEST BUSINESS PARK (NSW)

Location: NSW, Australia

Area of Park: Approximately 377ha (221 ha for business use and 122 ha for residential purposes)

Tenants: IBM GSA, Schneider, Woolworths, B Braun, ResMed, Capital Finance, the Reserve Bank of Australia and the Optus Data Centre.

Employees: Over 20,000 employees

Evolution and Overview:

Early 1990s	Development commenced.
2000	Major companies included the national headquarters of Woolworths, Resmed and Wyeth Australia. Other companies involved in hi-tech operations also began moving to the park.
2008	The park grew to employ around 17,000 people and featured the Norwest Private Hospital.
2014	Additional facilities including neighbourhood shopping centre, hotel and medical facilities.

Norwest Business Park has grown into a thriving community accommodating for over 400 companies. Over this time the Park has evolved to meet the high demand for office space for small and medium businesses. Historically an area focussed on industrial development, the Norwest's office and retail space has helped diversify the area towards a full range of commercial, industrial, retail, recreational, hotel, residential and community uses.

Norwest is strategically located less than 5 minutes from Sydney's orbital motorway system, providing tenants with easy access to the CBD, airport and Sydney's manufacturing and distribution areas. Access to the park is supported by direct bus services and two North West Rail Link stations.

Key Elements and Supporting Infrastructure:

As a full service, self-sufficient area, the Park plays a key role within The Hills Shire. In addition to four retail centres, the Park provides amenities such as:

- Post office/banks (business and retail).
- Restaurants, bars and cafés.
- Child-care centres, gyms, dry cleaners.
- Shopping centres with supermarkets and a Bunnings Warehouse.
- Over 30 hectares of lakes, waterways and parklands.

Source: Norwest Business Park

MACQUARIE BUSINESS PARK (NSW)

Location: NSW, Australia

Area of Park: 200ha

Tenants: Approximately 300 companies including Microsoft, Oracle, Sony, Optus, Johnson & Johnson, Goodman-Fielder and Foxtel.

Employees: Approximately 45,000 employees

Evolution and Overview:

1963	'Green belt' land rezoned to allow for residential and industrial development Macquarie University and the Macquarie Park Employment Area established.
1970s	High-tech companies began locating their headquarters at the Park.
1990s	Became home to several multinational corporations Over the decade, office floorspace became increasingly dominant over production floorspace High volumes of patent applications lodged from the area, generally though commercialisation of university research ideas
2002	85 hectares: 29,000 employees
2014	200 hectares: 300 companies and 45,000 employees

Nationally recognised as a leading high-tech industrial area and Sydney's fastest growing business centre, Macquarie Park has gained a reputation as Sydney's emerging suburban CBD.

Macquarie Park is characterised by its corporate prestige and has grown to become a key employment hub in Sydney. Over 300 of the Park's businesses leverage access to its world-class facilities and cutting edge infrastructure with strong links to the local talent pool of over 30,000 students from Macquarie University (ranked one of Australia's top 10 universities in 2013).

Many of Australia's Top 100 companies reside in the Park, specialising in industries such as pharmaceutical, technology, electronics and telecommunications. Census data reveals that between 2006 and 2011, the number of people employed in Information Media and Telecommunications almost tripled with an additional 5,150 new jobs.

Key Elements and Supporting Infrastructure:

Only 12 kilometres northwest of Central Sydney, the Park's prime location has supported its continuous growth over the years providing occupants with easy access to Sydney's CBD and Parramatta. In addition, a multi-modal public transport system directly services the Park, including 30 bus routes and trains leaving every 15 minutes.

Macquarie Park offers state-of-the-art sports and leisure facilities and a range of cultural events. Amenities include a hospital, library, cafes, restaurants, and various local services such as a gym, sports and aquatic centre, childcare centre, pharmacy and a primary school.

Source: http://macquariepark.com.au/

BRISBANE TECHNOLOGY PARK (QLD)

Location: QLD, Australia

Area of Park: Over 33ha

Tenants: Cook Medical Australia, Zernike Australia, KarelCAD, Alchemia and Shortech International

Employees: More than 2,200 employees

Evolution and Overview:

Development commenced in 1986 by the Queensland Government to promote and foster technology-based industries. Brisbane Technology Park was modelled on Silicon Valley's business precinct in California. Graystone was appointed development managers in 2001.

Brisbane Technology Park (BTP) is home to over 120 local, national and intentional businesses offering world class facilities and fostering a community of like-minded technology and research focussed businesses. As Queensland's premier business park, occupants actively leverage access to information, technology, talent and innovation, which resides in the park by applying and growing the research and development of their own businesses. This synergy has led to a growth in demand for space, creating a thriving hub of innovative R+D and technology firms.

The park has developed to accommodate companies working across industries such as biotech, health and medical, mining, communications, electronics and software development and a range of companies providing business support services.

Key Elements and Supporting Infrastructure:

Facilitating a wide range of high technology companies is the Park's high quality IT connectivity. Fibre optics drive the Park's 100Mbps/ 100Mbps (download/ upload) internet connection with onsite technical and audio-visual support for data streaming and video conferencing.

Amenities include a conference centre with boardroom and meeting room facilities, cafes, restaurants, access to public transport, abundant car parking and business support services and networking opportunities.

Positioned strategically between major roads connecting to Gateway Motorway and the South East Freeway, the Park gives occupants easy access to the Brisbane CBD, domestic and international airports and the Gold Coast. BTP is supported with a high level of connectivity to public transport with buses running directly to area.

An additional $300m investment partly funded by the State Government has been announced by local property company Graystone and involves three new precinct projects planned to 2020.

Source: http://www.btpinfo.com.au/precincts/btp-brisbane-technology-park/about/

CARIBBEAN BUSINESS PARK (VIC)

Location: VIC, Australia

Area of Park: Approximately 180ha (with a new 20ha office precinct)

Tenants: Hallmark Cards, Target, Rheem and Metabo.

Employees: Estimated 4,000 employees

Evolution and Overview:

Early 1980s	Established by The Caribbean Group.
2001	31 buildings had been built and developed
2008	First application submitted for commercial office space in the Park.
2012	The Park was one of five finalists in the Property Council of Australia 2012 National Innovation and Excellence Awards. Key investors in the park have been the Caribbean Group and Wilkore. The vibrant commercial and industrial centre has been in operation for over 30 years
2013	A state-of-the-art office precinct opened with 20ha of space.

Located in Melbourne's South East, the Caribbean Business Park offers a range of industries with a unique combination of offices, manufacturing and logistics precincts, technology-based incubators and campus style facilities. The Park's position, providing for sweeping views across Mount Dandenong and Lake Caribbean, makes for a prestigious and innovative business setting.

Key Elements and Supporting Infrastructure:

Buildings are designed to with large windows and natural light connected open spaced offices with the landscaped environment outside. Facilities at the Caribbean Business Park are built to Green Star environmental codes and buildings offer access to the latest information communications technologies and infrastructure.

On site are various amenities such as ample car parking, a café and restaurant, as well as a conference space including flexible meeting rooms. A range of industries based in the Park make use specialised pharmaceutical and biotech facilities with fitted out laboratories in addition to warehousing and storage space options.

The Park's location gives tenants direct access to EastLink and with Monash Freeway only 5 kilometres access to Melbourne's CBD in under 30 minutes. The Park is further accessible with bus routes stopping right in front of the precinct and bike paths connecting the Park to Melbourne's Eastern Corridor.

Source: http://www.eiregroup.com.au/commercial/

APPENDIX F: TECHNOLOGY CLUSTERS/ INNOVATION HUBS

CHANGI BUSINESS PARK (SINGAPORE)

Location: Changi South, Singapore

Area of Park: 71.1ha

Employees: Over 20,000

Landowner/Developer: JTC Corporation

Evolution and Overview:

1997	Launched as part of the Government's plan to decentralise economic activities
2008	6,000 staff
2012	Capri by Fraser hotel opened in January
	Changi City Point Mall opened in April. Receives approximately 1 million visitors per month
2013	Park's staff total 24,000 Completion of Changi City ($550 million mixed-use development by Ascendas Land (Singapore) and Frasers Centrepoint Opening of office block One@Changi City

The business park's growth was supported by the many amenities and infrastructure put in place over the past few years and also a ready labour pool from the nearby suburban towns of Tampines and Simei.

Developed by JTC, Singapore's leading industrial infrastructure specialist, Changi Business Park (CBP) was launched in 1997. Strategically located adjacent to Changi Airport, the Aviation Distri-Zone and various logistics facilities, a major attraction for investors to CBP is the simplification the park offers for transport and logistics arrangements. While its location leads to considerable cost savings for businesses, the park provides a landscaped environment offering a modern work environment for forward-looking businesses.

CBP is situated in eastern Singapore and supported by an energy saving District Cooling System. Tenants within the park are particularly high-technology businesses, data and software enterprises, research and development divisions of multinational companies and knowledge-intensive enterprises. The district cooling system was the first in operation in Singapore and today serves CBP's businesses by generating about 30,000 RT (refrigeration tonnes) to meet the cooling load demand of around 60 businesses.

The park is serviced by a shuttle bus service with regular routes to Metro Rail stations and Changi Airport. CBP also offers various facilities such as the Changi City Point mall, a Fitness First gym, cafes and eateries, a supermarket and a hotel.

As of October 2011, the park's distribution of land use was 71.8% Business Parks (47.8ha), 10.2% Public Green (6.8ha), 0.5% Drainage Reserve (0.3ha) and 17.5% Road (11.7ha). Land is allocated for a tenure of 30 years with companies free to construct their facilities on the land allocated to them.

Key Elements and Supporting Infrastructure:

- **Commercial Offices**
  The Park provides a range of different office types which are set within landscaped grounds. Land is allocated to occupiers for a tenure of 30 years and occupiers have the ability to purpose built these on their land as they wish. Office buildings are low to mid-rise.
- **Retail/entertainment**
  Changi City Point Mall is a factory outlet centre serving workers on the park and residents in the wider area. Changi Business Park often provides retail, restaurant and fitness facilities for workers within office buildings. The park encompasses a hotel which serves visiting workers primarily and is situated adjacent to the UE Convention Centre.
- **Residential**
  Residential uses are provided within and adjacent the site which are supported by educational uses and localised shopping facilities.
- **Transportation**
  Situated in close proximity to Singapore Changi Airport and metro rail stations to which the local shuttle bus facilitates easy access. Local bus services also operate across the park.

Key Occupiers/tenants:

- Citibank
- Credit Suisse
- Honeywell
- IBM
- Invensys
- Standard Chartered Bank
- Ultro Technologies
- Xilinx

Changi Business Park Hotel

KINGS CROSS CENTRAL (LONDON, UK)

Location: Central London, United Kingdom

Area of Park: 27ha (ULI, 2014)

Employees: 16,800 (approx.)

Landowner/developer: Kings Cross Central Limited Partnership (comprised of private developer Argent and state-owned entities London & Continental Railways Limited, DHL Supply Chain)

Evolution and Overview:

1996	Decision confirmed to move the Eurostar high-speed railway (Channel Tunnel Rail Link) from Waterloo to St Pancras. This creates the catalyst for redevelopment of the derelict railyards at Kings Cross.
2001	Development partnership formed between property developers Argent and St George (who dropped out in 2004) and the landowners London and Continental Railways (LHS) and DHL.
2006	Planning Permission for the main estate secured following 6 years of negotiations. Development caps imposed of up to 455,500sqm office, 46,000sqm retail, 47,000sqm hotel and serviced apartments, up to 194,600sqm residential and balance dedicated to institutions and leisure. The plan included flexibility so that the scheme could be adapted to market conditions, for example by bringing forward certain parts of modifying land uses/ individual buildings.
2007	Valuation of site after planning permission and completion of Channel Tunnel Link. Valuation to inform structure and quantum of share for land injection into KCCLP (Kings Cross Central Limited Partnership which is comprised of Argent LLP and landowners London and Continental Railways and DHL Supply Chain). A discount to the acquisition price was calculated based on an inverse relationship to value, thereby incentivising Argent to optimise value of the scheme and avoid LHS and DHL selling out before rail completion. Early plot sales were undertaken (on long leases) only to Borough of Camden, Google and BNP Paribas on the basis there were long term owners and wouldn't trade out. Construction begins St Pancras International rail terminal opens

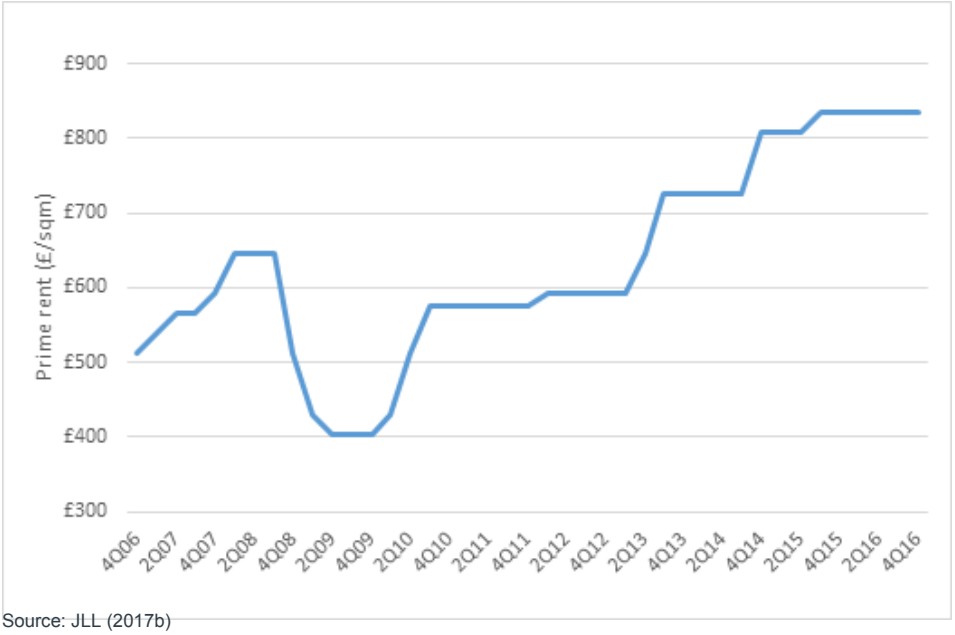
2008	KCCLP officially formed (50% Argent, 36.5% London and Continental Railways Limited, 13.5% DHL Supply Chain). Argent's subsidiary is the developer and asset manager, backed by Argent LLP and Hermes Real Estate on behalf of BT Pension Scheme. A joint collective ownership acquisition and development agreement was in place between Argent and landowners.
2011	University of Arts moves in Granary Square, one of the largest public squares in Europe, completes The first commercial office and retail units complete Occupation of the first residential home
2013	Google pre-commits to Kings Cross Central as the site of their London operations base
2014	50% of space pre-committed or sold
2015	Australian Super acquires a 25% stake as part of a piecemeal shareholding dilution in the partnership from Argent/Hermes and DHL.
2016	LSE/DHL sell their remaining partnership stake to Australian Super who become the majority stakeholder with Argent retaining 32.5% on behalf of BT Pension Scheme Google significantly increases its pre-commitment to the scheme making this the largest Google site outside of Silicon Valley
2020	Expected project completion

Kings Cross has undergone a remarkable turnaround over the last two decades. Previously disused railway land it has been reinvented as a mixed-use urban precinct providing high-quality jobs, new homes, educational uses, entertainment uses, retail uses, public art and open space.

The scheme blended adaptively reused heritage buildings with new offices at the forefront of modern design. The public private partnership approach between the developer and government landowner secured beneficial outcome for all partners. It spread risk, timed valuations for post-development and incentivised the developer to maximise the commercial value of the scheme. It ensured that public benefits were delivered first, including a new public transport interchange and the Granary Square area of public open space. The partnership allowed a holistic approach taken which viewed the whole precinct as one development.

The successful regeneration of Kings Cross was confirmed when Google choose the site for their London base in 2013 and significantly expanded its commitment in 2016. King's Cross has experienced the strongest growth in interest from startups looking for space out of any Central London submarket over the last year (CityAM, 2017).

Figure F.1: Kings Cross Prime Rents, 2006-2016



Source: JLL (2017b)

Prime rental growth in Kings Cross is testament to the areas turnaround as depicted in **Figure F.1**.

Between December 2006 and December 2016, prime rents in Kings Cross have increased from £511 per sqm to £834 per sqm. This equates to an increase of 63% or an average annual growth of 5%. This is the strongest rental increase of any West End London market and the second strongest rental increase over the period in Central London for this period. The strongest rental increase was recorded in Shoreditch, London's organic innovation hub.

Key Elements and Supporting Infrastructure:

- **Commercial Offices**
  Google's headquarters will be the focal point for the office uses and the anchor tenant. The scheme ingrained flexibility which allowed Google to remodel the approved commercial building and purpose-build it to their requirements. Commercial uses are spread across the site in 19 different buildings. These provide a range of workspace types including brand new product and adaptively reused space. There are offices of different sizes available, with Office Group managing flexible office space.
- **Retail/entertainment**
  Retail and entertainment anchors carefully chosen to ensure diversity and broad attraction. Different retail types are included in distinct clusters, ranging from eat-street market through to boutique/luxury designer hub.
- **Residential**
  The scheme includes 13 different residential developments and nearly 2,000 dwellings. Dwelling types are mixed although family dwellings dominate provision. The tenure is mixed, including provision for affordable housing, social housing, student housing, key worker housing and private housing.
- **Public Open Space**
  39% of the land area was provided as public open space. Provision of public open space aimed to attract users throughout the day and week. It also helped to attract tenants too. The public open space comprises a mixture of styles and terrains which change seasonally.
- **Public Transport**
  The development puts first emphasis on walking, cycling, and public transport. It is highly accessible by public transport being served directly by six London Underground lines, two national mainline train stations, and an international high-speed rail connecting to Paris. Very little road traffic runs across the site.

Key Occupiers/tenants:

- Google
- Havas
- Louis Vuitton
- New Look
- Universal Music
- Nike (retail)

Pancras Square

SHOREDITCH (LONDON, UK)

Location: Central London, United Kingdom

Area of Park: 160ha (ULI, 2015)

Employees: 150,000 (approx..)

Landowner/developer: Various. The area evolved organically as the UK's largest, and one of the world's largest, tech clusters. It encompasses multiple property assets and multiple owners.

Evolution and Overview:

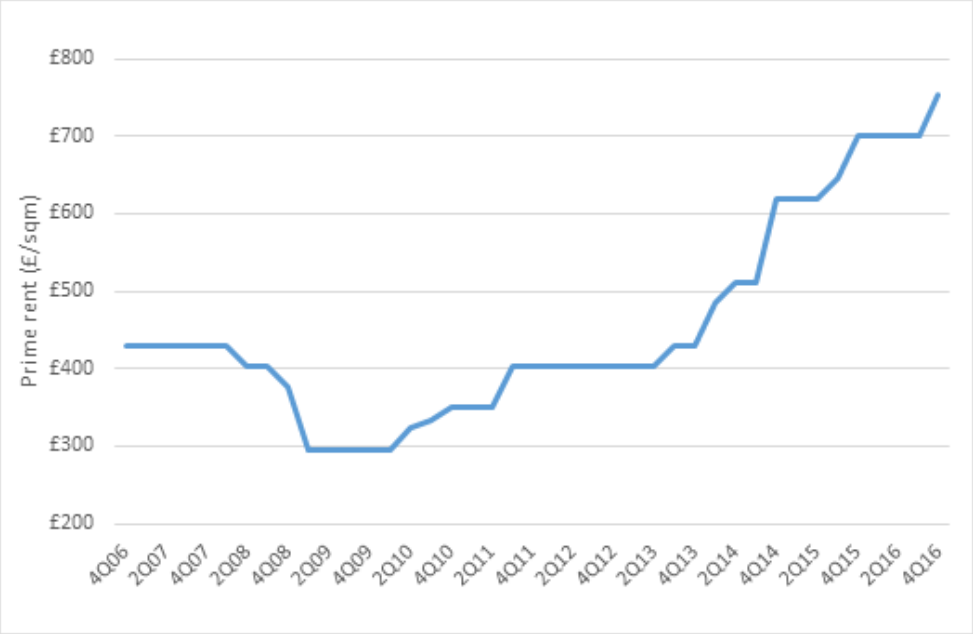
2008-09	Shoreditch had traditionally been a cheaper, relatively poor quality alternative to offices in the City of London for the professional services sector. Following the GFC, many large occupiers in the area closed leaving large offices vacant.
2009	Attracted by the cheap rents, proximity to the City of London and the retail/ entertainment amenity of the area, start-up innovative and tech firms started to colonise the area. 15 start-ups in Shoreditch (Startups, 2016)
2010	In recognition of the developing hub and its importance to the city and national economy, the UK Government set up Tech City UK to support the sector. Tax breaks for investors in early-stage companies were also increased via the Seed Enterprise Investment Scheme. This helped to stimulate the exponential growth of new start-ups in the hub.
2012	Google opens a Campus adjacent to the Old Street roundabout
2014	6,960 start-ups in Shoreditch (Startups, 2016)
2017	Amazon's new headquarters due to open at Principal Place, Shoreditch

Shoreditch and the Old Street roundabout, or Silicon Roundabout, is the original home of UK's new tech sector. The area developed organically as an affordable and enjoyable place to set up a start-up company. As the hub evolved and developed a critical mass of occupiers and supporting infrastructure, mainstream companies and their technology departments were attracted.

Today Shoreditch is an international tech powerhouse. It has 8 x more tech firms than any other UK hub (TechCity News, 2015). It caters to a mix of established, global companies like Google and Amazon whilst also hosting start-ups and scale-ups with a range of office floorspace to suit all stages of the business lifecycle.

In December 2006 prime rents in Shoreditch were £40/sqm. In December 2016 prime rents stood at £70/sqm. This represents growth of 75% over the 10-year period (average annual growth of 5.8%), the strongest growth rate of any London sub-market. **Figure F.** demonstrates prime rental change in Shoreditch over the last 10 years. The suburb has recorded the largest rental increase of any London submarket over this period, reflective of the desirability of this hub to occupiers and the strength of demand for floorspace here.

Figure F.2: Shoreditch Prime Rents, 2006-2016



Source: JLL (2017b)

Key Elements and Supporting Infrastructure:

- **Commercial Offices**
  Shoreditch excels in having a range of office formats to suit all types of occupiers. This covers dozens of co-working, incubator and serviced office spaces, former warehouses and industrial buildings adaptively reused for offices, and brand new office towers;
- **Retail/entertainment**
  Shoreditch is renowned for a 'hipster' vibe. It combines independent coffee shops, cafes and retailers with weekend clothes markets and more mainstream retailers. It has a vibrant nightlife of pubs, bars and clubs meaning the area is activated 24/7;
- **Residential**
  The hub is situated close to the existing and emerging residential areas of east London, an area which has the youngest demographic profile of any part of London. The young, international talent pool within a short commute of Shoreditch is a major attraction to businesses. The suburb itself has traditionally had relatively low levels of residential dwellings. That is now changing with a number of schemes having been developed or planned to increase residential provision locally;
- **Public Transport**
  The hub well connected to the public transport network. Old Street roundabout is built on top of an underground station. Various underground and overground stations are situated within the suburb. This includes Liverpool Street station which connects to the national rail network. Cycle accessibility is good with dedicated cycle ways and bike racks within the public realm. Most buildings include end-of-trip facilities.

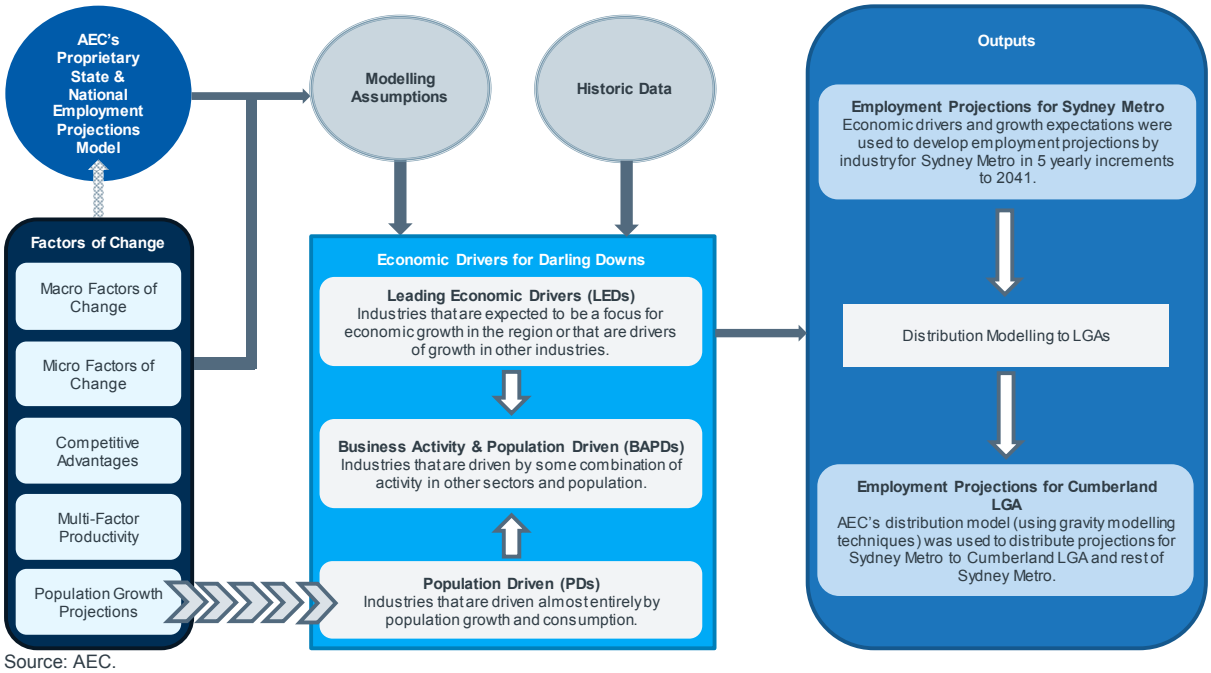
Key Occupiers/tenants:

- AirBNB
- Amazon (2017)
- Expedia
- Farfetch
- Google
- Transferwise
- Uber

APPENDIX G: EMPLOYMENT PROJECTIONS APPROACH

The approach used in developing employment projections for the Cumberland local government area (LGA) is summarised in Figure G.1, and described in more detail below.

Figure G.1. Overview of Employment Projections Modelling Approach



Source: AEC.

DATA INPUTS

- Research regarding existing, emerging and expected future change factors (e.g. micro- and macro- factors, competitive advantages of the Greater Metro Sydney (GMS) region (relative to other regions in NSW), multi-factor productivity and population growth and projections).
- AEC's proprietary Employment Projections Model (EPM) for NSW was used to generate state-level projections of employment to 2041 by 1-digit ANZSIC (Division level). This provided a baseline for employment and economic growth in the state, as well as baseline expectations for productivity changes.

The EPM applies statistical regression techniques to project future employment, using historical relationships between employment, gross value added production and productivity, combined with published future projections for Australian and NSW economic growth (i.e. Gross Domestic Product and Gross State Product).

Employment growth projections are also tied to projections of population (and labour force participation) to ensure projections of employment remain within an acceptable bound.

The EPM intrinsically incorporates historic trends in the regression analysis, however, the model is sufficiently flexible to include, and was adjusted to incorporate, the findings and understanding from research surrounding the emerging and expected macro trends into the modelling by adjusting future productivity curves according to expectations for change.

- Historic/ current employment and economic activity (using AEC's proprietary Gross Regional Product model) for GMS and Cumberland regions.

REGIONAL EMPLOYMENT BY INDUSTRY PROJECTIONS

Overview

AEC's Regional Employment Projections Model (REPM) was used to develop projections of economic activity and employment across 70 industries for the GMS region, based on expected real growth rates in production by industry, changes in productivity per employee, projected population growth, and inter-industry relationships. In developing industry growth rates, industries were classified into one of three categories:

- **Leading Economic Drivers (LEDs)**, which are the industries that are either expected to be a focus for economic growth in the region or that are drivers of growth in other industries.
- **Population Driven (PDs)**, which are industries that are driven almost entirely by population growth and consumption.
- **Business Activity + Population Driven (BAPDs)**, which are industries that are driven by some combination of activity in other sectors and population (this relationship was determined using an Input-Output transaction table developed specifically for the GMS region using AEC's Regional Transaction Table Builder).

AEC's Regional Transaction Table Builder uses the national Input-Output transaction table from the Australian Bureau of Statistics and employment by industry data for the region and Australia from the Census of Population and Housing. A range of mathematical formulae are used to 'regionalise' the national table based on the proportion of national employment the region of interest contributes in each industry. The formulae used are in line with the 'Demand-Pool' and 'Cross Industry Location Quotient' approaches outlined by Dr Guy West (1993).

The REPM was used to develop employment projections for the GMS region. These projections were then disaggregated to Cumberland and rest of GMS in a separate process. See the following sub-section titled 'Distribution to Cumberland LGA' for details of this process.

NSW 1-Digit ANZSIC Industry Growth Rates

Industry growth rates for value added and employment at the 1-digit ANZSIC level were developed using AEC's NSW EPM. A summary of historic (ABS, 2017c; ABS 2016a) and projected (from the NSW EPM) value added activity and employment for NSW are presented in Table G.1.

Table G.1. NSW Historic & Projected Growth (Value Added Activity & Employment), Average Annual

Industry (1-digit ANZSIC)	Value Added Activity			Employment		
	2000 to 2016	2016 to 2026	2026 to 2041	2000 to 2016	2016 to 2026	2026 to 2041
Agriculture, forestry and fishing	1.2%	0.6%	0.4%	-1.7%	-1.0%	-0.7%
Mining	3.5%	2.7%	1.6%	4.8%	2.6%	1.6%
Manufacturing	-0.1%	0.5%	0.3%	-1.0%	-0.3%	-0.3%
Electricity, gas, water and waste services	0.2%	-0.1%	-0.2%	3.0%	-0.8%	-0.6%
Construction	1.6%	1.4%	1.0%	1.8%	0.7%	0.5%
Wholesale trade	1.5%	0.9%	0.6%	-1.0%	-0.5%	-0.4%
Retail trade	2.7%	2.1%	1.3%	1.2%	1.1%	0.6%
Accommodation and food services	1.6%	1.3%	0.7%	1.7%	1.4%	0.9%
Transport, postal and warehousing	2.4%	2.2%	1.2%	1.8%	1.2%	0.5%
Information media and telecommunications	3.7%	2.9%	1.7%	0.2%	1.2%	0.6%
Financial and insurance services	3.9%	3.3%	2.0%	1.6%	1.7%	0.9%
Rental, hiring and real estate services	0.7%	1.6%	0.7%	1.8%	2.0%	1.2%
Professional, scientific and technical services	2.2%	2.8%	1.8%	3.7%	2.4%	1.6%
Administrative and support services	0.6%	0.7%	0.7%	2.4%	1.0%	1.0%
Public administration and safety	1.7%	1.1%	0.7%	2.5%	1.3%	1.0%
Education and training	1.5%	1.1%	0.5%	2.4%	1.6%	1.1%
Health care and social assistance	3.9%	2.6%	2.4%	3.3%	2.2%	2.2%
Arts and recreation services	2.1%	1.6%	0.8%	3.7%	2.1%	1.4%
Other services	0.0%	1.1%	0.6%	0.5%	0.5%	0.3%

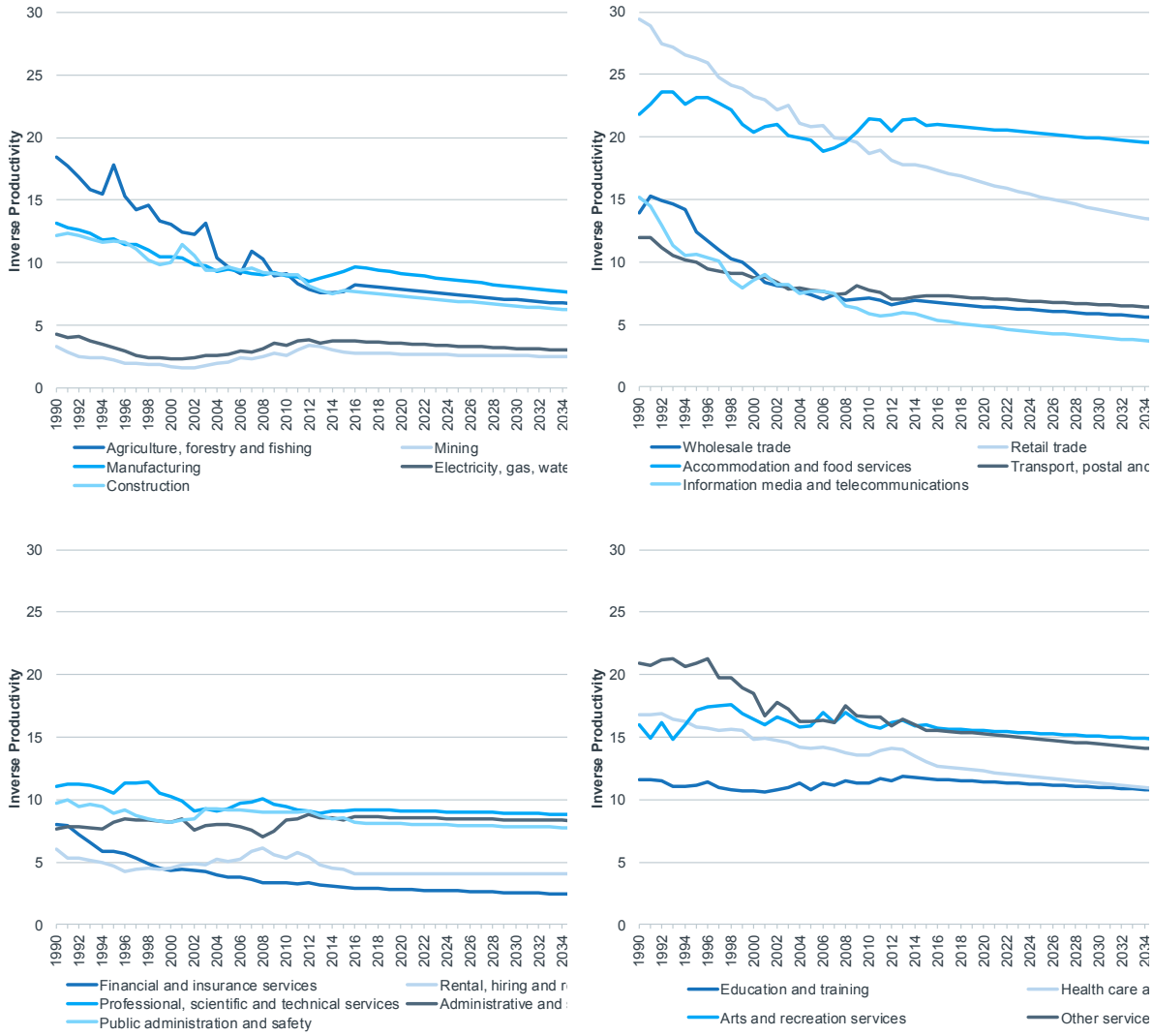
Source: ABS (2017c), ABS (2016a), AEC.

In developing the employment projections in Table G.1, projections of productivity per employee (value added activity per employee) were developed using linear regressions based primarily on historic productivity increases between 1990 and 2016. Depictions of projected productivity increases for each 1-digit ANZSIC industry are provided in Figure G.2 below. Note the inverse productivity is shown, i.e., the number of employees required to produce $1M in value added activity for each industry (where a decline in inverse productivity translates to an improvement or increase in production per employee).

In developing these productivity curves, micro- and macro- factors were considered and implications applied as appropriate, in addition to the historic trends observed. Adjustments were made to the following industries:

- **Mining**: Regression from 1990 to 2016 estimated declining productivity. Productivity calculation for projection period amended to reflect historic change between 1990 and 2010, as this excludes much of the significant fluctuation introduced by the commodity price boom in mid to late 2000s.
- **Electricity, Gas, Water & Waste services**: Regression from 1990 to 2016 estimated declining productivity. While it is anticipated future productivity growth will be impacted by ongoing transition to less efficient power sources (e.g. renewables), over time efficiency is expected to improve. The productivity calculation for projection period was amended to reflect historic change between 1990 and 2010, to remove much of the impact of renewable energy targets in recent years.
- **Construction**: Productivity increased significantly between 2011 and 2016, well above historic average change. This is likely a reflection of a shift over this period to higher value construction jobs, as well as inflated costs resulting from labour and skill shortages. It is not anticipated construction will continue to record above historic average productivity growth, and projections of productivity have therefore included 1990 to 2011 only.
- **Administrative & Support Services**: Large decline in productivity for this industry in 2010 significantly impacted the projections. Projections of productivity were therefore amended to reflect productivity change between 1990 to 2009.
- **Education & Training**: Productivity has been declining in this industry since 2011. However, it is expected that productivity will improve in this industry in the long term, as improved ICT infrastructure enables greater and more efficient levels of services delivery. Projections of productivity growth therefore amended to reflect changes between 1990 and 2010.

Figure G.2. Inverse Productivity Curves, NSW, Historic and Projected (Employees per $1M in Value Added Production)



Source: AEC

Productivity is a key component in the modelling for projecting future employment. Modelling in the first instance projects future economic growth in terms of gross value added activity (i.e., industry contribution to Gross Regional Product). Future gross value added activity is then converted to an employment estimate based on the projections of productivity outlined in Figure G.2.

Industries that are projected to record high productivity growth (represented by a curve declining more rapidly towards an inverse productivity of 0 in Figure G.2, e.g. retail trade) reflect industries that are expected to see the largest decrease in the number of employees required to produce every $1 million of the goods and services produced by that industry. Conversely, those industries presented in Figure G.2 that have a relatively small change in productivity (e.g. arts and recreation services) reflect industries that are expected to continue to require similar levels of employment to produce every $1 million of the goods and services produced by that industry.

Over time, this means every additional $1 million in economic activity (i.e. gross value added) produced by the arts and recreation services industry would generate more jobs in the GMS and Cumberland economies than for the same value of growth in economic activity in retail trade. At the same time, this also means the economic activity produced for each job in retail trade will increase faster than in arts and recreation services.

Industries Modelled in the REPM

In undertaking this study, 70 industries were examined and modelled in the first instance (these were later disaggregated to 4-digit ANZSIC). These 70 industries were a mix of 2-digit ANZSIC (Sub-Division level) and some aggregated 2-digit ANZSIC industries. The reason some 2-digit ANZSIC industries were aggregated was to ensure all industries corresponded with both the ANZSIC classifications (ABS, 2013a) as well as the industries represented in the national Input-Output transaction tables (ABS, 2016b), as transaction tables were used in developing employment projections (as outlined in the ‘Overview’ sub-section above).

The following table outlines all 2-digit ANZSIC industries and their correspondence to the 70 industries modelled, as well as 1-digit ANZSIC industries.

Table G.2. Industry Correspondence, 2-Digit ANZSIC to 70 Industries Modelled

2-Digit ID	2-Digit Industry Name	70 Industry ID	70 Industry Name	1-Digit ID	1-Digit Industry Name
1	Agriculture	1	Agriculture	A	Agriculture, Forestry and Fishing
2	Aquaculture	2	Aquaculture	A	Agriculture, Forestry and Fishing
3	Forestry and Logging	3	Forestry and Logging	A	Agriculture, Forestry and Fishing
4	Fishing, Hunting and Trapping	4	Fishing, Hunting and Trapping	A	Agriculture, Forestry and Fishing
5	Agriculture, Forestry and Fishing Support Services	5	Agriculture, Forestry and Fishing Support Services	A	Agriculture, Forestry and Fishing
6	Coal Mining	6	Coal Mining	B	Mining
7	Oil and Gas Extraction	7	Oil and Gas Extraction	B	Mining
8	Metal Ore Mining	8	Metal Ore Mining	B	Mining
9	Non-Metallic Mineral Mining and Quarrying	9	Non-Metallic Mineral Mining and Quarrying	B	Mining
10	Exploration and Other Mining Support Services	10	Exploration and Other Mining Support Services	B	Mining
11	Food Product Manufacturing	11	Food Product Manufacturing	C	Manufacturing
12	Beverage and Tobacco Product Manufacturing	12	Beverage and Tobacco Product Manufacturing	C	Manufacturing
13	Textile, Leather, Clothing and Footwear Manufacturing	13	Textile, Leather, Clothing and Footwear Manufacturing	C	Manufacturing
14	Wood Product Manufacturing	14	Wood Product Manufacturing	C	Manufacturing
15	Pulp, Paper and Converted Paper Product Manufacturing	15	Pulp, Paper and Converted Paper Product Manufacturing	C	Manufacturing
16	Printing (including the Reproduction of Recorded Media)	16	Printing (including the Reproduction of Recorded Media)	C	Manufacturing
17	Petroleum and Coal Product Manufacturing	17	Petroleum and Coal Product Manufacturing	C	Manufacturing
18	Basic Chemical and Chemical Product Manufacturing	18	Basic Chemical and Chemical Product Manufacturing	C	Manufacturing
19	Polymer Product and Rubber Product Manufacturing	19	Polymer Product and Rubber Product Manufacturing	C	Manufacturing
20	Non-Metallic Mineral Product Manufacturing	20	Non-Metallic Mineral Product Manufacturing	C	Manufacturing
21	Primary Metal and Metal Product Manufacturing	21	Primary Metal and Metal Product Manufacturing	C	Manufacturing
22	Fabricated Metal Product Manufacturing	22	Fabricated Metal Product Manufacturing	C	Manufacturing
23	Transport Equipment Manufacturing	23	Transport Equipment Manufacturing	C	Manufacturing
24	Machinery and Equipment Manufacturing	24	Machinery and Equipment Manufacturing	C	Manufacturing
25	Furniture and Other Manufacturing	25	Furniture and Other Manufacturing	C	Manufacturing
26	Electricity Supply	26	Electricity Supply	D	Electricity, Gas, Water and Waste Services
27	Gas Supply	27	Gas Supply	D	Electricity, Gas, Water and Waste Services
28	Water Supply, Sewerage and Drainage Services	28	Water Supply, Sewerage and Drainage Services	D	Electricity, Gas, Water and Waste Services
29	Waste Collection, Treatment and Disposal Services	29	Waste Collection, Treatment and Disposal Services	D	Electricity, Gas, Water and Waste Services
30	Building Construction	30	Building Construction	E	Construction

2-Digit ID	2-Digit Industry Name	70 Industry ID	70 Industry Name	1-Digit ID	1-Digit Industry Name
31	Heavy and Civil Engineering Construction	31	Heavy and Civil Engineering Construction	E	Construction
32	Construction Services	32	Construction Services	E	Construction
33	Basic Material Wholesaling	33	Wholesale Trade	F	Wholesale Trade
34	Machinery and Equipment Wholesaling	33	Wholesale Trade	F	Wholesale Trade
35	Motor Vehicle and Motor Vehicle Parts Wholesaling	33	Wholesale Trade	F	Wholesale Trade
36	Grocery, Liquor and Tobacco Product Wholesaling	33	Wholesale Trade	F	Wholesale Trade
37	Other Goods Wholesaling	33	Wholesale Trade	F	Wholesale Trade
38	Commission-Based Wholesaling	33	Wholesale Trade	F	Wholesale Trade
39	Motor Vehicle and Motor Vehicle Parts Retailing	34	Retail Trade	G	Retail Trade
40	Fuel Retailing	34	Retail Trade	G	Retail Trade
41	Food Retailing	34	Retail Trade	G	Retail Trade
42	Other Store-Based Retailing	34	Retail Trade	G	Retail Trade
43	Non-Store Retailing and Retail Commission-Based Buying and/or Selling	34	Retail Trade	G	Retail Trade
44	Accommodation	35	Accommodation	H	Accommodation and Food Services
45	Food and Beverage Services	36	Food and Beverage Services	H	Accommodation and Food Services
46	Road Transport	37	Road Transport	I	Transport, Postal and Warehousing
47	Rail Transport	38	Rail Transport	I	Transport, Postal and Warehousing
48	Water Transport	39	Water, Pipeline and Other Transport	I	Transport, Postal and Warehousing
49	Air and Space Transport	40	Air and Space Transport	I	Transport, Postal and Warehousing
50	Other Transport	39	Water, Pipeline and Other Transport	I	Transport, Postal and Warehousing
51	Postal and Courier Pick-up and Delivery Services	41	Postal and Courier Pick-up and Delivery Services	I	Transport, Postal and Warehousing
52	Transport Support Services	42	Transport Support Services and Storage	I	Transport, Postal and Warehousing
53	Warehousing and Storage Services	42	Transport Support Services and Storage	I	Transport, Postal and Warehousing
54	Publishing (except Internet and Music Publishing)	43	Publishing (except Internet and Music Publishing)	J	Information Media and Telecommunications
55	Motion Picture and Sound Recording Activities	44	Motion Picture and Sound Recording Activities	J	Information Media and Telecommunications
56	Broadcasting (except Internet)	45	Broadcasting (except Internet)	J	Information Media and Telecommunications
57	Internet Publishing and Broadcasting	46	Internet Publishing, Services Providers and Data Processing Services	J	Information Media and Telecommunications
58	Telecommunications Services	47	Telecommunications Services	J	Information Media and Telecommunications
59	Internet Service Providers, Web Search Portals and Data Processing Services	46	Internet Publishing, Services Providers and Data Processing Services	J	Information Media and Telecommunications
60	Library and Other Information Services	48	Library and Other Information Services	J	Information Media and Telecommunications
62	Finance	49	Finance	K	Financial and Insurance Services

2-Digit ID	2-Digit Industry Name	70 Industry ID	70 Industry Name	1-Digit ID	1-Digit Industry Name
63	Insurance and Superannuation Funds	50	Insurance and Superannuation Funds	K	Financial and Insurance Services
64	Auxiliary Finance and Insurance Services	51	Auxiliary Finance and Insurance Services	K	Financial and Insurance Services
66	Rental and Hiring Services (except Real Estate)	52	Rental and Hiring Services (except Real Estate)	L	Rental, Hiring and Real Estate Services
67	Property Operators and Real Estate Services	53	Property Operators and Real Estate Services	L	Rental, Hiring and Real Estate Services
69	Professional, Scientific and Technical Services (except Computer System Design and Related Services)	54	Professional, Scientific and Technical Services	M	Professional, Scientific and Technical Services
70	Computer System Design and Related Services	55	Computer System Design and Related Services	M	Professional, Scientific and Technical Services
72	Administrative Services	56	Administrative Services	N	Administrative and Support Services
73	Building Cleaning, Pest Control and Other Support Services	57	Building Cleaning, Pest Control and Other Support Services	N	Administrative and Support Services
75	Public Administration	58	Public Administration	O	Public Administration and Safety
76	Defence	59	Defence	O	Public Administration and Safety
77	Public Order, Safety and Regulatory Services	60	Public Order, Safety and Regulatory Services	O	Public Administration and Safety
80	Preschool and School Education	61	Preschool and School Education	P	Education and Training
81	Tertiary Education	62	Tertiary Education	P	Education and Training
82	Adult, Community and Other Education	63	Adult, Community and Other Education	P	Education and Training
84	Hospitals	64	Health Care Services	Q	Health Care and Social Assistance
85	Medical and Other Health Care Services	64	Health Care Services	Q	Health Care and Social Assistance
86	Residential Care Services	65	Residential Care and Social Assistance Services	Q	Health Care and Social Assistance
87	Social Assistance Services	65	Residential Care and Social Assistance Services	Q	Health Care and Social Assistance
89	Heritage Activities	66	Heritage, Creative and Performing Arts	R	Arts and Recreation Services
90	Creative and Performing Arts Activities	66	Heritage, Creative and Performing Arts	R	Arts and Recreation Services
91	Sports and Recreation Activities	67	Sports and Recreation Activities	R	Arts and Recreation Services
92	Gambling Activities	68	Gambling Activities	R	Arts and Recreation Services
94	Repair and Maintenance	69	Repair and Maintenance	S	Other Services
95	Personal and Other Services	70	Personal and Other Services	S	Other Services
96	Private Households Employing Staff and Undifferentiated Goods and Service-Producing Activities of Households for Own Use	70	Personal and Other Services	S	Other Services

Source: ABS (2013), ABS (2016b), AEC.

Industry Category Classification

Each of the 70 industries were classified into one of three categories for modelling – LEDs, PDs or BAPDs. These were described in the 'Overview' sub-section above, repeated below for ease of reference.

- **Leading Economic Drivers (LEDs)**, which are the industries that are either expected to be a focus for economic growth in the region or that are drivers of growth in other industries.
- **Population Driven (PDs)**, which are industries that are driven almost entirely by population growth and consumption.
- **Business Activity + Population Driven (BAPDs)**, which are industries that are driven by some combination of activity in other sectors and population (this relationship was determined using an Input-Output transaction table developed specifically for the GMS region using AEC's Regional Transaction Table Builder)

The table below provides a summary of how each industry was classified in the modelling, including rationale as to why these classifications were chosen.

Table G.3. Industry Categorisation

70 Industry ID	70 Industry Name	Industry Category	Rationale
1	Agriculture	LED	Typically driven by broader factors, such as global/ national demand, commodity cycles and climate
2	Aquaculture	LED	
3	Forestry and Logging	LED	
4	Fishing, Hunting and Trapping	LED	
5	Agriculture, Forestry and Fishing Support Services	BAPD	Support service to agriculture
6	Coal Mining	LED	Typically driven by broader factors, such as global/ national demand, commodity cycles
7	Oil and Gas Extraction	LED	
8	Metal Ore Mining	LED	
9	Non-Metallic Mineral Mining and Quarrying	BAPD	Typically driven by demand in the construction sector
10	Exploration and Other Mining Support Services	BAPD	Support service to mining
11	Food Product Manufacturing	LED	Typically driven by non-local factors, such as global/ national demand
12	Beverage and Tobacco Product Manufacturing	LED	
13	Textile, Leather, Clothing and Footwear Manufacturing	LED	
14	Wood Product Manufacturing	LED	
15	Pulp, Paper and Converted Paper Product Manufacturing	LED	
16	Printing (including the Reproduction of Recorded Media)	LED	Trend towards digital content resulting in strong decline in industry
17	Petroleum and Coal Product Manufacturing	BAPD	Typically driven by activity in mining, agriculture and transport
18	Basic Chemical and Chemical Product Manufacturing	LED	Typically driven by non-local factors, such as global/ national demand
19	Polymer Product and Rubber Product Manufacturing	LED	
20	Non-Metallic Mineral Product Manufacturing	LED	
21	Primary Metal and Metal Product Manufacturing	LED	
22	Fabricated Metal Product Manufacturing	LED	
23	Transport Equipment Manufacturing	LED	
24	Machinery and Equipment Manufacturing	LED	
25	Furniture and Other Manufacturing	LED	
26	Electricity Supply	BAPD	Typically driven by demand from business and population
27	Gas Supply	BAPD	
28	Water Supply, Sewerage and Drainage Services	BAPD	Support service for business and population
29	Waste Collection, Treatment and Disposal Services	BAPD	

70 Industry ID	70 Industry Name	Industry Category	Rationale
30	Building Construction	LED	Structure of Input-Output tables preclude these industries from being anything other than LEDs for growth modelling purposes [(a)]
31	Heavy and Civil Engineering Construction	LED	
32	Construction Services	BAPD	Services that primarily support construction activity and population
33	Wholesale Trade	BAPD	Demand typically driven by local industry
34	Retail Trade	PD	Primarily supports population and local household spend
35	Accommodation	LED	Typically driven by demand from non-locals (i.e. tourists)
36	Food and Beverage Services	PD	Primarily supports population and local household spend
37	Road Transport	BAPD	Typically support both industry (freight) and population (passenger) activity
38	Rail Transport	BAPD	
39	Water, Pipeline and Other Transport	BAPD	
40	Air and Space Transport	BAPD	
41	Postal and Courier Pick-up and Delivery Services	BAPD	Service industry supporting business and population
42	Transport Support Services and Storage	BAPD	Support service to transport industry activity
43	Publishing (except Internet and Music Publishing)	BAPD	Service industries supporting business and population
44	Motion Picture and Sound Recording Activities	BAPD	
45	Broadcasting (except Internet)	BAPD	
46	Internet Publishing, Services Providers and Data Processing Services	BAPD	
47	Telecommunications Services	BAPD	
48	Library and Other Information Services	PD	Primarily supports population
49	Finance	BAPD	Service industries primarily supporting business and population in the region
50	Insurance and Superannuation Funds	BAPD	
51	Auxiliary Finance and Insurance Services	BAPD	
52	Rental and Hiring Services (except Real Estate)	BAPD	
53	Property Operators and Real Estate Services	BAPD	
54	Professional, Scientific and Technical Services	BAPD	
55	Computer System Design and Related Services	BAPD	
56	Administrative Services	BAPD	
57	Building Cleaning, Pest Control and Other Support Services	BAPD	
58	Public Administration	BAPD	Provides services primarily aimed at supporting business and population
59	Defence	LED	Typically driven by non-local factors (e.g. Australian Government policy)
60	Public Order, Safety and Regulatory Services	BAPD	Provides services primarily aimed at supporting business and population
61	Preschool and School Education	PD	Primarily supports population
62	Tertiary Education	BAPD	Provides services primarily aimed at supporting business and population
63	Adult, Community and Other Education	PD	Primarily supports population
64	Health Care Services	LED	Expected to be key growth sector Queensland and Australia-wide, driven by demand for higher levels of care and a growing and ageing population
65	Residential Care and Social Assistance Services	PD	Primarily supports population
66	Heritage, Creative and Performing Arts	PD	Primarily supports population and local household spend
67	Sports and Recreation Activities	PD	

70 Industry ID	70 Industry Name	Industry Category	Rationale
68	Gambling Activities	PD	
69	Repair and Maintenance	BAPD	Provides services primarily aimed at supporting business and population
70	Personal and Other Services	PD	Primarily supports population and local household spend

Note: (a) Input-Output transaction tables do not include any purchases of goods/ services from these industries as either inputs to production for local industry or by households. All outputs of these industries are purchased for either gross fixed capital formation or export. As a result, it is not possible to identify a relevant mix of business and population demand for goods/ services in these industries in the model, and these industries must therefore be modelled as LEDs.
Source: AEC.

GMS Industry Growth Projections

Employment projections for each of the 70 industries were developed across three projection series (low, medium and high). The base reporting is provided for the medium projection series.

The approach for developing the industry growth rates for each of the 70 industries is outlined below.

Leading Economic Drivers (LEDs)

Growth rates for LEDs and assumptions regarding productivity per employee were developed based on the results of the NSW EPM (outlined in Table G.1 and Figure G.2 above), and in consideration of historic local growth patterns and research regarding the macro- and micro- change factors. The projected growth rate for NSW (from the EPM, summarised in Table G.1) was adjusted to GMS starting point, based on the historic difference in value added growth between 2007 and 2016 outlined in AEC's Gross Regional Product estimates. A summary of these adjusted growth rates is provided in Table G.4 below.

Table G.4. GMS Historic Difference (to NSW, 2007 to 2016) and Projected Growth in Value Added Activity, Average Annual, 1-Digit ANZSIC

Industry	Value Added Activity		
	Historic Difference to NSW	2016 to 2026	2026 to 2041
Agriculture, forestry and fishing	101.2%	0.7%	0.4%
Mining	95.7%	2.6%	1.5%
Manufacturing	100.0%	0.5%	0.3%
Electricity, gas, water and waste services	99.4%	-0.1%	-0.2%
Construction	100.5%	1.4%	1.0%
Wholesale trade	100.2%	0.9%	0.6%
Retail trade	100.5%	2.1%	1.3%
Accommodation and food services	99.7%	1.3%	0.7%
Transport, postal and warehousing	99.9%	2.2%	1.2%
Information media and telecommunications	100.5%	2.9%	1.7%
Financial and insurance services	100.3%	3.3%	2.0%
Rental, hiring and real estate services	100.5%	1.6%	0.7%
Professional, scientific and technical services	100.4%	2.8%	1.8%
Administrative and support services	99.8%	0.7%	0.7%
Public administration and safety	100.0%	1.1%	0.7%
Education and training	100.2%	1.1%	0.5%
Health care and social assistance	99.8%	2.6%	2.4%
Arts and recreation services	100.2%	1.6%	0.8%
Other services	101.2%	1.1%	0.6%

Source: ABS (2017c), ABS (2016a), AEC.

As GMS contributes the majority of activity and employment in NSW, the adjustments to NSW growth rates by industry made in Table G.4 were considered sufficient for projecting LEDs. A summary of final growth rates for each LED based on the adjustments outlined in Table H.4 are presented in Table G.5.

Table G.5. LED Growth Rates

70 Industry ID	70 Industry Name	Growth in Value Added		Growth in Employment	
		2016 to 2026	2026 to 2041	2016 to 2026	2026 to 2041
1	Agriculture	0.8%	0.5%	-0.9%	-0.7%
2	Aquaculture	-2.0%	-3.4%	-3.7%	-4.5%
3	Forestry and Logging	-1.2%	-0.5%	-2.8%	-1.6%
4	Fishing, Hunting and Trapping	-1.9%	-1.0%	-3.5%	-2.2%
6	Coal Mining	2.7%	1.5%	2.6%	1.6%
7	Oil and Gas Extraction	1.8%	1.6%	1.7%	1.6%
8	Metal Ore Mining	2.3%	1.1%	2.2%	1.1%
11	Food Product Manufacturing	1.2%	0.8%	0.3%	0.2%
12	Beverage and Tobacco Product Manufacturing	1.3%	0.4%	0.4%	-0.2%
13	Textile, Leather, Clothing and Footwear Manufacturing	-1.1%	-0.3%	-2.0%	-0.9%
14	Wood Product Manufacturing	0.0%	-0.1%	-0.8%	-0.6%
15	Pulp, Paper and Converted Paper Product Manufacturing	-2.3%	-1.2%	-3.1%	-1.8%
16	Printing (including the Reproduction of Recorded Media)	-4.6%	-3.0%	-5.4%	-3.5%
18	Basic Chemical and Chemical Product Manufacturing	0.9%	0.3%	0.0%	-0.3%
19	Polymer Product and Rubber Product Manufacturing	0.5%	0.2%	-0.3%	-0.4%
20	Non-Metallic Mineral Product Manufacturing	0.7%	0.5%	-0.2%	-0.1%
21	Primary Metal and Metal Product Manufacturing	0.1%	-0.1%	-0.8%	-0.6%
22	Fabricated Metal Product Manufacturing	0.8%	0.6%	-0.1%	0.0%
23	Transport Equipment Manufacturing	0.5%	0.0%	-0.4%	-0.6%
24	Machinery and Equipment Manufacturing	0.6%	0.2%	-0.3%	-0.4%
25	Furniture and Other Manufacturing	-0.3%	-0.4%	-1.1%	-1.0%
30	Building Construction	1.3%	1.0%	0.6%	0.5%
31	Heavy and Civil Engineering Construction	1.7%	1.1%	1.0%	0.6%
35	Accommodation	1.1%	0.7%	1.2%	0.9%
59	Defence	1.1%	0.7%	1.3%	1.0%
64	Health Care Services	2.6%	2.4%	2.3%	2.3%

Source: ABS (2017c), ABS (2016a), AEC.

Population Driven (PDs)

Growth rates of PDs were developed based on the historic (2011) ratio of employment per 1,000 residents for each industry in GMS compared to a benchmark of Sydney and Melbourne metropolitan areas. The GMS ratio for each industry was assumed to gradually change over time towards the Sydney and Melbourne metropolitan areas benchmark, with the speed of this change determined by the size of the relative discrepancy in the ratio between GMS and the Sydney and Melbourne metropolitan areas (the location quotient or LQ)[2].

Ratios estimated using the above approach for each year were applied to medium series population projections for each PD to generate employment growth projections. Medium series population projections used projection data from the NSW Department of Planning and Environment (DPE, 2016).

Business Activity and Population Driven (BAPDs)

Growth rates of BAPDs were calculated using a combination of the LED and PD growth rates for industry estimated above, as well as population growth (using the same approach as for PDs outlined above). The percent contribution of each LED/ PD and population growth rate differed between each BAPD, and this contribution was estimated based on the relationship of sales of goods and services for each BAPD to each LED/ PD industry (for the percent

[2] Industries with a greater discrepancy (i.e. LQ further away from 1) were assumed to move more rapidly towards the benchmark than those with a smaller discrepancy.

contribution of these industries) as well as to households (for the contribution by population growth) as outlined in the Input-Output transaction table developed for GMS (see the 'Overview' sub-section above for a description of the Input-Output transaction table used).

Distribution to Cumberland LGA

The REPM developed employment projections for the GMS region. These projections were then distributed to the Cumberland LGA and rest of GMS using AEC's distribution (i.e. gravity) model.

AEC's distribution model uses gravity modelling techniques to distribute employment projections to smaller regions. It applies a combination of projections of population growth and existing industry size to determine where future employment is likely to be located. Adjustments were applied as appropriate based on research regarding emerging and expected change factors.

Additional details regarding the distribution approach are provided below:

- Disaggregation of GMS regional employment projections by 70 industries was undertaken across Cumberland LGA and rest of GMS, for each industry.
- Distribution modelling is based on disaggregating the additional employment in each industry in each modelled time period. For example, for the 2021 projection, employment for Cumberland and rest of GMS is based on the employment in that industry in 2016 plus the disaggregated component of **additional** employment in GMS (or, for industries experiencing a decline, the disaggregated component of the reduction in employment in GMS).
- Distribution (or disaggregation) of employment for each industry is driven by a combination of two components based on size (gravity "pull" effects). The two components influencing this are the proportion of overall GMS population growth (i.e. additional population) in the time period examined (the population coefficient) and existing size of the industry in the previous time period (the industry coefficient). Coefficients were developed to disaggregate employment based on the mix between (or combination of) the two components. This mix differs between industries based on the proportional demand of industry verses households for goods and services of that industry. This proportion is estimated based on an indicative Input-Output transaction table developed for the GMS region, with some adjustments made where considered relevant for certain industries.
- Industry coefficients for Cumberland and rest of GMS were developed by identifying the proportion Cumberland and rest of GMS makes of total employment in each industry in the previous time period (e.g., for 2021, the 2016 employment in each industry is used).
- Population coefficients for Cumberland and rest of GMS were developed by estimating the share of total additional population in each time period for Cumberland and rest of GMS (using data from DPE (2016).

The model includes capacity to make manual adjustments to certain proportions of industry and population coefficients where it is anticipated Cumberland and/ or rest of GMS may be expected to attract a greater/ lesser share of employment than the initial share indicates, as deemed appropriate based on research of macro- and micro- factors, other desktop research and the professional judgement of AEC staff.

- The above population and industry coefficients are then summed based on the proportional contribution between population versus industry coefficients (as identified using the transaction table indicated above).
- The combined coefficient for Cumberland and rest of GMS (for each industry) is then rebased to sum to a total of 100% for each industry. These proportions are applied to the additional employment in the GMS region for each industry to disaggregate additional employment across Cumberland and rest of GMS.

DISAGGREGATION TO 4-DIGIT ANZSIC

70 sector projections were disaggregated to 4-digit ANZSIC (for both GMS and Cumberland LGA) using the following approach:

- Historic estimates of employment by 4-digit ANZSIC for 2006 and 2011 were converted to proportional shares of their parent 70 sector.
- The change in share of each 4-digit ANZSIC of their parent 70 sector between 2006 and 2011 was carried forward to 2016 (using a linear path), to infer a 2016 share of 70 sector.
- Manual adjustments were made to the inferred 2016 share as deemed appropriate as determined based on research of macro- and micro- factors, other desktop research and the professional judgement of AEC staff.
- The final 4-digit ANZSIC share for 2016 was applied to the 2016 70 sector estimates of employment to develop 4-digit ANZSIC employment estimates for 2016.

This process was repeated for each five-year period.

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