Appendix B

City of Sydney Employment Lands Study

Employment lands study

City of Sydney
March 2013

SGS Economics & Planning

Independent insight.

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Scope and context

The purpose of the Employment Lands Study 2013 ('the study') is to determine the long-term demand for industrial and business zoned land in the southern areas of the City of Sydney (the 'City'). The Employment Lands Study builds on the findings of a background report made available for public comment between 23 November 2012 and 21 December 2012. The study includes land use recommendations for the study area and may inform future amendments to the City Plan, which includes the Sydney Local Environmental Plan 2012 (Sydney LEP 2012) and the Sydney Development Control Plan 2012 (Sydney DCP 2012), that became operational on 14 December 2012.

The study is to inform the preparation of the Draft Employment Lands Strategy (the 'draft strategy'), which will be considered by the City of Sydney Council for public exhibition. Following public exhibition, the draft strategy will be reported back to Council for their formal consideration for adoption.

The main study area is known as the southern Sydney employment lands. It contains around 19,000 jobs, which is in the order of 5 percent of the City of Sydney total. The figure overleaf shows this area, and the two smaller employment land areas in Glebe and south of Moore Park (outlined in red), in their subregional context.

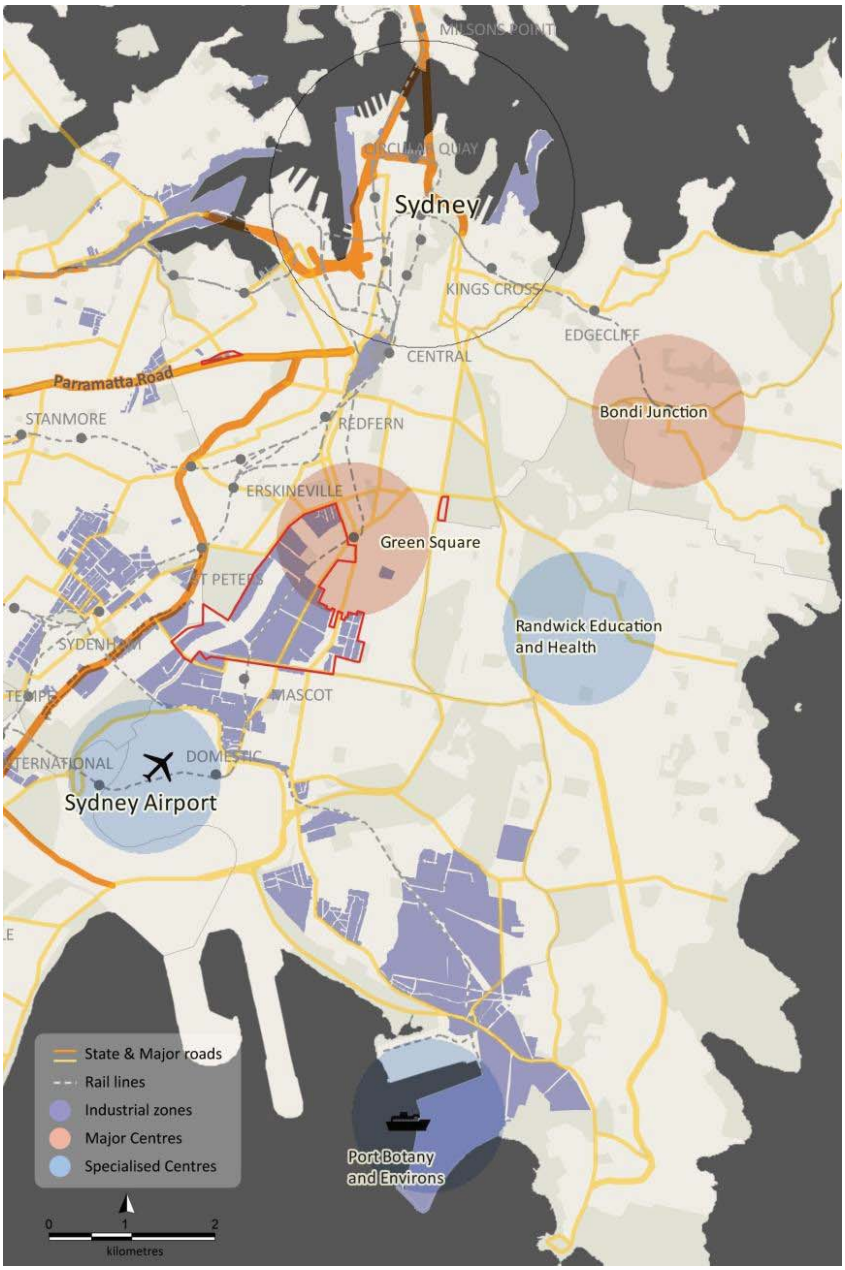
There are few more strategically located areas of employment land in Australia than the main study area. Planning for this area is of national economic significance. This is recognised by the area being included in the 'Global Economic Corridor' within the NSW state government's Metropolitan Plan. This is the collection of assets and centres that includes in the north Macquarie University and Macquarie Park, the hospital and research precinct around the Royal North Shore Hospital and the commercial centres of Chatswood, St Leonards and North Sydney, and south of the harbour the Sydney CBD, the UTS, University of Sydney and RPA education and health precinct, the Green Square Town Centre and Urban Renewal Area and on the airport (Australia's busiest) and port (second largest in terms of freight volumes behind Melbourne). The Global Economic Corridor contains over half a million jobs across a range of high value economic activities.

The main study area is within the City of Sydney LGA, which is only 26.15 square kilometres in size. Despite its limited spatial extent, the 2011 census has recorded that since 2006 the City increased its working population to 395,000, representing four percent of Australia's workforce.

The Glebe precinct on Parramatta Road is a minor commercial precinct while the Moore Park Supa Centa site is a successfully trading bulky goods area.

The strategic policies most relevant to the main study area are the draft Metropolitan Strategy for Sydney to 2031 and the City of Sydney's Sustainable Sydney 2030 plan. Both of these documents reference the importance of the Global Economic Corridor which includes the study area.

FIGURE 1. THE STUDY AREAS IN CONTEXT



Source: SGS Economics and Planning, 2013

The critical economic role of the main study area

Metropolitan Sydney (Sydney), and the Sydney CBD (in the City of Sydney) in particular, underpin the Australian economy to a significant extent. Based on estimates by Deloitte Access Economics (2012), the total City workforce produces just under eight percent of the total Australian GDP, or about $100 billion.

In an economic era defined by the rise of knowledge intensive activities in advanced economies Sydney remains Australia's pre-eminent location for high value, advanced business services jobs. The metropolitan area hosts a disproportionately high share of the nation's services jobs which generate export income (both inter-regionally and internationally), and these are predominately within the City of Sydney LGA. For example, in the 2011 census the City held 14.65 percent of total Australian employment in the Information, Media and Telecommunications (IMT) ANZSIC industry grouping, up from 12.6 percent in 2006.

Nevertheless, in the last 10 years Melbourne increased its share of national 'knowledge generated income' at a faster rate than Sydney. This is partly due to new infrastructure investments and major initiatives such as Docklands which further expanded the stock of employment lands in central Melbourne (which on conservative estimates could host well over 300,000 additional jobs). By contrast Sydney is relatively constrained from a 'new' employment lands perspective. The broad analysis in this study suggests there is sufficient capacity in current controls to accommodate in the order of 115,000 additional jobs in the City of Sydney (the 2010 Metropolitan Plan target to 2036) but that constraints emerge beyond that.

Without attention, this therefore implies a limit to longer term contestability in the Sydney employment lands market (a contestable market being one where the threat of competition dissuades firms from charging prices that will make them excess profits).

The links between urban structure, density, agglomeration and productivity are particularly relevant for this study. They suggest that there is a strong argument in favour of increasing the long term employment potential of the main study area, given its highly strategic location, to increase land availability and alleviate capacity constraints. Economic theory and historical data indicate that doing so will lead to productivity gains, and improve the city's competitiveness and ability to continue to attract high value jobs. This is particularly the case given that the rapid public transport connections between job centres that could otherwise provide for enhanced effective job density elsewhere in eastern and inner Sydney – and productivity boosting agglomeration – are not under consideration and are likely to be some way off. Ensuring an expanded array of longer term options for employment growth in inner Sydney should therefore be a priority to provide the depth and diversity of opportunities required for a changing economy.

A further backdrop for the analysis in this study is the new literature on cities and economic geography by the likes of Enrico Moretti (2012), Richard Florida (2003) and Edward Glaeser (2011). They all argue that successful modern urban economies are built around knowledge and creative industries, and attracting firms and workers in these industries, depends on economically diverse, dense and mixed use environments.

However, while the study area should support the growth of the economy in Sydney through flexible use and development controls which are aligned to new economy activities, there remains a need to ensure some land within the Sydney local government area is available for heavy industrial uses and other activities that may unreasonably impact on more sensitive uses. Such areas are essential to ensure that activities serving the population can continue to locate in the City and inner subregion. These include services such as panel beaters, depots requiring an inner city location to service construction sites, distribution centres, utilities provision, and facilities for concrete batching and waste management. In addition, these areas must also accommodate strategic activities associated with the airport and port and essential support services needing access to the CBD.

While often low in job yield, the economic value of these lands lies particularly in the locational efficiencies they provide. The retention of some of these areas is therefore justified, and will continue to support wider social and economic benefits to the City and the subregion as a whole.

Development and transport constraints

The study areas are relatively unconstrained when the typical physical and site development barriers are considered. There are a few strata titled properties, a scattering of heritage listed properties and sites, and most of the development constraining air traffic noise contours (ANEF 25+) are on the extreme south west edge of the main study area.

The flooding map provided shows isolated impact areas, which are more extensive near the Alexandra Canal and the central part of the main study area. Flooding and groundwater constraints to development are known to be more extensive near the canal and the central part of the main study area but no maps

have been provided showing the extent of these issues. These and potential site contamination issues are likely to be the biggest barrier to more intensive development; residential development in particular.

However, by any measure, traffic and transport issues are likely to be the biggest long term constraint on development across the precinct. The area is near a number of Australia's major trip generators, as discussed above (including the airport, port, and Sydney CBD), and is a destination and origin for significant business to business (freight and small commercial vehicle) and commuter traffic and workers (residents nearby leaving or workers in the precinct arriving). Key issues include:

- looming road and public transport capacity constraints in general in the strategic corridor between the CBD and Sydney Airport, in the context of an anticipated doubling of both passenger and freight activity at the airport by 2029
- considerable movement of heavy vehicles through the main study area, particularly on O'Riordan Street and Botany Road
- capacity constraints on neighbouring major roads such as Southern Cross Drive and the Eastern Distributor which diverts traffic onto adjacent arterial roads in the main study area, leading to congestion on O'Riordan Street in particular
- the need for public transport capacity augmentation with the Airport rail line approaching seated capacity between Green Square and Central, and 'passenger displacement' expected by 2031 if 'nothing is done to improve capacity,
- the increasing importance of Botany Road as a key transit corridor, particularly with the development of Green Square Town Centre and Urban Renewal Area, and the Green Square TMAP notes that it should receive continued bus priority investment (which may be at odds with its current role as major arterial route and carrier of truck traffic).

In a survey undertaken for the background report, land owners were asked to scale a number of factors that were particularly important to the location of their business or operation. Transport and access factors were considered the most important, particularly public transport and truck access. Parking constraints and the pros and cons of the Bourke Road cycle lanes also featured in specific responses.

The NSW Long Term Transport Master Plan was released by Transport for NSW in December 2012 and provides direction for the future of the NSW transport system, including improvements that will impact on the study area.

The Master Plan suggests that the growth precinct of Green Square will require mass transit solutions given that development within the precinct will exceed the walking catchment of the existing Green Square station. Bus investigations will be conducted in relation to the route from Bondi Junction to Burwood via Green Square and Sydenham.

The proposed WestConnex motorway, the 33 kilometre motorway connection in the M4 and M5 corridors, is noted as an immediate priority motorway. The planned location of the southern section of WestConnex (from St Peters to Beverly Hills) is in close proximity to the main study area. The development of this connection will potentially relieve pressure on the Eastern Distributor towards the CBD and along Parramatta Road, and increase the capacity of lower order roads; however, this is not clear within the Plan. The Sydney Airport Access link will provide a connection from WestConnex to Qantas Drive, close to the southern part of the main study area.

The NSW Long Term Transport Master Plan proposes a one-way pairs road operation on Bourke Road and O'Riordan Street to facilitate movement through the corridor. However opinion on the merits of this solution is divided, with those opposing noting its potential to increase traffic and decrease accessibility, disadvantaging pedestrians and local businesses.

Council has a developed a plan for regional and local bike paths. It proposes a number of separated or shared cycleways through the area. These cycleways form part of the City's living green network and are part of an extensive pedestrian and cycle network planned in the City.

Notwithstanding the identification of high level priorities and some more specific interventions in state and local policy documents (for example WestConnex and Council's cycleways) there is currently no comprehensive transport plan for the subregion, including the main study area, which tackles the significant current and looming transport challenges.

Potential future uses

In addition to a survey of and meetings with landowners, consultation was also undertaken with the following groups and agencies:

- Councils of City of Sydney, Botany Bay and Marrickville
- Department of Planning and Infrastructure
- Sydney Metropolitan Development Authority
- Sydney Airport
- Committee for Sydney
- Infrastructure NSW
- Property Council of Australia
- Regional Development Australia – Sydney
- Penrith Business Alliance

Consultation with these stakeholders was combined with the findings from the background report and additional research on economic trends to identify possible future uses for the main study area. Issues in relation to each category of uses are summarised below.

Industrial uses

- Some industries require protection due to their strategic nature, to support the local population, or to provide flexibility in future.
- Lower value industrial uses may be displaced from Botany Bay LGA and the main study area but there is likely to be capacity to accommodate these in Marrickville LGA and in western Sydney.
- Consequently, with the nature of economic activity in the study area changing there is a case for some industrial land to be rezoned for alternative uses.

Airport and port related uses

- Because Sydney Airport is relatively small and passenger and freight activities are expected to more than double in less than 20 years, there is a need for off-site industrial and employment lands to accommodate airport related activities (such as catering, freight forwarding, logistics services and car hire, accommodation services). The port too is also expected to accommodate vastly increased throughput, meaning a greater need for 'land-side' support activities.
- At the same time the supply of suitable land is diminishing or under pressure for alternative uses.
- While parts of the main study area may be 'too far' from the airport for some direct airport related uses, and there may be potential to accommodate these uses elsewhere in future, it is nevertheless prudent to ensure some employment lands are available in the study area for airport related activities.

Pure residential uses

- Residential density is increasing significantly in the surrounding areas and allowing for some residential uses in the study area may facilitate enhanced access to employment and address housing supply constraints.
- However, there are significant issues with rapidly increasing the number of residents in the study area including the loss of strategically located lands for employment, costly development conditions (from contamination, flooding), pressure from residents on airport operations, traffic congestion and interface issues.
- Furthermore, the City of Sydney LGA is already close to or currently meeting its metropolitan strategy and Sustainable Sydney 2030 targets for residential dwellings.

– Residential uses in the study area are therefore best restricted to mixed use areas, where they can facilitate economic development outcomes and attract specific employment activity.

Mixed use activities

– Knowledge-based and creative industries are a continuing and key source of employment growth and flourish in higher density and mixed use areas.
– To support creative and knowledge industry growth carefully selected pockets within the study area might be suited to a greater mix of uses, including some residential.

Commercial uses

– Allowing for more commercial activities would add to the future supply potential and contestability within the Sydney market.
– However, the need to accommodate high intensity employment uses should be balanced by the need to ensure land is available for strategic industrial activities. Furthermore, public transport provision may need to be radically increased to service more intense office and commercial employment.

Retail uses

– Allowing more retail in key locations in the main study area should be considered.
– However given the important role of and capacity in planned centres such as Green Square Town Centre, the scale of the retail should be limited. Furthermore, locations in neighbouring LGAs such as Princes Highway in Marrickville may become more attractive for bulky goods retailing.

Special uses

– Heavier industries could be suited to the southern end of the canal in the main study area
– The increasing local residential population requires community services and social infrastructure and these should be accommodated in or near Green Square Town Centre if possible.

Scenarios

The Bureau of Transport Statistics (BTS) prepares employment projections for Sydney at five yearly intervals to 2031 using a forecasting model. Although the model itself is not publically available, it appears to be principally driven by historical trends with some adjustment for large scale developments that have been announced.

The forecasts show a small increase in the job density of the main study area; with the majority of future employment allocated to the CBD and surrounds and North Sydney. An additional 2300 jobs are projected for the main study area between 2011 and 2036 and around 140,000 for the City of Sydney as a whole.

If the economy of the study area continues on a trend-based trajectory as adopted by these employment forecasts, there will be significant underutilised capacity in the main study area (given the available vacant land and buildings identified in the floor survey and reported in the background report). As such, adopting these forecasts for strategic planning may unnecessarily constrain the economy in the main study area.

An alternative planning approach is justified. This seeks to more actively utilise the land in this strategic location; assumes employment above that projected by historical trends; diversifies economic prospects; and reduces the significant proportion of vacant sites and buildings. Three scenarios were developed to reflect differing demands on the study area as reflected in the discussion above, in addition to the base case of a continuation of the current zoning. For each scenario the implications for employment and provision of dwellings have been considered using estimates of likely and achievable densities within each zone. The alternative scenarios are:

- **Base case**. Office uses are anticipated to be accommodated outside the main study area in Green Square Town Centre or through intensification of the Sydney CBD, and around Mascot station and Redfern-Waterloo. The current mix of development uses remains but generally accommodates industrial uses – traditional industrial; strategic industrial relating to the airport and CBD in particular, and population serving industrial. Capacity is provided for around 17,250 jobs and 390 dwellings.
- **Residential focus**. Includes a component of industrial land in the south west of the site and proposes mixed business areas in a small central area between O'Riordan Street and Bourke Road as well as along Botany Road and immediately to the south of the Green Square town centre. Elsewhere the areas are rezoned for residential, including high density residential east of Sydney Park and west of the canal. Capacity is provided for around 14,250 jobs and 6650 dwellings.
- **Commercial (office) focus**. Includes a component of industrial land in the south west of the site, business park uses west of the canal, small mixed use areas to the north and south east. Otherwise a mixed business zoning would predominate including a bulky goods corridor on the southern end of O'Riordan Street. Capacity is provided for around 36,640 jobs and 280 dwellings.
- **Mixed economy focus**. Includes industrial land in the south west of the site and extending either side of the canal, as well as extended mixed use areas to the north and south east (either side of Botany Road). Elsewhere mixed business uses would predominate, including a bulky goods corridor on the southern end of O'Riordan Street. Capacity is provided for around 27,500 jobs and 850 dwellings.

Each scenario was assessed for its advantages and disadvantages given the discussion of strategic issues and considerations outlined earlier.

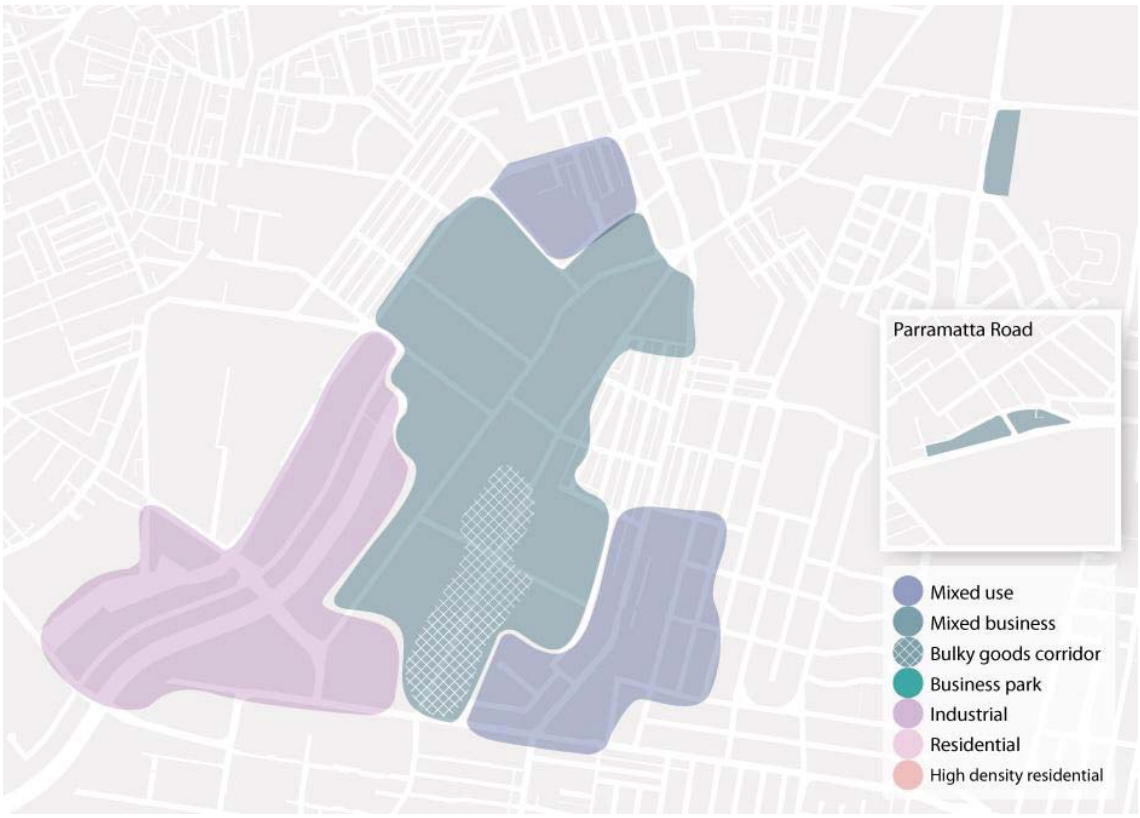
Recommended land use strategy

The recommended scenario for the study area is the mixed economy scenario, shown in the figure overleaf. It is consistent with the roles for the area given the policy and strategic context, balances the range of competing uses in the study area as discussed above and scores highest from a policy perspective against the government's strategic assessment of employment lands criteria. Most importantly, it addresses the question of the strategic employment context, which is fundamental to Sydney's future competitiveness and is of national significance.

This scenario (and the analysis in this report) raises the need for a more comprehensive review of the significance of the industrial areas in general in the subregion. If the main study area is dedicated to a higher order mixed business role then it is important that other employment land precincts within the inner Sydney area also be protected so that they may play their own role in the subregion and Sydney's broader economic geography.

The vision for each precinct and associated actions consistent with the preferred scenario are discussed below.

PREFERRED MIXED ECONOMY SCENARIO



Source: SGS Economics and Planning, 2013

Industrial area

Land use recommendation

Zoning in the south western corner of the main study area should accommodate both heavy and light industry. The zone is to allow for population serving industrial uses (local light industrial and urban services required to service the current and projected population of the LGA) and strategic industrial uses (for example, airport related and freight and logistics uses and some CBD support services such as archiving activities).

Vision

The vision for the zone is for 'pure industrial' with only minimal 'ancillary' uses to support the industrial uses and employment in the zone.

Recommendations

- Ensure the objectives of the zone achieve the vision for the zone.
- Provide flexibility to accommodate a variety of light and heavy industrial uses and allow firms choice as to where they locate depending on their requirements.
- Review floor space ratios to ensure they are appropriate to accommodate the activities envisaged and the vision for the zone.
- Allow for ancillary uses that support the working population of the zone, for example childcare, kiosks and so on. However, ensure that the scale of those uses does not compromise the vision of, or efficient functioning of the zone.

Mixed use areas

Land use recommendation

Zone the northern and eastern precincts of the study area for a mix of employment and residential uses, ensuring that a genuine 'mix' emerges.

Vision

The vision for this area is a genuine mixed use precinct supporting a relatively even mix of employment-generating uses and affordable residential development.

Development should support sustainable travel behaviour including minimising car usage.

Recommendations

- Ensure that as the rezoning of these precincts creates increased land values, a portion of the value uplift is directed towards works or services aimed at achieving the objectives of Sustainable Sydney 2030.
- Ensure the objectives of the zone achieve the vision for the zone by actively encouraging a genuine mix of affordable residential and non-residential uses.
- Ensure the zone provides flexibility to support both employment and appropriate residential uses.
- Undertake a character, heritage and urban design assessment of the proposed mixed use precincts, recognising that appropriate controls will need to be developed that, for example:
  - protect the existing grain and street network
  - respect the scale of the existing built form including the retention of some existing buildings
  - establishes height and floor space ratio controls that are appropriate for the zone.
  - actively promote affordable housing
  - minimise the barriers to innovative housing conversions for 'work-live' outcomes
  - provide for no or low parking associated with the housing in these mixed use precincts.
- Explore opportunities to encourage child care and other local infrastructure needed to support the growing population in the region.

Mixed business areas

Land use recommendation

Zone the centre portion of the main study area and the Parramatta and South Dowling Street precincts for mixed business uses. The zone should ensure sufficient flexibility to encourage and accommodate a variety of economic activities, as well as 'other' uses likely to attract and support higher value activities in these areas.

Vision

The vision for this area is a mixed business precinct in a flexible land use zone. The zone should continue to support warehouse and light industrial uses but also facilitate higher value employment such as offices where appropriate. Retail should be limited in scale and should complement the Green Square Town Centre and other village centres. The zone should continue to support bulky goods uses in limited areas.

Recommendations

- Ensure the objectives of the zone achieve the flexible vision for the zone and encourage a mix of employment activity in the zone.
- Allow for some other non-residential uses, such as entertainment facilities, churches and markets, which support employment activity and/or service the local population. These uses should be limited in scale so they do not detract from the vision of the zone.
- While some retail activity is consistent with the aim of increasing flexibility in the zone and allowing for a variety of employment generating uses, individual retail activities should be limited in scale so that they complement retail activities in the Green Square Town Centre and do not have a detrimental impact on other employment uses in the zone.
- Recognise there are a number of industrial-retail businesses in the main study area, and that these uses should continue to be permitted in the zone.
- Premises with an active frontage to O'Riordan Street should be permitted to accommodate bulky goods premises (in areas where they currently exist) under

Schedule 1 of the Sydney LEP 2012 (which permits additional uses for particular land that may otherwise be prohibited by a land use table). Bulky goods should continue to be consolidated on the South Dowling Street site and in the main study area along O'Riordan Street, where there is an existing cluster and to ensure these uses do not 'crowd out' the potential for other mixed employment activities in neighbouring areas.

- Undertake additional analysis of the built environment and review height and floorspace ratio controls to ensure they are appropriate for the zone.
- Explore opportunities to encourage child care and other local infrastructure needed to support the growing population in the region.
- Encourage sustainable transport choices and where possible introduce measures to minimise parking associated with new development.

Retail precincts

Vision

Planned retail precincts of an appropriate size and location will support the effective functioning of the commercial and mixed use precincts of the study area, as well as the wider area.

Recommendations

- Recognise the major centre role of Green Square Town Centre in providing services, office uses and employment, and protect strategic industrial, commercial and mixed use areas by concentrating anchor retailers (such as supermarkets) in nominated centres.
- Develop a hierarchy of small retail centres in the main study area and surrounding suburbs, considering possible locations at Rosebery, close to the Grounds of Alexandria cafe at the northern end of the canal and Doody Street. This would consider the best locations for these centres, the need for amenities to service businesses and new residents in the area, the projected increase in the local population, the projected redevelopment of Green Square Town Centre, and structure planning issues, transport accessibility, linkages to other centres and so on.
- Explore planning controls that encourage walking and cycling to these locations

Support actions

Action

A subregional approach is needed.
Lobby state government to consider the provision and protection of strategic industrial and employment lands at a subregional level. The objective should be to develop a state planning instrument that protects and maintains inner Sydney employment lands for strategic and other uses consistent with their attributes and location.

Actions

Traffic and transport issues in the study area must be addressed

- Undertake a local high level traffic and transport study to inform the preparation of planning proposals which will implement the recommendations of this report.
- Work with Transport NSW to develop a TMAP for the study area that is responsive to the land use recommendations and ensures sufficient levels of public transport are provided to and through the study area. Some considerations for this study should be:
  - Whether Botany Road could be 'calmed' to support the development of the proposed mixed use precinct, including providing for on-street parking, and elevating its role as a public transport corridor over heavy slow traffic
  - The potential to establish Bourke Road and O'Riordan Street as the principal arterial roads through the study area
  - Prospects for a rail station on the Airport line at Doody Street
  - Continuing to plan for and invest in pedestrian and cycle paths (safe for all users), as well as the general improved amenity of the study area, to promote walking and cycling as an alternative to car usage
  - Opportunities to introduce measures that address potential conflicts between cyclists and heavy vehicles.

Actions

Manage flooding issues

- Ensure planning controls promote the Liveable Green Network Plan to provide a corridor along the alignment of the trunk drainage channel from Alexandra Canal to Bourke Road.
- Integrate the outcomes of the Alexandra Canal Floodplain Risk Management Study and Plan into future planning controls.

Action

Harness opportunities to improve the public domain
Prepare a public domain strategy to consider through-site links, pedestrian amenity, potential for green corridors, minor land dedications for community uses, recreational needs, longer term prospects for redevelopment of the Alexandra Canal and Shea's Creek, cycle paths and so. The focus should be on functionality and accessibility, not necessarily on beautification. It is important these elements of the public domain are recognised in new planning controls.

1 INTRODUCTION

1.1 Scope of the study

The purpose of the Employment Lands Study 2013 ('the study') is to determine the long-term demand for industrial and business zoned land in the southern areas of the City of Sydney (the 'City'). The study is to make land use recommendations for the study area and may inform future amendments to the City Plan, which includes the Sydney Local Environmental Plan 2012 (Sydney LEP 2012) and the Sydney Development Control Plan 2012 (Sydney DCP 2012), that became operational on 14 December 2012.

The study area is shown in Figure 2 and comprises three sites: the main study area to the south of the LGA, the South Dowling Street site to the east on which the Supa Centa Moore Park is located, and the Parramatta Road precinct in Glebe.

FIGURE 2. STUDY AREA

Source: City of Sydney, 2011

The study is to take into consideration the City's location within the 'Global Economic Corridor' and identify planning mechanisms to ensure that there are adequate employment lands to support the growth of Sydney within the global economy.

The study will assess the City Plan in terms of how it meets demand for employment lands, and how it facilitates innovation and investment in employment uses within the City. As part of the study, relevant submissions made to the City Plan whilst it was exhibition in 2011 have been reviewed.

In formulating a long-term industrial land use strategy, the study needs to balance the following three, potentially competing, objectives:

- The need to retain viable industrial lands for operators like concrete batching plants, Australia Post and other airport-related industries that are essential to the City's operation and require high accessibility within the City to airport corridor.
- The pressures to re-zone industrial lands to allow for higher order uses such as residential or retail uses, and landowners' claims that there is reduced demand for expensive, industrial land in the City of Sydney because many industries can relocate to cheaper sites in Sydney's west.
- The long-standing State Government direction to consent authorities that employment lands are to be protected and retained, as reinforced in the Metropolitan Plan for Sydney 2036 and Subregional Strategies.

1.2 Background report

The purpose of the background report, provided at appendix 1, is to provide a summary of the existing situation for employment and industrial lands in the study area, in terms of economic and land use profile, strategy and policy framework, assets and infrastructure, stakeholder perspectives and broad economic trends and drivers.

The background report provides:

- a review of the NSW and local strategy and policy framework relevant to the study area
- an analysis of the employment and floorspace profile of the study area and the broader subregion
- a discussion of market dynamics of the study area, including key trends and drivers, analysis of the property market, and discussion of key factors affecting the likely future role and function of the study area precincts
- a review of stakeholder perspectives.

The background report does not provide analysis of future demand or recommendations for future land use for the study area.

The background report was made available for public comment between 23 November 2012 and 21 December 2012. Twenty-three submissions were made and are summarised at appendix 2.

1.3 Contents of this study

The Employment Lands Study builds on the findings of the background report. It incorporates submissions made to the background report, and consultation with key organisations with a perspective on the strategic direction of the study area. It establishes the role of the study area in the Sydney, NSW and the Australian economies, assesses the constraints that exist, undertakes extensive demand and supply analysis of various land uses, and builds a logical rationale for recommendations for zoning in the study area.

The report contains the following sections:

- A summary of the strategic context (section 2)
- A review of constraints, with a focus on medium to long term transport constraints (section 3)
- A review of potential uses for the main study area (section 4)
- A description and assessment of potential scenarios for the main study area (section 5)
- A proposed strategy including implementation actions (section 6)

A number of appendices contain technical and other work which has informed the study conclusions.

1.4 Draft employment lands strategy

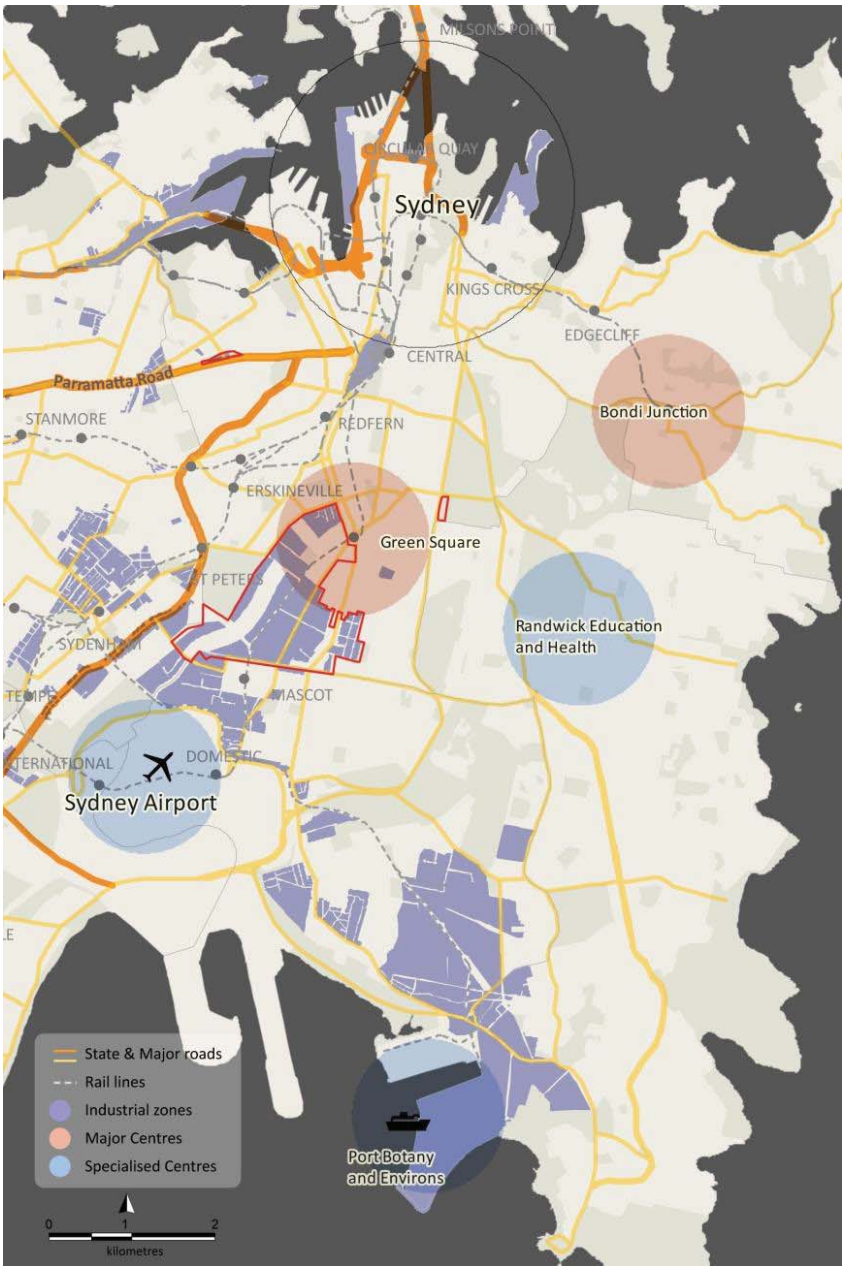
The study is to inform the preparation of the Draft Employment Lands Strategy (the 'draft strategy'), which is separate to this report. The draft strategy will be considered by the City of Sydney Council for public exhibition. Following public exhibition, the draft strategy will be reported back to Council for its formal consideration for adoption.

2 STRATEGIC CONTEXT

2.1 Introduction

The main study area is known as the southern Sydney employment lands. It contains around 19,000 jobs, which is in the order of 5 percent of the City of Sydney total. Figure 3 shows this area, and the two smaller employment land areas in Glebe and south of Moore Park, in their subregional context.

FIGURE 3. THE STUDY AREAS IN CONTEXT



Source: SGS Economics and Planning, 2013

Features of this subregional context include:

- The Sydney CBD is three kilometres to the north of the southern Sydney employment lands. This is Australia's premier commercial hub. It contains in the order of 300,000 jobs across a range of high value sectors including finance, insurance, business and technical services, education, technology, media, retail, arts, entertainment and tourism services. It is the engine room of the business services economy of Australia. It is the gateway to Australia for international capital.
- Sydney Airport is immediately two kilometres south of the main study area. It handles around 36 million domestic and international passengers per annum and is the gateway for most international visitors visiting Australia. The *Sydney Airport Master Plan* (Sydney Airport 2009) envisages Sydney Airport remaining as the sole international and domestic airport for Sydney over the next 18 years (to 2029) and accommodating average annual growth rates of 4.2 percent for passengers and two percent for passenger aircraft movements. It is the main gateway for international air freight to and from Australia, with more than 470,000 tonnes per year. Sydney Airport provides or generates more than 75,000 jobs and approximately 131,000 jobs indirectly, making a total of around 206,000 full-time equivalent jobs. It is estimated that 100,000 additional jobs will be generated by Sydney Airport over the next ten years. Many of these jobs and economic benefits will be generated locally in the areas around the airport. The Sydney Airport Masterplan is currently under review with a draft expected late 2013.
- The Port of Sydney is just three kilometres to the south east of the study area. It is Australia's second largest port in terms of freight volumes (behind Melbourne) with about 1.3 million Twenty-foot Equivalent Units (TEUs), expected to grow to around six million by 2030-31.
- The Green Square Urban Renewal Area, with the Green Square Town Centre at its centre, overlaps with the northern section of the main study area. This is Australia's largest urban renewal area and will ultimately host 40,000 additional residents and 22,000 additional workers by 2030 (from 2008 numbers).
- Between the main study area and the CBD is the Redfern-Waterloo renewal area. This area is gradually being redeveloped, and is a focus for significant new investment in housing (including the redevelopment of public housing areas), employment (it contains the Australian Technology Park on the old Eveleigh Railway Yards site) and community and cultural services (Redfern is the principal focus of the urban Aboriginal community in Australia).
- The subregion contains major educational and health assets. Less than three kilometres to the east of the main study area is the University of New South Wales in Kensington, which, with the Prince of Wales hospital and other medical facilities, forms part of the Randwick Education and Health Precinct. To the north west of the main study area and to the south west of the CBD are the University of Sydney, the University of Technology Sydney and the Royal Prince Alfred hospital.
- There are additional significant and strategic industrial areas elsewhere within the inner Sydney area, in the neighbouring Botany Bay and Marrickville LGAs.

There are few more strategically located areas of employment land in Australia than the main study area. Planning for this area is of national economic significance. This is recognised by the area being included in the 'Global Economic Corridor' within the NSW state government's Metropolitan Plan. This is the collection of assets and centres that runs between Macquarie Park, through Chatswood and North Sydney, through the CBD and on to the airport and port, which contains over half a million jobs across a range of high value economic activities.

The Glebe precinct on Parramatta Road is a minor commercial precinct while the Moore Park Supa Centa site is a successfully trading bulky goods area.

2.2 Key state and local strategic policy settings

There are a number of strategic and policy documents which relate to the City of Sydney and the main study area. A full review of the NSW and local strategy and policy framework relevant to the study area is provided in the background report at appendix 1.

The strategic policies most relevant to the main study area are the Metropolitan Plan for Sydney 2036 (2010) and the City of Sydney's Sustainable Sydney 2030 plan.

It is noted that at the time of finalising this study, the Department of Planning and Infrastructure released a draft Metropolitan Strategy for Sydney to 2031. The draft Metropolitan Strategy reaffirms the importance of the study area in the local, metropolitan, state and national economies.

Metropolitan Plan for Sydney 2036

The *Metropolitan Plan for Sydney 2036* (Metropolitan Plan 2036) (Department of Planning and Infrastructure 2010) builds on the strategies and actions of the Sydney *Metropolitan Strategy: City of Cities* (2005).

The Metropolitan Plan establishes a target of 114,000 new jobs between 2006 and 2036 in the City of Sydney. The additional dwelling target for the City of Sydney is 61,000 new dwellings from 2006 to 2036. Assuming an average dwelling size of 1.8 persons per dwelling, this target aims to accommodate 109,800 new residents in the City of Sydney by 2036.

Sustainable Sydney 2030

Sustainable Sydney 2030 is the vision and strategic plan for the City of Sydney. It sets ten targets for 2030, including for 48,000 additional dwellings, and 97,000 additional jobs by 2030 (from 2006 numbers) with an increased share in finance, advanced business services, education, creative industries and tourism sectors.

Additionally, it is planned that by 2030 at least 10 percent of City trips will be made by bicycle, 50 percent by pedestrian movement and that every resident will be within a 10 minute (800 metre) walk to fresh food markets, childcare, health services and leisure, social, learning and cultural infrastructure.

Green Square is identified as one of the ten 'activity hubs'. Core elements of an activity hub include transport interchange, primary school, business centres, library, community space, childcare, wi-fi hotspot, fresh food market, bike parking, health and medical, City of Sydney service centre and a range of optional activity centres, dependent on local character and need.

2.3 The economic importance of the City of Sydney

The main study area is within the City of Sydney LGA, which is only 26.15 square kilometres in size. Despite its limited spatial extent, the 2011 census has recorded that since 2006 the City increased its working population to 395,000, representing four percent of Australia's workforce. Based on estimates by Deloitte Access Economics (2012), the total workforce produces just under eight percent of the total Australian GDP, or about $100 billion.

The importance of the City of Sydney is even greater in what might be considered the creative and knowledge based sectors. To take one example, in the 2011 Information, Media and Telecommunications (IMT) ANZSIC industry grouping, the City held 14.65 percent of total Australian employment, up from 12.6 percent in 2006. However, not only does the City have the greatest concentration of overall IMT employment, its dominance continues across the breadth of industries combined within this grouping. Many of the concentrations in other areas are the consequence of a high concentration in one industry, or the location of one business headquarters in the area, rather than being spread across the range of IMT industries. The City of Sydney's share of employment is especially strong in some sectors, as shown in Table 1.

TABLE 1. SHARE OF NATIONAL EMPLOYMENT IN CITY OF SYDNEY (DIGITAL ECONOMY)

3 digit ANZSIC Industry	Employment share 2011	Ranking
Internet publishing and broadcasting	56.5	1
Television broadcasting	25.0	2
Software publishing	19.4	1
Data processing and web hosting	18.2	1
Newspaper and book publishing	17.1	1
Internet search providers and search portals	16.8	1
Sound recording and music publishing	15.4	1
Motion picture and video activities	13.3	1
Other information services	13.1	1
Radio broadcasting	10.1	1
Telecommunications services	9.8	2
Library and archives	6.7	2

Source: ABS, Census (place of work Cat. No. 2006), 2011.

The City of Sydney is also dominant in critically linked industries to the digital economy, in terms of clusters of national employment (see Table 2).

TABLE 2. INDUSTRY SHARE OF NATIONAL EMPLOYMENT IN CITY OF SYDNEY (OTHER)

3 digit ANZSIC Industry	Employment share 2011	Ranking
Financial and industrial services	20.7	1
Tertiary education, adult education and support services	5.8	3
Creative industries (broad City-based grouping)	13.8	1

Source: ABS, Census (place of work Cat. No. 2006), 2011 and City of Sydney industry grouping

Supporting and making room for growth of the knowledge economies in the City of Sydney is essential to not only the metropolitan Sydney economy, but also the state and national economies. As Australia's only global city, the City of Sydney, and by extension metropolitan Sydney, must remain competitive and attractive to foreign investment and encourage innovation. The main study area will have a very important role in providing locations for new jobs, as discussed below.

2.4 The role of the main study area in Sydney's future productivity and competitiveness

Sydney's special economic role

Metropolitan Sydney (Sydney), and the Sydney CBD (in the City of Sydney) in particular, underpin the Australian economy to a significant extent.

In an economic era defined by the rise of knowledge intensive activities in advanced economies Sydney remains Australia's pre-eminent location for high value, advanced business services jobs. The metropolitan area hosts a disproportionately high share of the nation's services jobs which generate export income (both inter-regionally and internationally), and these are predominately within the City of Sydney LGA.

Table 3 shows Sydney has a much higher share of export oriented advanced business service jobs than Australia's other metropolitan centres. Sydney accounts for almost 50 percent of Australia's specialised service exports (compared with around 21 percent of all employment).

TABLE 3. ADVANCED BUSINESS SERVICES[1] LEAGUE LADDER

Metropolitan area	Export oriented advanced business services jobs	Share of advanced business services export jobs (%)	Share of all jobs nationally (%)
Sydney	63,061	49.8	20.9
Melbourne	43,091	34.0	18.5
Brisbane	8,742	6.9	9.6
Canberra	6,505	5.1	1.9
Perth	5,277	4.2	7.7
Adelaide	net importer	0	5.6
Hobart	net importer	0	1.0
Darwin	net importer	0	0.6

Source: Spiller, 2009

[1] 'Advanced business services' includes 4 digit ANZSIC categories of 7511 Financial Asset Broking Services, 7519 Services to Finance and Investment n.e.c., 7730 Non-Financial Asset Investors, 7810 Scientific Research, 7821 Architectural Services, 7823 Consultant Engineering Services, 7831 Data Processing Services, 7832 Information Storage and Retrieval Services, 7834 Computer Consultancy Services, 7841 Legal Services, 7842 Accounting Services, 7851 Advertising Services, 7852 Commercial Art and Display Services, 7853 Market Research Services, 7854 Business Administrative Services, 7855 Business Management Services, 7861 Employment Placement Services, 7869 Business Services n.e.c., 8431 Higher Education, 8432 Technical and Further Education, 9621 Business and Professional Associations

Furthermore, while there has been a significant focus in recent times on the role the mining boom has played in Australia's prosperity, the major cities are vital partners in this sector's growth. Sydney for example provides many of the professional and technical services – engineers, IT specialists, human resource brokers and managers, strategic planners and designers, commercial lawyers and financial brokers of all sorts – that 'value add' to the mining industry. More than a third of the inputs in the mining value chain rest in this sector, trade of about $46 billion per year[1], much of which is sourced in Sydney.

Table 4 shows gross value-added per worker per hour relative to the Australian base. It shows that labour in Sydney in the past three Census periods has been more productive than that of Australia as a whole (as the values are all greater than 100), and that productivity in Sydney has grown overall relative to Australia, over the decade shown.

In addition, it shows that labour in Sydney is the most productive of the Australian major cities and regions. This provides Sydney with a competitive advantage over other areas, in that businesses are more likely to be attracted to areas where they can employ more productive workers.

TABLE 4. RELATIVE PRODUCTIVITY PERFORMANCE

	1999-2000	2004-05	2009-10
Sydney	107.5	104.1	108.1
Melbourne	97.2	95.7	96.6
Brisbane	99.3	92.6	93.8
Regional QLD	90.7	97.3	93.4
Perth	109.7	106.1	105.1
Regional WA	168.4	181.8	215.5
Australia	100	100	100

Source: SGS Economics and Planning, 2013. This is based on ABS, National Accounts: State Accounts (Cat. No. 5220.0), and a range of other ABS data sources outlined in SGS Economics and Planning, Australian cities accounts 2011-12, November 2012 (also available at www.sgsep.com.au/files/GDP_by_Major_Capital_City_0.pdf)

Notes: The high values seen in regional Western Australia are due to the investment in capital intensive machinery for mining, which enables a unit of labour to be considerably more productive. Sydney's high productivity is largely due to the high value-add of the financial services sector; however, people in these jobs will move between industries to other high end jobs and bring productivity benefits between sectors.

Metropolitan Sydney's economic primacy has been eroded

Figure 4 shows that notwithstanding its productivity 'lead', Sydney's share of growth of knowledge generated income (from knowledge intensive services which includes information media and

[1] Based on exports of $190 billion, with value added at 30 percent.

telecommunications, financial and insurance services and professional, scientific and technical services) has been falling since 2000 (that is, its primary role in Australia's business services and knowledge economy, while still undisputed, has been slowly eroded). Meanwhile, Melbourne's share of knowledge generated income – although lower in absolute terms – has been gradually rising. Melbourne's central city business service and knowledge economy has grown strongly, at least partly from initiatives such as Docklands renewal area offering a lower cost location for knowledge-related activity, and investments in infrastructure (particularly transport) that have supported employment growth.

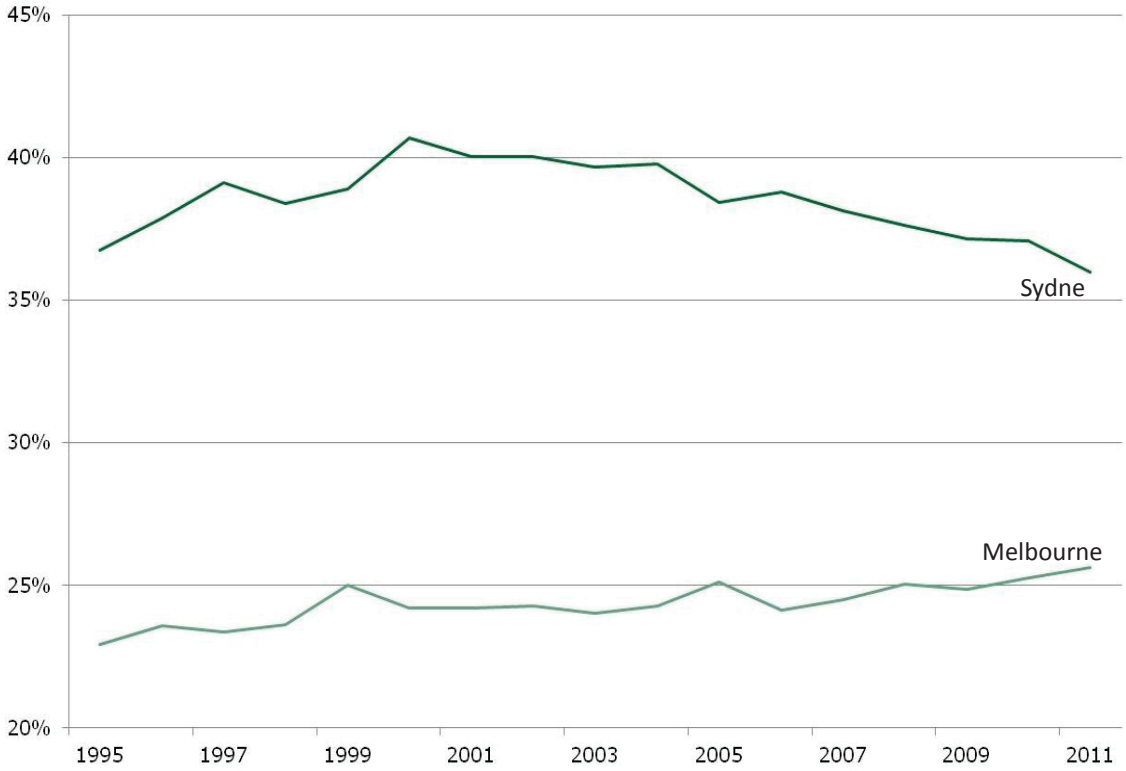
More detail on the relative performance of the City of Melbourne and the City of Sydney, as reflecting the performance of their respective metropolitan economies, is shown in Table 5. As discussed above under the economic role of the City of Sydney, the table shows the strength and growth of IMT, professional and technical services and computer related services employment in the City from 2006 to 2011. However, the table also shows how the City of Melbourne 'caught up' somewhat in this period. It grew at a faster rate than the City of Sydney in these sectors overall in this same period, though from a lower base.

Agglomeration

Agglomeration refers to the density and/or spatial size of economic activity. Firms are generally more productive in denser areas due to:

- access to economies of scale and scope, which means they have an ability to specialise, given the large pool of potential customers that are readily accessible
- the availability of numerous supply sources and potentially specialised infrastructure, and the competitive environment that stems from this
- access to a deep and diverse pool of skilled labour, often complemented by high levels of technological/ knowledge transfer between firms, which helps bolster innovation.

FIGURE 4. SHARE OF KNOWLEDGE GENERATED INCOME, 1995 TO 2011



Source: SGS Economics and Planning, 2012, using ABS data

Note: The Australian Bureau of Statistics State Accounts publication provides income generated by each industry for each State. Hours worked data from the Labour Force Survey is used to estimate the Capital City share from the State income figure. The hours worked are weighted by an average wage rate for Capital City and Balance of the State from the Census. This accounts for different economic structures within each industry in the Capital City and Balance of the State. For example, in Financial & insurance services the type of activities (from basic banking operations up to hedge funds) is much wider than in Balance of the State (where basic banking operations are the most common activities). In New South Wales and Victoria around 90 per cent of activity in Knowledge intensive industries takes place in Sydney and Melbourne respectively.

Increases in the job density of an area and accessibility to jobs both improve the potential to capture agglomeration benefits, leading to higher labour productivity and human capital. Rawnsley and Szafraniec (2010) found that doubling effective job density (a measure that takes into account the concentration of jobs in an area and the amount accessible within 30 minutes) results in:

- firms becoming around 8 percent more productive on average, which fits with international literature
- firms in the Professional, Scientific and Technical Services industry seeing productivity gains of closer to 17 percent
- firms in the manufacturing, wholesale trade, and transport, postal and warehousing sectors seeing falls in productivity. These sectors benefit from locating in less dense areas because, as density increases, services start to occupy areas and bid up rents which slows growth of that industry in that area and results in reducing productivity gains. This highlights the importance of protecting land where these uses are essential to an area's functioning or of strategic value, for example with long term zoning plans to reduce property speculation.

For Sydney, productivity is advanced where the concentrations of employment increase, or where rapid transport connections enhance effective business to business relationships, as well as relationships between businesses and the workforce.

TABLE 5. CITIES OF MELBOURNE AND SYDNEY, EMPLOYMENT IN SELECTED 2 DIGIT ANZSIC SECTORS, 2006 & 2011

City of Sydney – Selected 'two digit' ANZSIC industry sector employment	2006	2011	Change 2006-11	% change 2006-11
Motion picture and sound recording activities	1,971	3,002	1,031	52%
Broadcasting (except internet)	3,787	4,975	1,188	31%
Internet publishing and broadcasting	500	1,286	786	157%
Internet service providers, web search portals & data processing	1,001	1,825	824	82%
Information media and telecommunications, nfd	382	591	209	55%
Professional, scientific and technical services	52,224	60,650	8,426	16%
Computer system design and related services	8,861	12,783	3,922	44%
Professional, scientific and technical services, nfd	133	126	-7	-5%
Total	**68,859**	**85,238**	**16,379**	**24%**

City of Melbourne – Selected 'two digit' ANZSIC industry sector employment	2006	2011	Change 2006-11	% change 2006-11
Motion picture and sound recording activities	788	767	-21	-3%
Broadcasting (except internet)	1,295	1,765	470	36%
Internet publishing and broadcasting	55	183	128	233%
Internet service providers, web search portals and data processing services	1,009	1,150	141	14%
Information media and telecommunications, nfd	96	113	17	18%
Professional, scientific and technical services	41,643	50,486	8,843	21%
Computer system design and related services	10,245	17,250	7,005	68%
Professional, scientific and technical services, nfd	75	103	28	37%
Total	**51,984**	**67,849**	**15,865**	**31%**

Source: ABS, Census (place of work Cat. No. 2006), 2006 and 2011 SGS calculations.
Note: Professional, Scientific and Technical Services category excludes Computer System Design and Related Services

Cost and availability of land

Sydney's capacity to grow knowledge intensive sectors reflects its offer of superior agglomeration benefits for these industries; however, there is a price to pay for these benefits. The Age (2012) notes that Sydney is now the fifth most expensive place to do business, more expensive than New York, and sites such as Docklands in Melbourne offer a lower cost location for knowledge-related activity.

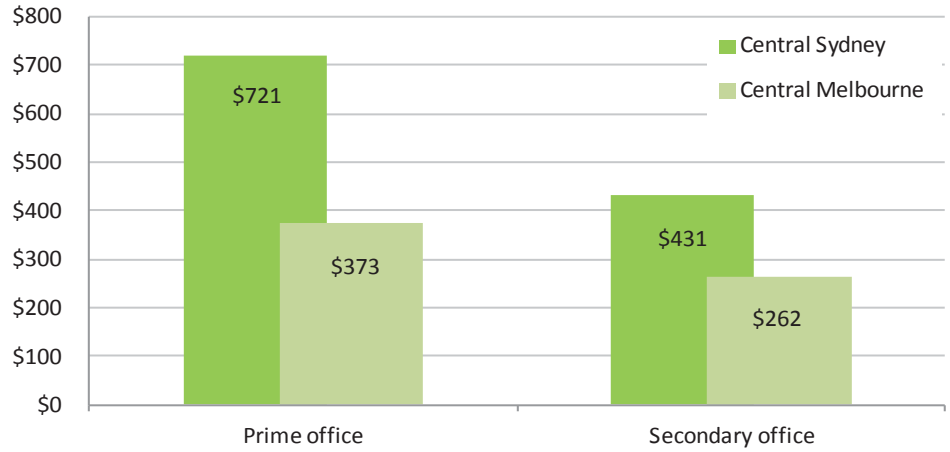
Figure 5 shows that the cost of prime office space is considerably lower in Melbourne than Sydney.

Land availability is likely to be a significant factor in this difference, with Melbourne having a relatively large supply of strategically located employment land and ample opportunity areas for future growth. Beyond the established areas of the CBD and St Kilda Road where capacity remains (over 180,000 jobs[2]), there appears to be ample opportunity areas for future growth: the established brownfields of Docklands (20,000 jobs[3]) and Southbank (16,000 jobs[4]) have significant further capacity for development. Detailed planning has already been undertaken for new sites such as E Gate (4000 jobs[5]), City North (10,000 jobs[6]) and Arden Macaulay (30,000 jobs[7]) to accommodate large scale future development. Preliminary planning work around Fishermans Bend (32,500 jobs[8]) has commenced. Potential locations for further development in addition to these include Dynon Road (35,000[9]) and the rail corridor from

[2] City of Melbourne Employment Forecasts, 2011 (2031 estimate) and Department of Transport Land Use Projections 2041
[3] Docklands MasterPlan
[4] Southbank Structure Plan, 2010
[5] Major Projects Victoria Estimate
[6] City North Structure Plan, 2010
[7] Arden Metro Station Redevelopment Preplanning estimates
[8] SGS initial urban design analysis
[9] SGS estimates provided to Victorian Department of Transport and Department of Planning and Community Development

Federation Square to the MCG. These areas could ultimately host well over 300,000 jobs and, though no exact estimate is available, more likely over 500,000 jobs[10].

FIGURE 5. PRIME AND SECONDARY OFFICE NET RENTS, PER SQUARE METRE

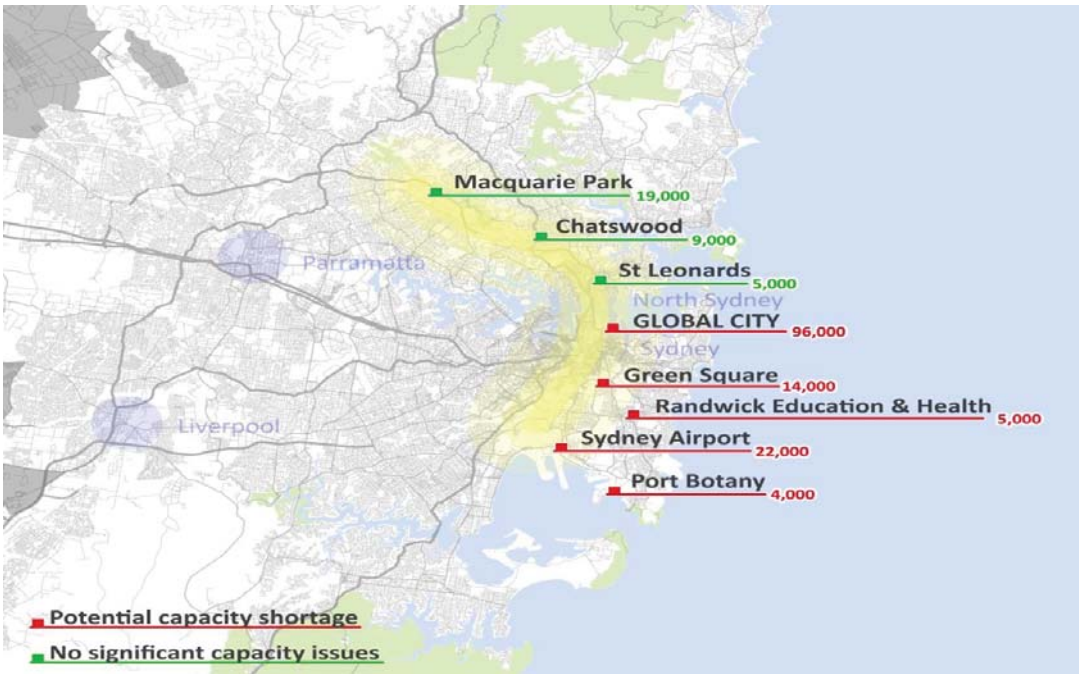


Source: Knight Frank Melbourne and Sydney office market overviews, May 2012

In Sydney, knowledge intensive services are concentrated in the global economic corridor, where capacity shortages under current controls are possible over the next 25 years, particularly between the CBD and airport. Figure 6 shows one view of capacity for employment growth, given the employment capacity targets in the Metropolitan Plan, within centres in the global economic corridor based on current planning controls.

[10] Particularly given the significant development occurring in the precincts around Melbourne University (Parkville and Carlton) and around the hospital in North Melbourne.

FIGURE 6. POTENTIAL CAPACITY TO ACHIEVE METROPOLITAN STRATEGY EMPLOYMENT CAPACITY TARGETS FOR 2036 IN GLOBAL ECONOMIC CORRIDOR CENTRES GIVEN CURRENT PLANNING CONTROLS



Source: SGS Economics and Planning estimates, 2013 using various sources including Bureau of Transport Statistics, Department of Planning and Infrastructure (2010), SGS Economics and Planning (2009), SGS Economics and Planning (2007), City of Sydney (2007), PCA (2010), North Sydney and Willoughby Council (2007)

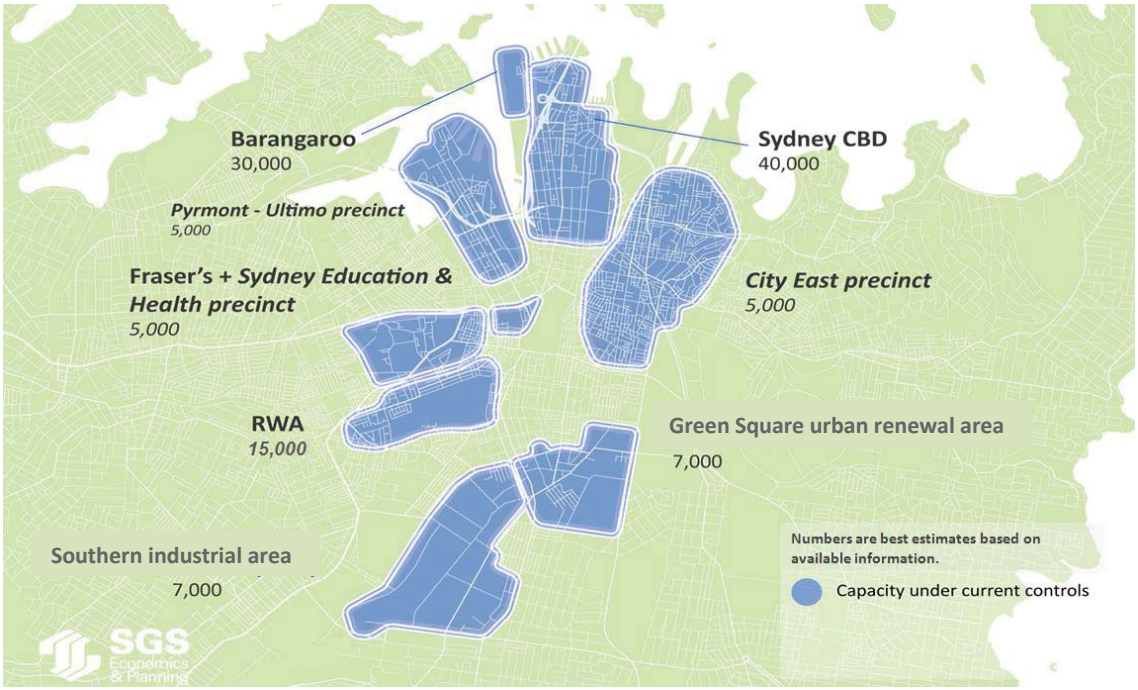
There is a long term constraint on commercial space in the Sydney CBD, though the extent of this is debated. The Property Council of Australia (PCA) (2005) notes that the CBD is small by international standards and tightly constrained. Capacity estimates prepared by the PCA find that the commercial core of Sydney will 'run out' of office space in 12 to 15 years. This estimate is refuted by the City of Sydney who in 2008 prepared the City of Sydney capacity study, which measured the gap between the floor space available under the 2008 planning controls 'as built', and the potential floor space that could theoretically be achieved under the then proposed City Plan controls. In 2010 the capacity study was updated. It concluded that after taking into account the anticipated floor area for major site, including Frasers (CUB), Barangaroo, Harold Park and Redfern-Waterloo, the City Plan has the potential to achieve 96 percent of the estimated floorspace required to meet the dwelling and workforce targets established under the Draft Sydney City Subregional Strategy.

In either case, the evidence implies a limit to the longer term contestability in the market (a contestable market being one where the threat of competition dissuades firms from charging prices that will make them excess profits). North Sydney may be able to accommodate some spill over demand from the CBD but tends to serve a different market.

It is noted the City of Sydney is currently undertaking a review of Central Sydney planning controls in which employment capacity targets will be addressed in more detail.

Ensuring an expanded array of options for employment growth in inner Sydney should therefore be a priority. As shown in Figure 7, there is limited existing capacity in other sites where controls already provide for additional growth to achieve the 2036 employment capacity target.

FIGURE 7. ESTIMATED NET NEW EMPLOYMENT CAPACITY IN EXISTING EMPLOYMENT AREAS IN THE CITY OF SYDNEY UNDER EXISTING CONTROLS



Note: Numbers are best estimates based on available information. Precincts in italic text are those for which employment capacity is less certain.
Source: SGS Economics and Planning, 2012 estimates using various sources including Barangaroo Delivery Authority (2012), Department of Planning (2005), Department of Planning (2008), Department of Planning and Infrastructure (2010), SGS Economics and Planning (2008), Redfern Waterloo Authority (2006)

In these and some other areas there is potential for about 114,000 new jobs, including perhaps 14,000 new jobs in the Southern employment lands (while maintaining the current industrial 'flavour' of the zoning) and Green Square urban renewal areas.

This appears sufficient to achieve the Metropolitan Plan targets for the City for 2036 (as shown in Table 6 which compares the potential in individual precincts across the City as a whole to the aggregate targets for 'Global Sydney' and the Southern and residual major employment areas in the City). However, given the experience in Melbourne where the stock of inner employment lands is vast and has kept rents and prices constrained, and the critical need to protect the potential to enhance agglomeration economies in Sydney, the stock of available capacity in existing employment lands may not be adequate (even if it is, say, a 50 percent undercount) to provide the depth and diversity of opportunities required for a changing economy.

TABLE 6. CURRENT ESTIMATED POTENTIAL TO MEET TARGETS IN CITY OF SYDNEY

			Metro Plan target 2036	
	2006 (a)	Potential	Addition (06-31) (b)	Total (a+b)
Global Sydney	**358,000**	**100,000**	**96,000**	**454,000**
Sydney CBD	280,000	40,000		
Barangaroo	-	30,000		
Pyrmont-Ultimo precinct	15,000	5,000		
Redfern-Waterloo	5,000	15,000		
City East precinct	30,000	5,000		
Frasers Broadway and the Sydney education and health precinct	28,000	5,000		
South Sydney and residual	**71,000**	**14,000**	**18,000**	**89,000**
Green Square Urban Renewal		7,000		
Southern employment lands		7,000		
Residual (e.g. Glebe, Newtown)		0 (or modest)		
City of Sydney	**429,000**	**114,000**	**114,000**	**543,000**

Source: Department of Planning & Infrastructure (2010), SGS best estimates using various sources including Barangaroo Delivery Authority (2012), Department of Planning (2005), Department of Planning (2008), Department of Planning and Infrastructure (2010), SGS Economics and Planning (2008), Redfern Waterloo Authority (2006)

Implications for the study area

The Bays Precinct also has the potential to contribute to employment targets in the inner city. While at the time of writing this report limited information is available, it is clear the case for inner harbour port options at this site remains strong, and any renewal would also inevitably involve a contest with open space and residential uses, with the scale of development also likely to be controversial.

From this perspective the role of the main study area in providing significant employment potential in the inner city area remains compelling, particularly remembering that the rapid public transport connections between job centres that could otherwise provide for enhanced effective job density – and productivity boosting agglomeration – are not under consideration and are likely to be some way off.

The links between urban structure, density, agglomeration and productivity are particularly relevant for this study. They suggest that there is a strong argument in favour of increasing the long term employment potential of the main study area, given its highly strategic location, to increase land availability and alleviate capacity constraints. Economic theory and historical data indicate that doing so will lead to productivity gains, and improve the city's competitiveness and ability to continue to attract high value jobs.

2.5 The new literature on a successful urban economies

There have been a number of recent contributions on cities and economic geography which provide some intelligence about the underlying contributors to a successful urban economy. The likes of Enrico Moretti (2012), Richard Florida (2003) and Edward Glaeser (2011) have all written books on this or related topics.

They all argue that density and diversity are the hallmarks of successful urban economies based on knowledge and creative industry jobs.

According to Moretti (2012, p.6), old manufacturing centres are disappearing as 'new innovation hubs' become the 'new engines of prosperity'. Technological advances have reduced the value of physical goods but increased the value of human capital and innovation (Moretti 2012, p. 10), with job growth in developed economies now highest in knowledge-based industries. Moretti (2012) concludes that social

interactions among workers increases innovation and productivity and by clustering innovators and the creative class, creativity will be fostered and workers will be more successful.

Filion (2001, p. 66) argues that unlike 'mono or less diversified industrial settings', economically diverse centres have been recognised as offering more opportunities and being more resilient within the broader economy. However, in order for diverse, mixed-use centres to be successful, there needs to be 'a diversity of activities, with a strong office employment and retail complement, and development at a density that is much higher than the suburban norm' (p.142).

Florida (2003) writes that vibrant, diverse, mixed-use centres characterised by high density residential, office employment and retail are attractive to creative workers because they foster interaction and knowledge sharing (p. 249). He notes that 'economic growth is powered by creative people, who prefer places that are diverse, tolerant and open to new ideas', and thus cluster in vibrant and active centres.

Glaeser (1998) highlights that as urban density increases, interaction between people also increases and they develop and learn through their interactions. Desrochers and Leppälä (2011) further develop this idea, highlighting that creative individuals have more opportunity to address problems in economically diverse environments where there are a range of people with different expertise. Therefore, economically diverse environments encourage innovative behaviour, which in turn further attracts skilled workers and facilitates economic growth.

A critique of this literature is that it tends to generalise the potential of cities – both within and between them. Major structural forces contribute to the success or otherwise of cities and their component areas. However, for inner city areas with robust economic prospects or potential the message is clear. The successful modern urban economies are built around knowledge and creative industries, and attracting firms and workers in these industries, depends on economically diverse, dense and mixed use environments. When consistent with orderly planning that aims for sustainable transport outcomes, maximises the return on public investment in infrastructure and protects opportunities for vital urban activities, this should be a key guide to planning for change in the southern Sydney employment lands.

2.6 The role of the main study area given Sydney's changing economic geography

Globalisation has been marked by a rapid increase in global trade in goods and services and, in particular, capital flows. The decline of manufacturing-dominated industries that prevailed during the twentieth century has given rise to a new service dominated economic complex (Sassen 2008), facilitated by:

- technological innovation in transport, logistics and communications
- promotion of deregulation in particular industry sectors
- removal of trade restrictions and exchange controls
- innovation in the management and pricing of transaction risks, in the form of insurance, hedging, and partnership formation, among others.

More generally, globalisation is likely to continue to drive a separation between the 'thinking' part of the value chain (namely design, brokerage, marketing, strategy formulation) and the making or manufacturing, and distribution, in the form of transport, logistics, and after sales service.

Competition from low cost countries has affected industry in Australia as a whole, forcing many firms to reduce costs as much as possible. This has resulted in some relocating to industrial areas in the outer suburbs of Sydney, particularly Western Sydney; and others offshore. This is a function of utility and opportunity cost, that is, the cost of land and rents, versus increased transport cost, relocation costs and level of infrastructure support.

As firms relocate to lower cost land, the land left behind becomes available, potentially for other uses. Markusen (1996) describes these types of space as 'slippery', as the ease of moving to lower cost regions increase. BIS Shrapnel believes that while land in the inner city and southern and northern Sydney is constrained, any given level of demand can be met through vacant land in the outer regions, promoting movement to these regions and a reuse of inner city lands (BIS Shrapnel 2011).

However, some higher value manufacturing and other industrial uses may still require urban space, due to networks and contracting chains, and an inherent need to be located in close proximity to customers and craftsmen (Sassen 2008). In the more connected global economy, there are strategic industries, particularly logistics, deriving advantages from locating close to the port and airport. Furthermore, the placement of particular industries, firms and facilities (such as Council depots) on the fringe of the CBD is vital to providing essential support services to large population centres.

The main study area is strategically located and is well placed to play a role for firms in different parts of the value chain, though clearly its trajectory will be towards higher value activities.

Ultimately, the role of the study area should be to support the growth of the economy in Sydney through flexible use and development controls which are aligned to new economy activities (creative uses, knowledge industry, flexible office space). This is consistent with the Property Council of Australia (2010, p.7) commentary that regeneration of brownfield employment lands needs to occur to overcome an existing sterilisation of 'under-productive industrial land' in the inner city and middle ring of Sydney which could be better utilised for a 'wider range of higher yielding employment uses'. However, while lower value, land hungry activities will continue to relocate from the area (overseas or to western Sydney), if they haven't already done so, there will be a need to ensure that activities associated with the airport and port can find appropriate sites, and there will remain a role for the area in housing essential support services needing access to the CBD or otherwise serving the rapidly growing population in the inner city subregion.

This is fundamental to the recommendations made by this study. The role of the study area is not only to facilitate employment, and therefore cannot be only measured by the quantum of jobs. It is also to facilitate the efficient functioning of the City, support key state infrastructure including the airport and the port, and create an economic environment where the City's economy, and by extension metropolitan Sydney's and the Australian economies, can flourish.

3 DEVELOPMENT CONSTRAINTS AND TRANSPORT CONTEXT

3.1 Development constraints

The study areas are relatively unconstrained when the typical physical and site development barriers are considered (see maps in appendix 3). There are a few strata titled properties, a scattering of heritage listed properties and sites, and most of the development constraining air traffic noise contours (ANEF 25+) are on the extreme south west edge of the main study area. The flooding map provided shows isolated impact areas, which are more extensive near the Alexandra Canal and the central part of the main study area.

Flooding and groundwater constraints to development are known to be more extensive near the canal and the central part of the main study area but no maps have been provided showing the extent of these issues. These and potential site contamination issues are likely to be the biggest barrier to more intensive development; residential development in particular.

However, by any measure, traffic and transport issues are likely to be the biggest long term constraint on development across the precinct. The area is near a number of Australia's major trip generators, as outlined in the previous section (including the airport, port, and Sydney CBD), and as a destination and origin for significant business to business (freight and small commercial vehicle) and commuter traffic and workers (residents nearby leaving or workers in the precinct arriving). The focus in this section therefore is on the traffic and transport context for development.

3.2 Existing transport

Roads

The principal north south roads near or through the main study area include the Princes Highway (to the west), the Eastern Distributor (to the east), Botany Road (on the eastern edge) and O'Riordan Street (through the centre of the main study area) connecting the airport to Green Square. Bourke Road is a local but major distributor road which also runs north south through the main study area. Botany Road, O'Riordan Street, Bourke Road and Bourke Street (running to the north) form a five way junction at Green Square just on the north east edge of the main study area.

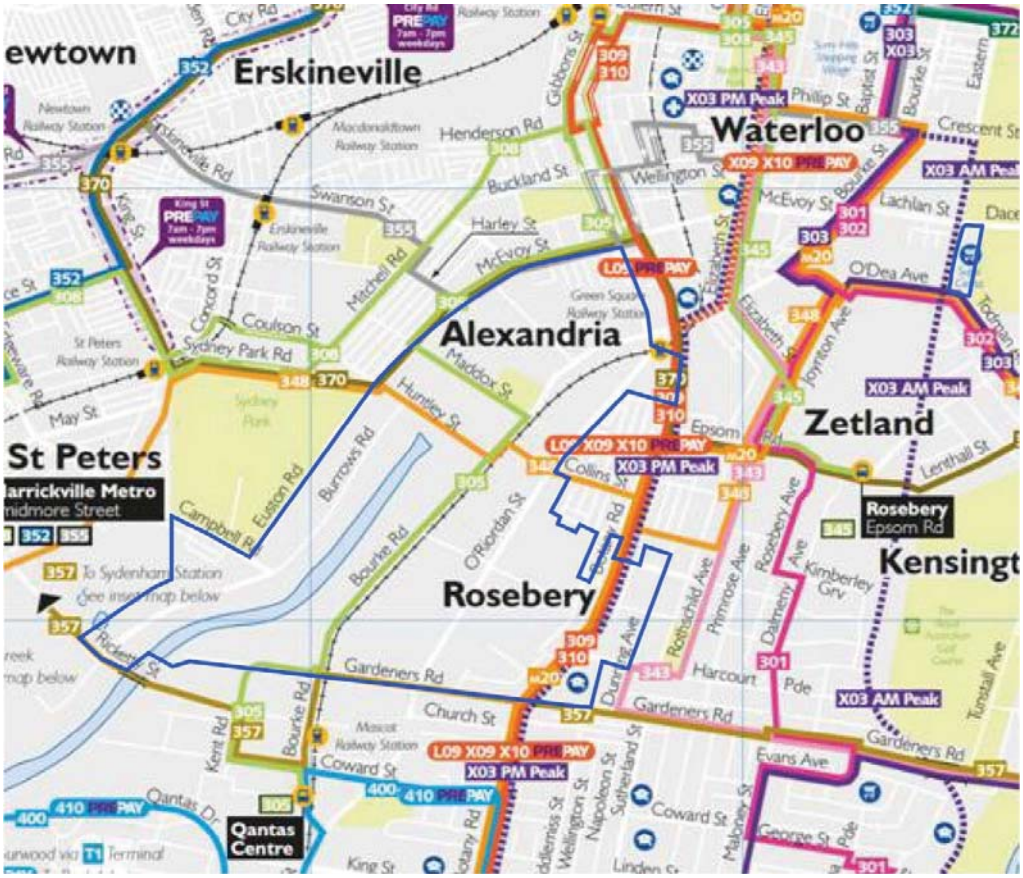
East west traffic movement through this southern Sydney area is heavily constrained and relies on the Lachlan St/McEvoy St/Euston Rd/Sydney Park Rd system to the north of the main study area and Gardeners Road which is the southern boundary. Within the main study area Huntley St/Collins St is the principle east west through connection, with some access through Doody Street in the southern portion of the main study area.

Public transport

Figure 8 shows the public transport services in the vicinity of the main study area. Green Square railway station (to the north) and Mascot station (to the south) are just outside the main study area. The

distance between these two stations is 2.5 kilometres. A number of bus routes run along the edge of the main study area, with the Botany Road corridor being particularly well served. Apart from the Botany Road services only the 305 and 348 penetrate into the main study area.

FIGURE 8. PUBLIC TRANSPORT ROUTES WITHIN MAIN STUDY AREA



Source: Transport for NSW: Sydney Buses, 2013

Bus number	Route description	Frequency
301	Eastgardens – Mascot – Surry Hills – City	Daily full time service
X03	Sans Souci – Kyeemagh – Surry Hills – City	Monday to Friday afternoon peak hour express service
305	Stamford Plaza Hotel – Railway Square	Monday to Friday peak hour service (four services in the morning and four services in the afternoon)
309	Port Botany – Mascot – Redfern – City	Daily full time service
L09	Port Botany – Mascot – Redfern	Monday to Friday peak hour limited stops
X09	Eastgardens – Botany – Mascot – City	Monday to Friday peak hour express service
310	Eastgardens- Mascot – Redfern – City	Daily full time service
X10	Eastgardens – Botany – Mascot – City	Monday to Friday peak hour express service
343	Kingsford – Rosebery – City	Daily full time service
348	Wolli Creek – Alexandria – UNSW – Randwick Junction – Bondi Junction	Daily Monday to Friday service (total of 49 services each weekday - twenty-five from Wolli Creek to Bondi Junction and twenty-four in the opposite direction).
357	Sydenham – Eastlakes – Bondi Junction	Daily full time service (selected weekday peak hour services extend to Sydenham via Mascot railway station)
370	Leichhardt – Glebe – Newtown – UNSW – Coogee	Daily daytime service
M20	Gore Hill – St Leonards – Crows Nest – North Sydney – City – Surry Hills – Redfern – Waterloo – Mascot – Botany	Buses operate approximately every 10 minutes during the peak period, 15 minutes throughout the day and approximately every 20 minutes on weekends and other times. Only a day time service between 6:30am and 8pm weekdays and 7:30am and 7:30pm on weekends.

Source: Adapted from Transport for NSW: Sydney Buses: 2013

Cycling

Separated cycleways have been completed along Bourke Road, through the centre of the main study area, as well as Bowden Street and Mandible Street in the north. The City undertakes periodic counts of cycleway users. Results from 2012 show average monthly trips between 5000 (June 2012) and 10,000 (October and November 2012) on the Bourke Road cycleway.

3.3 Transport constraints

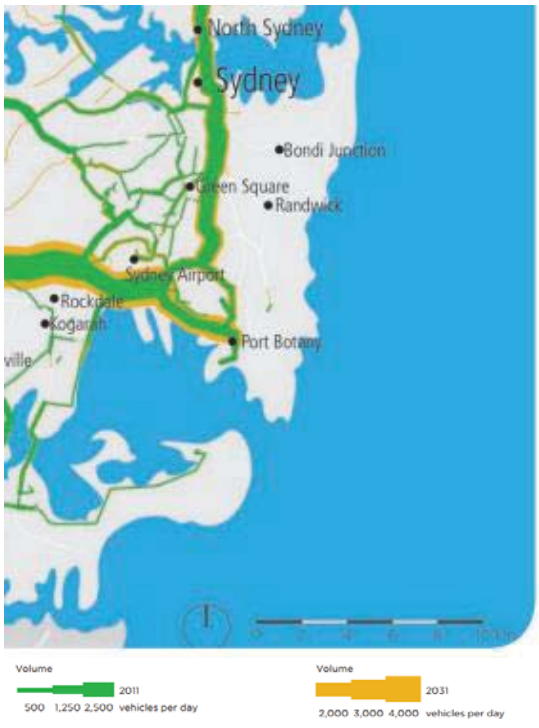
The recently released Long Term Transport Master Plan highlighted a number of traffic issues and looming constraints in and around the study area.

Heavy vehicle, road network performance and rail capacity

Figure 9 shows there is considerable movement of heavy vehicles through the main study area, with a number of roads showing high volumes. Volumes are expected to increase by 2031 along McEvoy Street, Gardeners Road and O'Riordan Street.

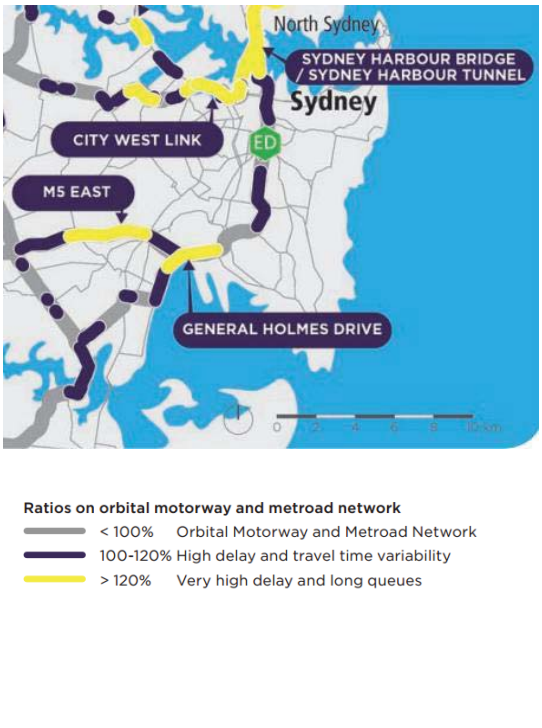
Capacity constraints on neighbouring major roads affect the main study area as shown in Figure 10. For example, Southern Cross Drive currently operates at capacity during the morning peak period, and congestion on the Eastern Distributor (as shown below) diverts traffic onto adjacent arterial roads, leading to congestion on O'Riordan Street in particular. If nothing is done to improve this, the NSW Long Term Transport Master Plan expects 'very high delay and long queues' on the Eastern Distributor close to the South Dowling Street site by 2031.

FIGURE 9. HEAVY VEHICLE MOVEMENTS IN SYDNEY 2011 AND 2031



Source: NSW Long Term Transport Master Plan, 2012

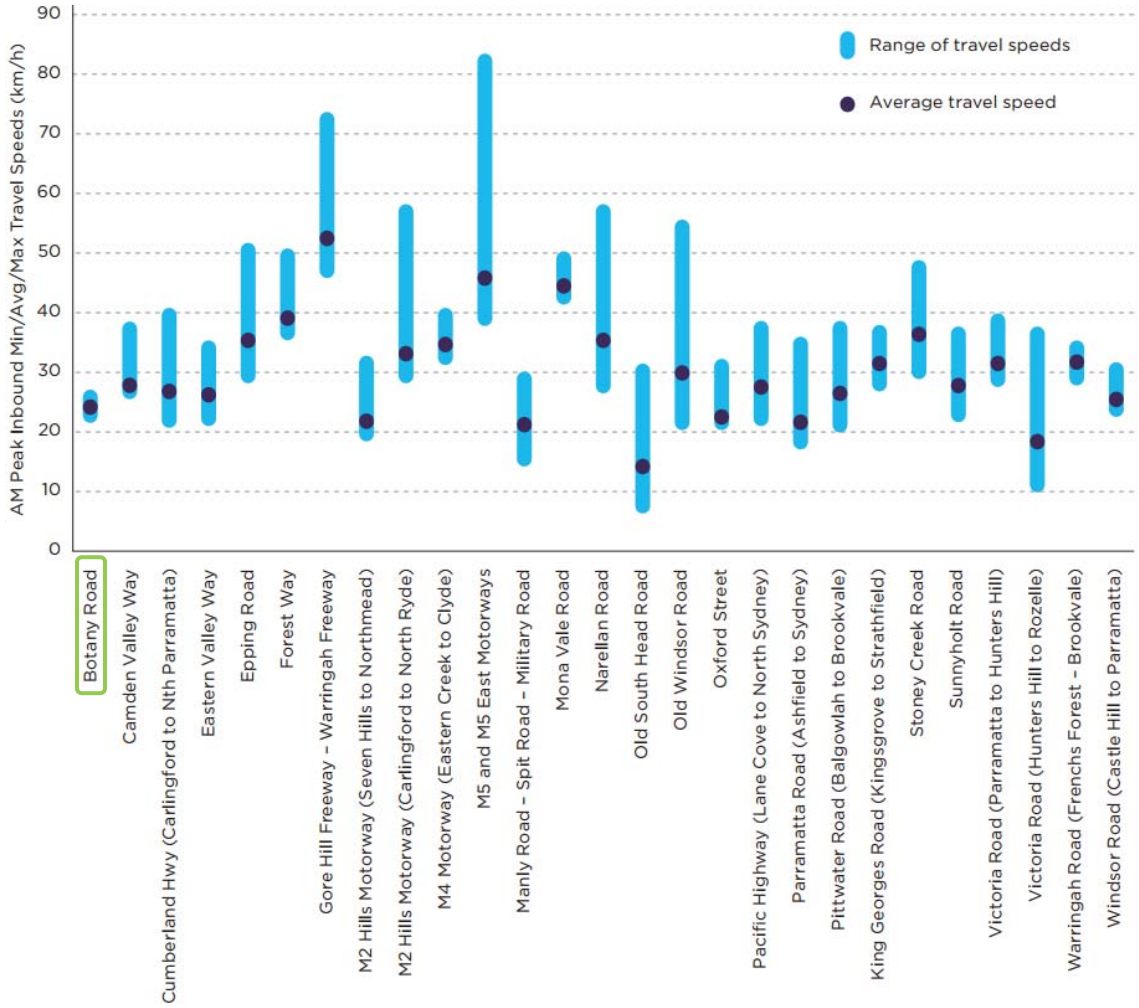
FIGURE 10. ROAD NETWORK PERFORMANCE (VOLUME-CAPACITY RATIO), AM PEAK 2011



Source: NSW Long Term Transport Master Plan, 2012

The NSW Long Term Transport Masterplan noted an average travel speed along Botany Road during the morning peak of around 25km/h, as shown in Figure 11.

FIGURE 11. MINIMUM, AVERAGE AND MAXIMUM AM PEAK TRAVEL SPEEDS ON KEY ROADS

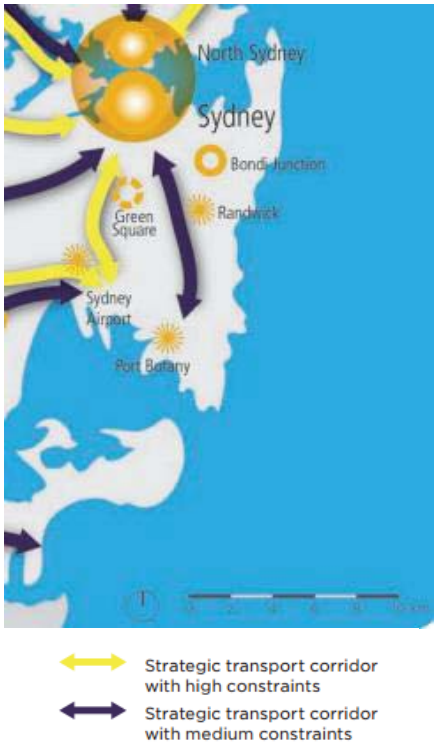


Source: NSW Long Term Transport Master Plan, 2012

The strategic corridor between the CBD and Sydney Airport is expected to have high constraints in 2031, as shown in Figure 12. Travel demand for this corridor is forecast to grow to 24,000 by 2031 for the morning peak, an equivalent of six lanes of traffic or more than 25 train loads of seated passengers (NSW Government 2012).

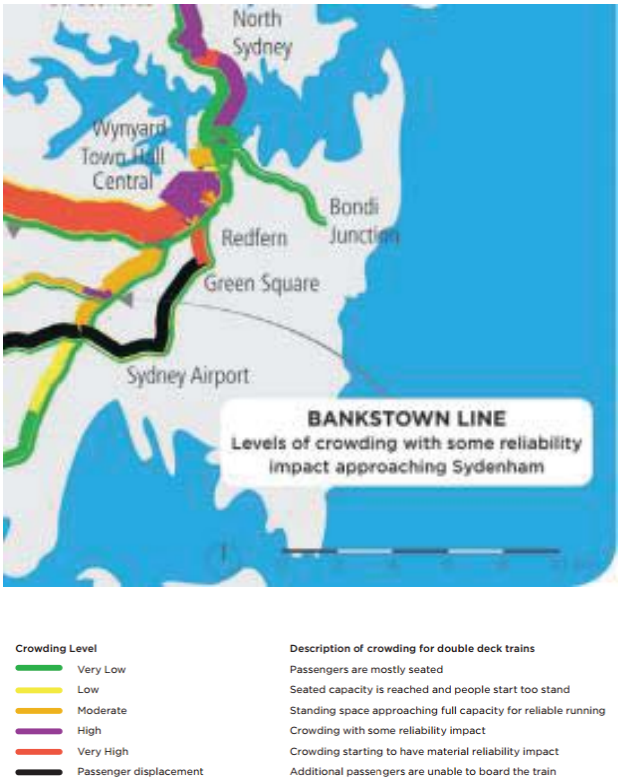
The Airport rail line is currently approaching seated capacity between Green Square and Central; however, if nothing is done to improve capacity, by 2031, passenger displacement is expected during the morning peak on both the East Hills and Airport lines, from Green Square past Sydney Airport to Revesby (Figure 13).

FIGURE 12. SYDNEY'S CONSTRAINED STRATEGIC CORRIDORS IN 2031



Source: NSW Long Term Transport Master Plan, 2012

FIGURE 13. RAIL NETWORK PERFORMANCE (REPRESENTED BY VOLUME-CAPACITY RATIO), AM PEAK, 2031 'DO NOTHING' SCENARIO



Crowding Level	Description of crowding for double deck trains
Very Low	Passengers are mostly seated
Low	Seated capacity is reached and people start too stand
Moderate	Standing space approaching full capacity for reliable running
High	Crowding with some reliability impact
Very High	Crowding starting to have material reliability impact
Passenger displacement	Additional passengers are unable to board the train

Note: The above passenger crowding levels are based on total capacity (including both seated and standing passengers). Thi more generally accepted measure internationally rather than expressing capacity on the basis of seating alone.

Source: NSW Long Term Transport Master Plan, 2012

The number of buses along Botany Road is likely to increase with the development of Green Square Town Centre, with the Green Square TMAP noting that Botany Road is a key transit corridor, which should receive continued bus priority investment.

Air freight at Sydney airport is projected to more than double, from over 500,000 tonnes in 2010 to 1,077,000 tonnes in 2029, with more than half of Australia's international air freight moving through the airport. Passenger numbers are also expected to double over the same period, which will place further pressure on road and public transport networks.

3.4 Specific owner and stakeholder transport issues

In a survey undertaken for the background report, land owners were asked to scale a number of factors that were particularly important to the location of their business or operation, with one being 'not important' and 10 being 'essential'. Transport and access factors were considered the most important, particularly public transport and truck access (see Table 7).

TABLE 7. IMPORTANCE OF VARIOUS FACTORS

	% of respondents ranking transport and access factors as:	
	important (7-10)	**essential (10)**
public transport access	64	22
truck access	63	27
proximity to customers	59	28
proximity to the CBD	41	9
access to shops and services for workers	39	5
proximity to the ports or airport	32	12
proximity to suppliers	31	8
separation from sensitive uses[1]	21	4
24 hour operation	17	5

Source: SGS Economics and Planning, 2012

[1] Note: sensitive uses might include residential development, large retailers or commercial offices

In terms of specifics most respondents noted no operational issues, though where they did report issues, the most prevalent was parking, accounting for 30 percent of responses, followed by cycle lanes, which was raised by 14 percent of respondents. The remaining 25 percent of responses were comprised of a variety of other issues (each mentioned by fewer than eight businesses).

In consultation with real estate agents undertaken for the background report, specific transport related issues that were noted include the following:

Parking
- Parking was considered a major constraint across the area. While parking is generally easier in Alexandria than other city fringe areas, there is often an expectation that parking will be provided given limited public transport provision and poor walkability in the study area.

Public transport
- Public transport is relatively inaccessible and is seen as being unreliable, especially bus services. Bus services are believed to be frequently late in arriving to the area, and sometimes not turning up at all when scheduled to run. This causes frustration for visitors, and has resulted in commuters avoiding public transport in general.

Cycleway
- The cycleway was viewed by one agent as providing a benefit for creative industry tenants, and possibly staff employed in business services.
- Otherwise, the cycleway was seen as limiting the flow of traffic through a gridlocked area; unsafe given the interface between trucks and heavy vehicle volumes; poorly utilised; reducing the limited space available for parking; and having low recreation value.

Truck access
- There is currently limited B-Double access to the area, with freight uses contained to the areas along Botany Road and O'Riordan Street. This restricts the growth of land uses associated with freight and logistics and could be an issue for the area's long term growth.

3.5 NSW Transport Master Plan and State Infrastructure Strategy

The NSW Long Term Transport Master Plan was released by Transport for NSW in December 2012 and provides direction for the future of the NSW transport system, including improvements that will impact on the study area. The Master Plan identifies the challenges that the transport system in NSW will need to address and a number of actions to do so over the next 20 years. The six major challenges of the NSW transport system are:

- integrating modes to meet customer needs
- getting Sydney moving again

- sustaining growth in Greater Sydney
- providing essential access to regional NSW
- supporting efficient and productive freight
- state-wide actions.

The aims of the actions contained in the Master Plan are to:

- integrate transport services
- modernise the NSW transport system
- grow NSW transport networks to meet future demand (including the important tasks of corridor preservation)
- maintain important road and public transport assets.

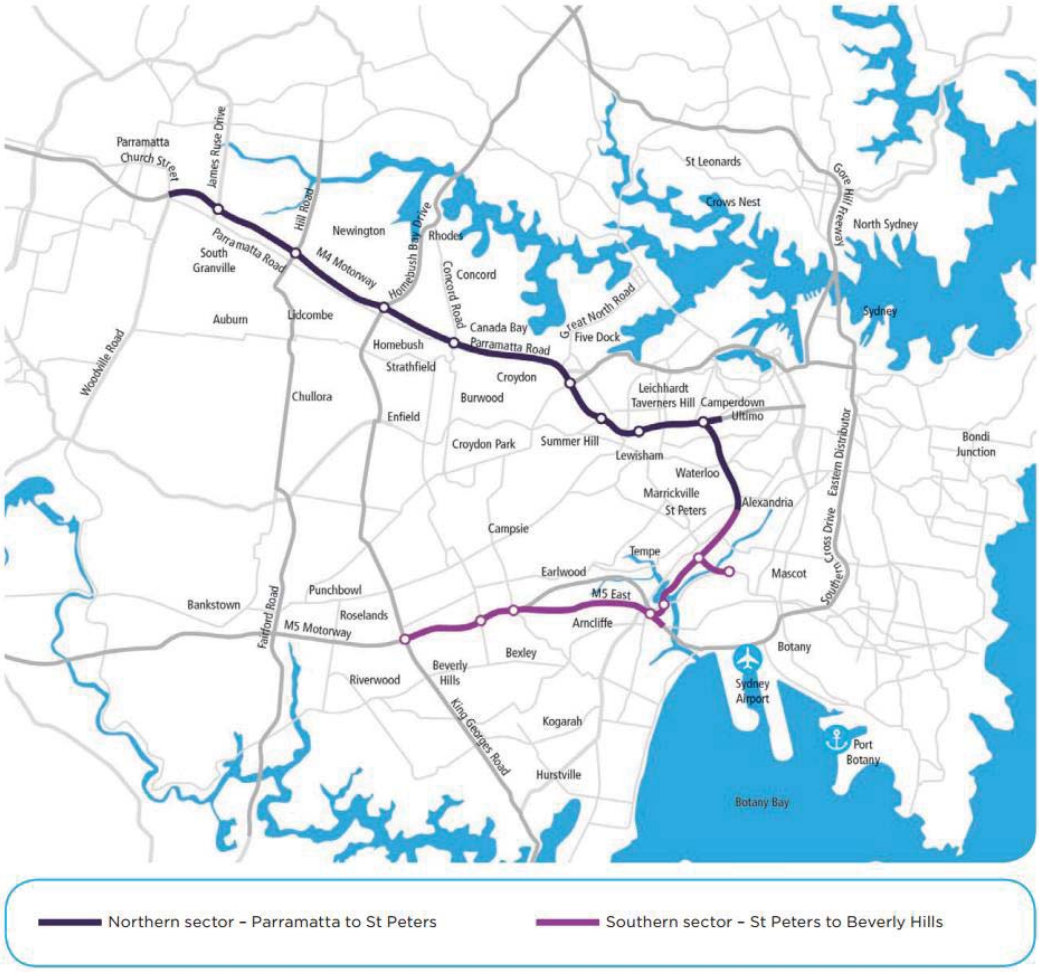
The Master Plan classifies the main study area as within two key transport areas; the Port Botany and Sydney Airport precinct and the Sydney Airport to CBD corridor. The roads adjacent to and within the main study area are highlighted as at capacity, particularly O'Riordan Street and Botany Road.

The Master Plan suggests that the growth precinct of Green Square will require mass transit solutions given that development within the precinct will exceed the walking catchment of the existing Green Square station. Bus investigations will be conducted in relation to the route from Bondi Junction to Burwood via Green Square and Sydenham.

WestConnex

The proposed WestConnex motorway, the 33 kilometre motorway connection in the M4 and M5 corridors, is noted as an immediate priority motorway (Figure 14). The planned location of the southern section of WestConnex (from St Peters to Beverly Hills) is in close proximity to the main study area. The development of this connection will potentially relieve pressure on the Eastern Distributor towards the CBD and along Parramatta Road, and increase the capacity of lower order roads; however, this is not clear within the Plan. The Sydney Airport Access link will provide a connection from WestConnex to Qantas Drive, close to the southern part of the main study area.

FIGURE 14. PROPOSED WESTCONNEX ALIGNMENT



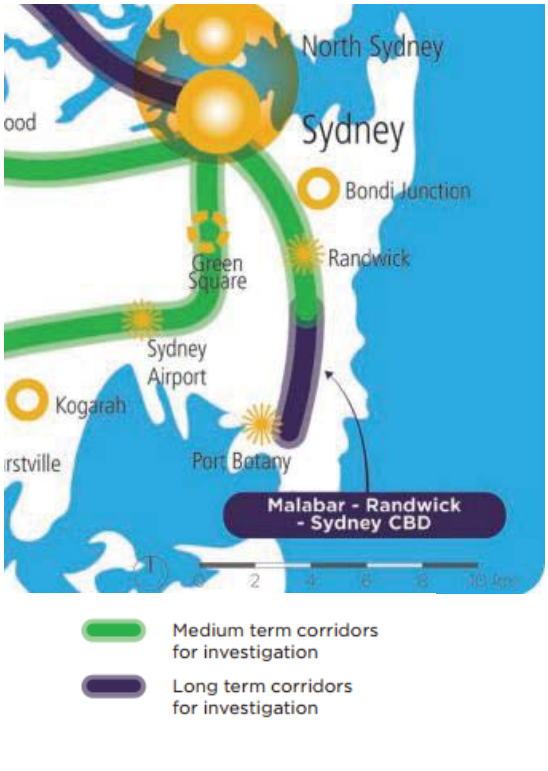
Source: NSW Long Term Transport Master Plan, 2012

Sydney Airport and Port to CBD corridor

The main study area is located within the corridor between Sydney Airport and the CBD; highlighted within the Plan as requiring more road and public transport capacity to support areas of urban renewal such as Green Square (Figure 15). Key actions for the corridor include adding train capacity, shifting more freight to rail and improving Botany Road. Transport for NSW is currently identifying upgrades to Botany Road to improve traffic flows, particularly for buses, although the specific nature of these upgrades is not specified within the Plan.

A corridor for protection and investigation is noted between the main study area and Port Botany (Figure 16).

FIGURE 15. MEDIUM AND LONG TERM TRANSPORT CORRIDORS FOR INVESTIGATION



Source: NSW Long Term Transport Master Plan, 2012

FIGURE 16. POTENTIAL CONNECTIONS TO BRIDGE GAPS IN THE SYDNEY MOTORWAY NETWORK BY 2031

Source: NSW Long Term Transport Master Plan, 2012

Freight

Transport for NSW supports the completion of the Southern Sydney Freight Line to provide dedicated rail access between Macarthur and Port Botany, relieving pressure on commuter rail infrastructure and supporting the freight distribution network in Sydney. Currently around 14 percent of all container freight is transported by rail (NSW Government, 2012).

Traffic solutions

A one-way pairs road operation is proposed on Bourke Road and O'Riordan Street, on which opinion appears to be divided. Some are in favour of the change for the reasons given by the NSW Long Term Transport Master Plan at Figure 17, with others noting its potential to increase traffic and decrease accessibility, disadvantaging pedestrians and local businesses.

FIGURE 17. RATIONALE FOR ONE WAY PAIRS ROAD OPERATION – BOURKE AND O'RIORDAN

- Implementing one-way pairs road operation on Bourke Road and O'Riordan Street to manage increased traffic, with complementary measures including the removal of parking, provision of bus priority, enhanced pedestrian movements and examination of an alternative cycleway. This action:
  - Provides greater through capacity for Bourke Road and O'Riordan Street
  - Removes contra-flow turning conflicts on the existing arterial roads, improving route safety
  - Enhances the through capacity for freight movement along the two road corridors
  - Provides for a dedicated bus-lane on each road to link Green Square and the Mascot precinct supporting a future possible project to provide bus priority along the O'Riordan Street corridor

Source: NSW Long Term Transport Master Plan, 2012

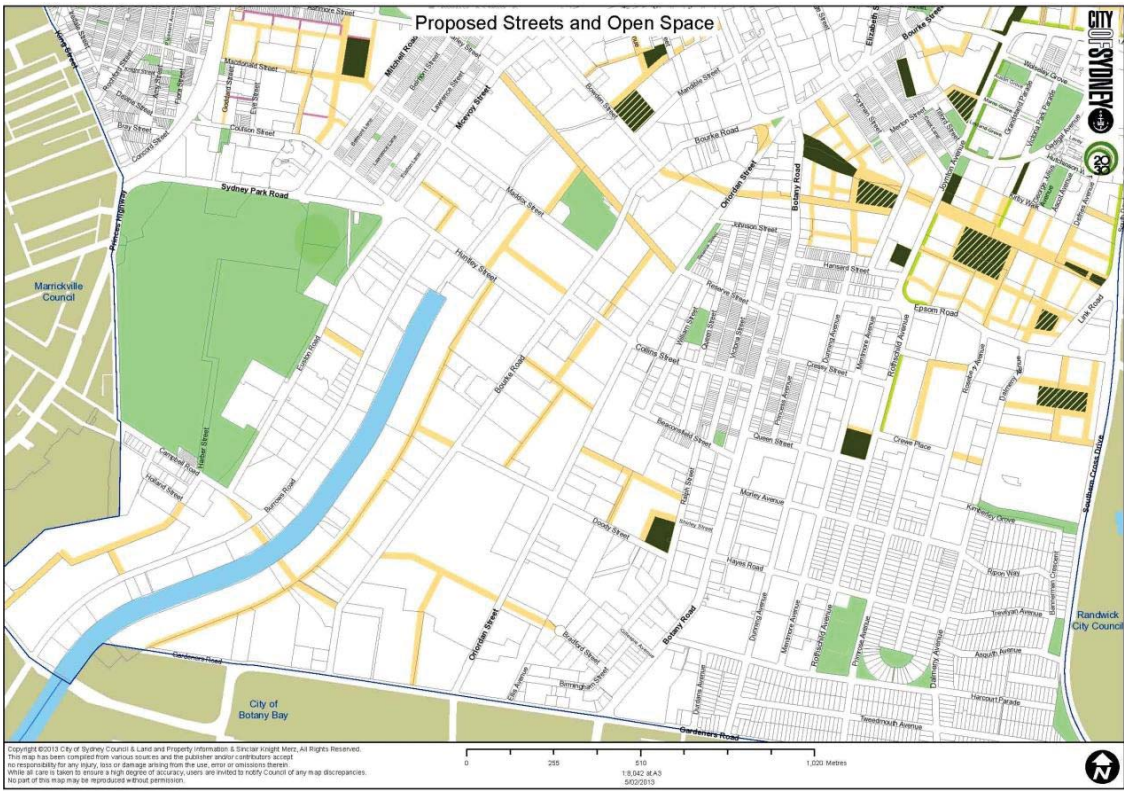
3.6 Local level road network and cycle planning

There is currently no comprehensive transport plan for the subregion, including the main study area, which tackles these current and looming transport challenges. Some high level priorities and some more specific interventions are identified in various state and local level documents, though gaps in future network planning remain.

Some joint and/or local initiatives that will impact on the study area include:

- Plans to change the Green Square intersection to accommodate four roads rather than five are currently being discussed and will likely be decided in 2013. Botany Road was constructed to accommodate heavy vehicles and has a wide road reservation that offers an opportunity to widen the carriageway in future, which may mean it is protected as a spine.
- Connectivity through the study area is identified as a significant issue, placing additional pressure on the road network, and Gardeners Road in particular. The Sydney Development Control Plan 2012 proposes a number of new connections, which would help to alleviate this (Figure 18).

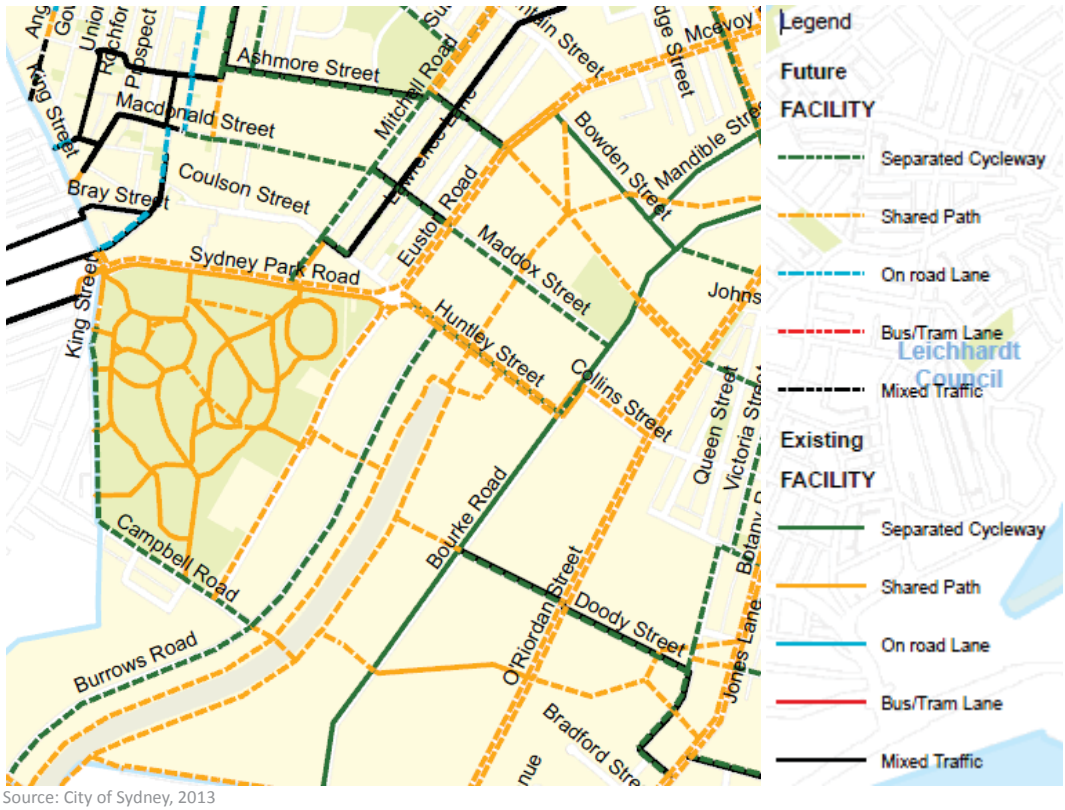
FIGURE 18. EAST-WEST CONNECTIVITY



Source: City of Sydney, 2012

Council has a developed a plan for regional and local bike paths (Figure 19). It proposes a number of separated or shared cycleways through the area. These cycleways form part of the City's living green network and are part of an extensive pedestrian and cycle network planned in the City.

FIGURE 19. CURRENT HIGH PRIORITY REGIONAL BIKE ROUTES



Source: City of Sydney, 2013

The City has recently completed its 'Connecting our City' Transport Strategy and Action Plan. The Plan has been developed as a framework for action by the Council and Government to improve transport and access to better connect the City. It builds on Sustainable Sydney 2030 targets, but includes additional targets and actions to meet existing and emerging challenges and trends.

The Plan recognises the public transport limitations and increasing congestion and freight movement pressures in the study area. Key actions to address these issues include working with the State Government to examine issues and identifying the freight and passenger upgrades needed to maintain the key economic functions of the area.

4 POTENTIAL FUTURE USES

4.1 Introduction

This section considers how the role of the study area (some photos of which are shown in Figure 20) could develop in future. This discussion has been informed by stakeholder consultation with the following groups and agencies:

- Councils of City of Sydney, Botany Bay and Marrickville
- Department of Planning and Infrastructure
- Sydney Metropolitan Development Authority
- Sydney Airport
- Committee for Sydney
- Infrastructure NSW
- Property Council of Australia
- Regional Development Australia – Sydney
- Penrith Business Alliance

It also draws from the consultation undertaken for the background report and additional research on economic trends.

FIGURE 20. PHOTOS OF THE MAIN STUDY AREA

L-R by row: Huntley Street, Bourke Street, Doody Street, Botany Road, Botany Road, Gardeners Road, Bourke Road, Burrows Road, Euston Road, Euston Road, Maddox Street

4.2 Industrial uses

Some industries require protection due to their strategic nature, to support the local population, or to provide flexibility in future.

- The Department of Planning and Infrastructure noted that the study area should provide for different employment uses. There is an economic justification for having some low density employment uses in the study area, where the economic benefits they bring to the city and the wider metropolitan Sydney region as a whole exceed the benefits of using the land for higher value uses such as commercial or residential. Examples of such strategic and population-serving 'urban services' include depots requiring an inner city location to service construction sites, distribution centres, utilities provision, and facilities for concrete batching and waste management. There is a need to protect sites for such uses. Burrows Road in the main study area currently houses some of these urban service and sometimes 'heavier' activities.
- While often low in job yield, the economic value of these lands lies not only in locational efficiencies, but also in facilitating a diverse employment base. A situation where all industrial uses were encouraged to move out of the study area would result in the loss of valuable business synergies.
- It is important that the quantum of industrial land that is recommended to be retained in the study area is sufficient that future demand for industrial land does not place undue pressure on land and rent prices.
- Increasing land values have forced firms undertaking logistics and distribution activities to innovate, while still maintaining a presence in this strategic location near the CBD, airport and port. Many such firms have split their operations, operating large sites in western Sydney with easy access to road networks and cheaper land, and small sites in South Sydney for access to the airport or local population on which they pay a premium. One firm receives goods arriving at the airport, which are taken to a large sorting plant in Chullora in western Sydney, and relevant items then brought to a small depot in Mascot of 11,000 square metres for distribution in the eastern suburbs. Smaller vans can be used for this stage of distribution, which is more efficient given issues with congestion. Again, there is a need to ensure sites are available for these distribution and logistics activities, which will expand given ever increasing volumes of air freight and demands for more responsive distribution systems (partly driven by the growth in internet shopping).

However, the nature of economic activity in the study area is changing and there is a case for some industrial land to be rezoned...

- Not all of the land currently zoned for employment is likely to be strategic. Given the easy access to the CBD from the main study area, it is inefficient from an economic perspective for it to house lower value jobs in industries that could easily be accommodated elsewhere, especially those employing workers from further afield. There is employment land outside the City of Sydney LGA (principally in western Sydney, but also in neighbouring LGAs) that is well serviced, with good transport accessibility and modern buildings, which would be better suited for firms in these industries.
- As such, the broader context of employment lands in Sydney needs to be considered. Constraining land values in the study area to enable lower value firms to locate in the area only makes sense if these firms have to be located in the area, and are essential to the functioning of the CBD, port or airport, or for serving the nearby population. The value and importance of land in the City of Sydney LGA should be assessed at a metropolitan level and decisions made that maximise the benefits across the city, given the competing demands for space.
- Industrial activity in some sectors has changed considerably, and the buildings and set up of many sites and infrastructure in the main study area are unsuitable as a result. High land values and rates make the area uncompetitive for many firms.
- Industrial businesses are more likely now to be cleaner, quieter, smaller, and geared towards high-tech than in the past, which increases their potential to be co-located with more sensitive uses. Many 'industrial' firms now contain a significant office component and prefer to locate in business park type environments. As noted in the background report, owners and tenants of properties in the main study area noted issues with the configuration of buildings (in terms of them being able to accommodate

more modern industrial practices), and the lack of suitability of standard industrial zones for the activities in the area.
- There is a high vacancy rate in the study area, which could partially be due to the existing sites and buildings not meeting market demand (although it could also result from owners waiting for changes in the market or amendments to zoning controls). The substantial traffic and access issues in the study area are likely to have an on-going impact on vacancy rates.

Lower value industrial uses may be displaced from Botany Bay LGA and the main study area

- There is some anecdotal evidence that Botany Bay LGA is becoming too expensive to support some local service industrial uses. Botany Bay Council appears to be encouraging this trend by allowing conversion of some industrial land to residential. For example, a B7 Business Park zoning has been proposed in older industrial areas to the east of the airport to supposedly encourage 'cleaner', creative uses and start up businesses. While there is likely to be potential for local light industry to adapt its format to be less space intensive, such activities will be price sensitive and will be under pressure to relocate given these changes.
- At the same time higher demand for container uses is expected following the lifting of the cap of 3.2 million container movements through the port. This is likely to place pressure on lower value local light industrial uses in Botany Bay and Randwick LGAs, although it is expected that the Orica site in Port Botany and the Maritime Container Services site south of Canal Road will ultimately accommodate much of the initial increase in demand.
- Most traditional manufacturing and warehousing activities that would consider relocating from the study area to cheaper industrial areas have probably already done so; with only modest additional movement expected before it plateaus.

... but there is likely to be capacity to accommodate these in Marrickville LGA

- Parts of Marrickville LGA are changing, with a planned expansion of Marrickville Metro and some large mixed use and residential developments recently approved. However, there is little pressure on industrial areas in Marrickville, which support a wide variety of mainly lower value retail, commercial, creative, recreational and industrial uses, given aircraft noise and environmental factors that limit development, as well as a small lot pattern and traffic issues. It is envisioned that local service industries will remain in the area for the foreseeable future. In addition, Marrickville Council suggests that there is likely to be capacity to accommodate displaced lower value uses relocating from the main study area, although no supporting data is currently available.

...and in western Sydney

- Western Sydney contains significant large scale employment lands capacity. Erskine Park in Penrith LGA is 56 percent undeveloped (around 224 hectares) and Huntingwood in Blacktown LGA is 67 percent undeveloped (48 hectares) (Department of Planning and Infrastructure, 2011).
- Furthermore, the Draft Broader Western Sydney Employment Area Structure Plan, which is still being finalised, covers a study area of approximately 10,000 ha and is planned for public exhibition in April 2013. It will establish a framework for future employment lands and associated infrastructure provision. There is considerable potential for Western Sydney to accommodate any activities from the study area seeking lower cost locations or sites for consolidation of activities. Freight and logistics activities in particular are re-locating to Eastern Creek where they take advantage of long term (20 year) lease deals, M4 and M7 road access, large parcels of land and proximity to a 'blue collar' workforce.

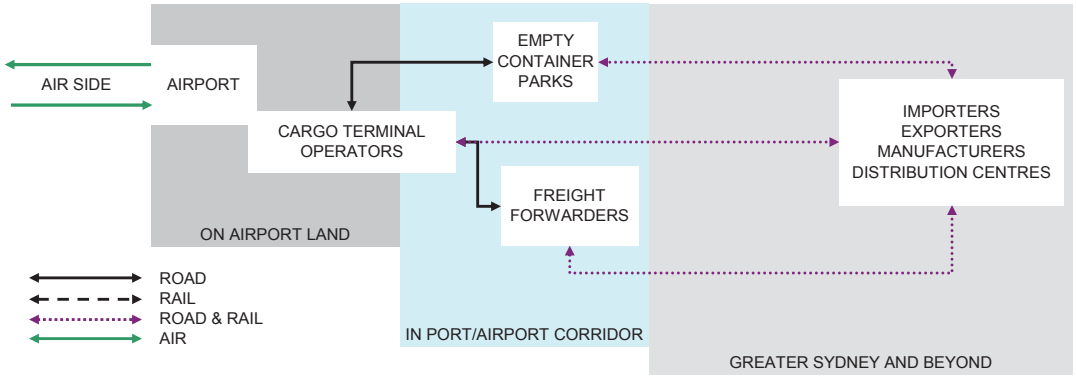
4.3 Airport and port related uses

There is likely to be an increasing demand for land for airport related industries (such as catering, freight forwarding, logistics services and car hire, accommodation services)

- Sydney Airport is small in comparative terms, at about 1000 hectares[11]. The curtilage which for larger airports would include many airport related businesses such as airport offices, catering, freight forwarding and logistics services is modest at Sydney, meaning there is a need for off-site industrial and employment lands to accommodate such activities. The breakout box below shows a simplified airport logistics chain and the relationship between on airport and off airport land uses.
- The Sydney Airport Master Plan 2009 is predicting that total air freight will more than double in just over 20 years from 471,000 tonnes in 2007 to 1,077,000 tonnes in 2029 – average annual growth of 3.8 percent. From 2000 to 2007, total annual passengers through Sydney Airport increased from 25.3 million to 31.9 million. By 2029, Sydney Airport is projected to handle 78.9 million passengers, and around 402,000 passenger aircraft movements per year. This major growth in airport related activity will lead to an increasing demand for off-site land for airport related activities. Already, catering and car hire firms currently located within the boundaries of the airport, are likely to be relocated off airport lands in order to accommodate new hangars.

The Sydney Airport logistics chain

The figure below shows a simplified logistics chain linking Kingsford Smith Airport with the Sydney region. Around 80 percent of airfreight arrives and leaves in the belly of passenger aircraft. The remaining 20 percent is carried on dedicated freight aircraft. Air freight tends to be low volume, high value, time sensitive goods.



Cargo Terminal Operations (CTOs) currently reside within the Airport's Freight Precinct. CTOs include Qantas, Auspost, DHL and Patrick. The onsite location offers a contiguous airside-landside interface. CTOs bring freight in, and move it onto the plane, and vice versa. Due to space constraints on the airport site, some CTO operations overlap onto the surrounding land area, for example Qantas' landholdings in Botany Bay LGA, which include private road access to the Airport.

Airfreight forwarders are located close to the airport, and pack/unpack consignments into air freight containers referred to in the industry as Unit Load Devices (ULDs). Consignments that are not processed by airfreight forwarders are transported directly between CTOs and importers, exporters, manufacturers, and distribution centres. Because of the low volume, high value, time sensitive characteristics of air freight, small truck transport tends to be favoured over rail.

Empty ULDs are returned to container parks near the airport for repacking or empty export.

Source: Sydney Airport (2009) and SGS Economics and Planning (2008)

- Botany Bay LGA (immediately to the north of the airport but also to its east closer to the port), Marrickville LGA (south of Canal Road and west of the Princes Highway) and the City of Sydney (the study area) all host employment lands that may have a role in accommodating off-site airport related

[11] Compared to for example almost 3000 hectares at Melbourne Airport (2400 hectares used for direct airport related activities, the remainder is 'off airport' land for industrial and other activities) and 1,600 at Singapore Airport (1300 hectares for direct airport related activities, the remainder is 'off airport' land for airport related logistics. Source is SGS Economics and Planning. 2008.

activities. There has been growth in demand for warehousing and distribution uses in employment lands in Botany Bay LGA. There is also demand from landowners for industrial land immediately to the north of the airport (also in Botany Bay LGA) to be zoned for higher value airport related uses, such as hotels.

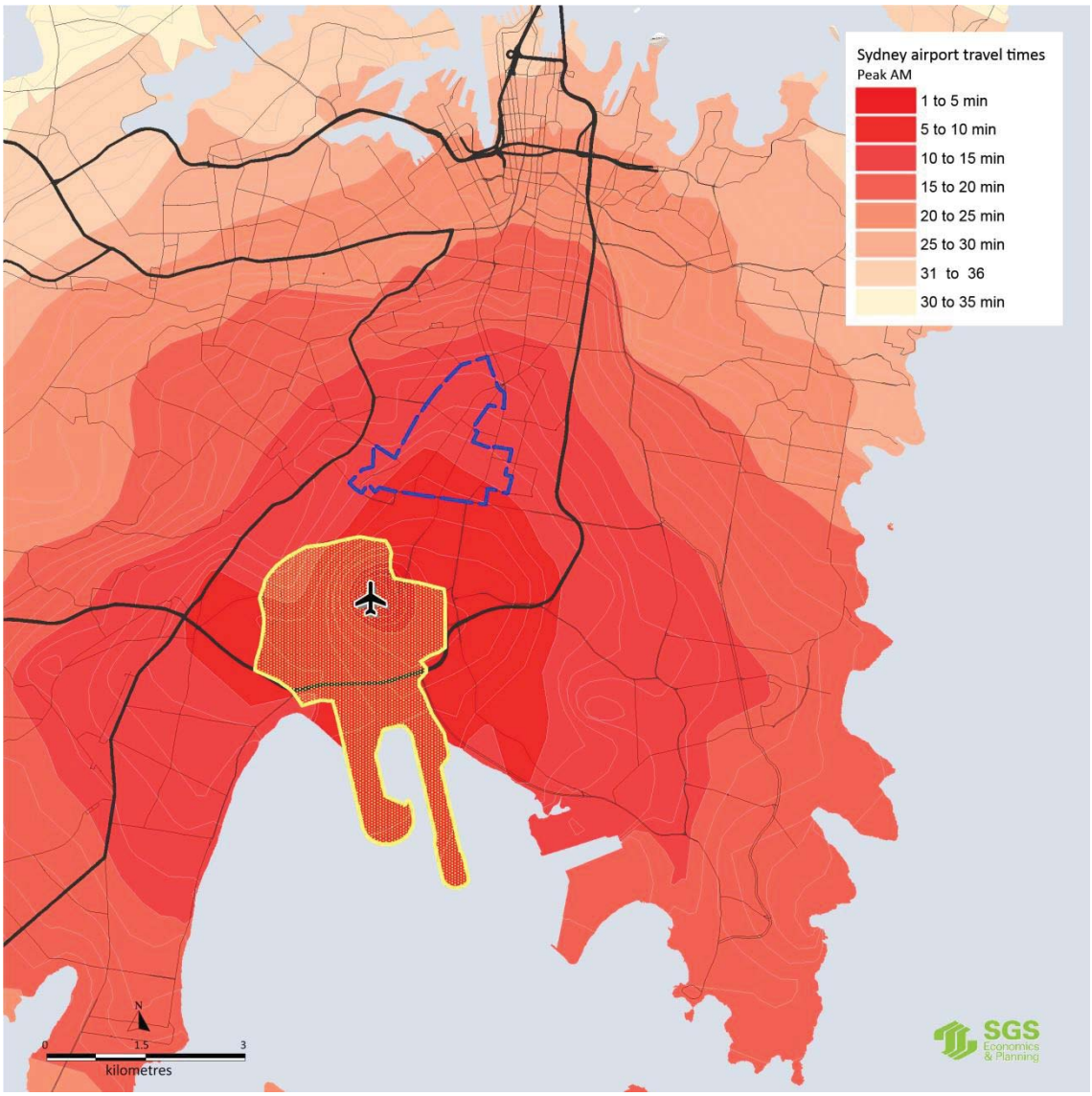
.... while supply of suitable land is diminishing or under pressure for alternative uses

- The draft Botany Bay LEP suggests a B7 (Business Park) zone for land to the north of the airport (bounded by Gardeners Road to the north, Kent Road, Coward Street and the Alexandra Canal). It contains uses directly related to the airport, such as catering firms. However, this area may come under pressure for conversion to residential uses, if the current development restrictions in place due to aircraft noise are reduced in future. Given its vital strategic role, any conversion of this area to residential should be resisted (in fact the proposed Business Park zone is not really appropriate; a more mixed complexion of uses including warehousing for example should be allowed).
- Some lands formerly available for ancillary airport uses in Mascot are now too expensive for firms in these industries, which have relocated elsewhere. This may generate inefficiencies and potentially limit future economic growth.
- Sydney Airport has undertaken some strategic land acquisitions near to but outside of the airport site however private lands typically accommodate off-site airport related uses. Given the airport's status as a specialised centre, it may be appropriate to protect such land uses directly related to the airport through specific planning controls.

However, parts of the main study area may be 'too far' from the airport for some direct airport related uses

- There is anecdotal evidence that some firms seeking land close to the airport will not consider sites north of Gardeners Road due to traffic congestion, which is likely to worsen in future given increasing activity and through movements in the area, as well as residential development close to Mascot station. Minimising the distance by road from the airport is not the priority; rather, for time-sensitive firms, the time taken to travel to/from the airport is more significant. The congestion between the main study area and airport means it may make more sense to locate elsewhere.
- For example, DHL is to open a new facility in Matraville in March 2013, combining its existing offices, and its previous space in Mascot was backfilled immediately by uses displaced from airport lands. DHL chose to trade off a location close to the airport in favour of one around 8 kilometres away in a purpose-built and modern facility, with a direct route along Foreshore Road. Meanwhile, just to the north of the airport in the main study area, there are a number of vacant sites.
- Travel time mapping suggests that time-sensitive firms seeking to locate within 10 minutes of the airport in peak morning traffic might seek locations to the south of the main study area, as shown in Figure 21. Interpeak and evening peak traffic gives greater accessibility to the study area within the same time limit, as shown in appendix 3.

FIGURE 21. TRAVEL TIMES FROM DOMESTIC TERMINAL: MORNING PEAK



Source: SGS Economics and Planning, 2013, based on BTS 2011 car travel times

.... and there may be potential to accommodate these uses elsewhere in future

- The Cooks Cove site, immediately to the west of the Cooks River and Sydney Airport, would be an ideal location to support growth in airport-related activities in future. However, development of the site stalled as a result of the global financial crisis and is now being managed by the Sydney Harbour Foreshore Authority. There is no information available regarding the progress of development or an expected completion date.
- Some industrial uses requiring both airport and port access are permissible in the area protected by the Three Ports State Environmental Planning Policy (Major Development) Amendment, which protects land for port-related uses in Botany Bay and Randwick LGAs[12]. The Hale Street area in Botany Bay in particular would be highly suitable for uses requiring airport access while the Lord Street

[12] The following uses are permitted on IN1 zoned land with development consent: boat repair facilities, business premises (port related), depots, food and drink premises, freight transport facilities, high technology industries, jetties, light industries, neighbourhood shops, office premises (port related), resource recovery facilities, roads, signage, truck depots, vehicle body repair workshops, vehicle repair stations, warehouse or distribution centres, waste or resource management facilities (NSW Government 2009).

business park in Botany Bay LGA offers large lots with good transport accessibility, attracting both port and airport serving businesses able to pay comparatively high rents.

...while planned major infrastructure and airport changes may affect the location of airport and port related industries

- In the longer term, the construction of significant infrastructure such as the Moorebank Intermodal Terminal[13] (inland near Liverpool and intended to get rail based container freight out of the port area before it is 'broken up' for distribution elsewhere in Sydney and beyond) and the proposed WestConnex motorway (extending the M4 to the airport and linking with a widened M5) is likely to change Sydney's economic geography, potentially reducing the need for some firms to locate near to the airport, port and CBD and reducing travel times.
- An exit from WestConnex onto Qantas Drive is currently proposed. If this proceeds, it is likely to increase demand for small subregional distribution centres serving the CBD and eastern suburbs, with the associated truck traffic (while firms locate their main distribution facilities in western Sydney). The land demands on employment lands near the airport, including the study area, will be significant.
- The location of support industries for the airport may be impacted by plans to merge the domestic and international terminals. Firms currently located in Mascot and the main study area that rely on access to the domestic terminal in particular may have a wider range of location options once the domestic terminal is split. If some choose to relocate to western Sydney, for example, this may ease pressure on the road network in the main study area.

It is nevertheless prudent to ensure some employment lands are available in the study area for airport related activities

- While Botany Bay Council believes there to be sufficient land to accommodate port-related uses into the future consistent with findings in the supporting report on airport and port development needs (SGS Economics and Planning, 2008), the picture in relation to airport related demands is less clear.
- Notwithstanding the relative distance of the study area from the airport compared to sites in other LGAs, the availability of potential alternative sites and possible changes to the nature of demand, it is prudent to ensure that direct airport related activities (e.g. catering, freight) and higher value, indirect activities (e.g. logistics services) are able to find some sites in the study area.
- Analysis conducted for the Botany Bay Planning Study (SGS Economics and Planning, 2008), as part of a background study into airport development, highlighted the requirements for additional land to accommodate airport-related uses (particularly for freight) surrounding Sydney Airport. The model that was developed at that time indicated demand for an additional 48 hectares of land to 2025, with 14 hectares of that demand not able to be met in the immediate vicinity of the airport.
- The Airport Related Activities Land Use Model has been updated at Table 8 to include updated freight forecasts, with other inputs unchanged. The model indicates that 44 hectares of additional land will be required to accommodate airport-related land uses to 2029. However, due to a number of rezonings in the employment lands around Sydney Airport, particularly within the Botany Bay LGA, it is likely that the supply of land to host these uses in future has decreased since 2008.
- While the study area is not necessarily 'first choice' for direct airport related uses, it should be positioned to host some of these and the myriad of potential indirect airport related activities.

[13] In April 2012, the Australian Government committed to the construction of an Intermodal Terminal at Moorebank in south-western Sydney, to handle container traffic from interstate rail freight and Port Botany. The terminal is a first step to providing an integrated transport solution to meet the significant growth in the movement of freight to, from and within the Sydney basin, and aims to provide congestion relief, freight capacity and environmental benefits to the urban community, region and its surroundings.

TABLE 8. UPDATED AIRPORT RELATED ACTIVITIES LAND USE MODEL

Sydney Airport			Source
Existing throughput (2007)	471,000	tonnes	Airport Master Plan 2009
Existing land take: on and off site (2007)	70	ha	SGS Land Audit 2008
Existing land take: per unit throughput	0.00015	ha per tonne	SGS calculation
Throughput: 2029	1,077,000	tonnes	Airport Master Plan 2009
Land take 2029: existing density	160	ha	SGS calculation
Intensification allowance	1.4		SGS assumption
Land take 2029: future density	114	ha	SGS calculation
Additional land take 2029: future density	**Approx 44**	**ha**	**SGS calculation**

Assumptions

- Throughput: 2029: an estimate of future throughput based on projections in the 2009 Airport Master Plan.
- Land take 2029 (existing density): the future land use needs based on existing density, a product of the land take per unit throughput and future throughput.
- Intensification allowance: an allowance for more intensive land use in the future, based on more efficient land use at other airports and the assumption that land prices in Botany Bay LGA and surrounding areas will continue to escalate. An example of intensification is container stacking. The allowance is higher for the airport than port, on the basis that the airport freight tends to be lower volume which makes it more amenable to intensification.
- No displacement assumption was made for the airport. Airport freight tends to be high value and low volume, and often requires immediate transit (for example fresh flowers or seafood) so is less likely to suit displacement.
- Land take 2029: (future density): the future land use needs based on intensification and displacement assumptions, a product of the indirect land take per unit throughput, future throughput and the intensification allowance.
- Additional total future land take: (future density): the net additional land take in 2029 at the future density minus the existing land take – indirect.

4.4 Pure residential uses

Residential density is increasing significantly in the surrounding areas

- The City of Sydney has been amongst the fastest growing LGAs in NSW. This significant growth in new dwellings (up from 47,000 dwellings in 1991 to almost 95,000 in 2011) (Table 9) which shows there is a demand for inner city living and such development is financially viable.

TABLE 9. RESIDENTIAL DWELLINGS IN CITY OF SYDNEY, 1991 TO 2011

Year	1991	1996	2001	2006	2011	Change 1991-2011	Change per annum 06-11
Dwellings	46,842	55,479	70,757	86,109	94,346	47,504	1647

Source: .id, 2013

- There have been a number of new apartment developments recently near the study area in Zetland and Rosebery, while Botany Bay Council is encouraging residential development surrounding Mascot station, with existing industrial and car parking uses now non-conforming and expected to change over time. A further 40,000 residents (from 2008) are anticipated in the Green Square renewal area by 2030.
- The UrbanGrowth NSW development corporation will plan for and facilitate the development of the Redfern-Waterloo urban renewal study area, the boundary of which lies immediately to the north of Green Square. The proposed residential development in this area will raise the population density considerably, with the potential to support retail uses at Green Square.
- Densification in surrounding areas may increase land values in the study area, and put pressure on low value activities.

... and allowing for some residential uses in the study area may facilitate enhanced access to employment and address housing supply constraints

- It has been argued that concentrating housing close to the CBD and employment centres enables residents to access a greater range of jobs; increasing productivity, wages and skills; and reducing

travel times. It also offers environmental benefits through enabling greater public and active transport use and reducing household energy requirements. Providing housing close to the centre of the city is more efficient for the provision of infrastructure, such as roads and schools, and protects agricultural land on the urban fringe. In addition, it may be beneficial from a social equity perspective to provide additional job opportunities closer to where people live, given what otherwise might be a situation of concentrated employment in central and eastern Sydney with more housing and residents in western Sydney.

- The 2010 Metropolitan Plan is in the course of being reviewed, with a new plan due in 2013. Some key directions from previous metropolitan strategies are anticipated to continue. For example:
  - The Metropolitan Plan discussion paper (NSW Government, 2012) notes that to meet housing demand, 'the NSW Government and local councils need to provide the right conditions for new housing in existing urban areas', mentioning that the NSW 2021 Plan (NSW Government, 2011) includes 'targets to improve housing affordability and availability by facilitating the delivery of 25,000 new dwellings in the metropolitan region each year'.
  - The discussion paper also notes that to meet the NSW 2021 targets, the government is 'aiming to locate 80 percent of new dwellings within the walking catchments of centres well served by public transport'.
  - This is consistent with headline policy settings from the previous Metropolitan Plan (NSW Government , 2010), which included 'increas[ing] the proportion of homes within 30 minutes by public transport of jobs in a Major Centre, ensuring more jobs are located closer to home' and 'build[ing] at least 80 percent of all new homes within the walking catchments of existing and planned centres of all sizes with good public transport'. While increasing the supply of dwellings in the study area would be consistent with metropolitan and state objectives.

... however, there are significant issues with rapidly increasing the number of residents in the study area

- The provision of more land for housing needs to be weighed against the vital strategic role the study area plays in relation to employment.
- Ground conditions and the related cost of construction mean that new development in the south Sydney area typically needs to be very high density to meet financial benchmarks. This can have significant amenity impacts and also places pressure on local community infrastructure.
- Increasing density may increase complaints relating to aircraft noise, which have the potential to hinder the effective operation and growth of the airport (for example, if they lead to an extension of the flight curfew).
- Traffic congestion is already a significant issue in the main study area and may be exacerbated by an increased local population.
- Interface issues between residents and neighbouring businesses may impact on the viability of strategic employment uses or place increasing pressure on local land values.

...and the City of Sydney LGA is already close to or meeting its metropolitan strategy and Sustainable Sydney 2030 targets for residential dwellings

- The Department of Planning and Infrastructure's *Metropolitan Plan for Sydney 2036* has set dwelling targets for the Sydney Metropolitan Area by subregion, including for the City of Sydney which is its own subregion, in which the study area is located. Table 10 shows the recent supply of dwellings in the City of Sydney subregion (for 1996 to 2011 and then expresses this as a five year average) and the target for the Sydney City (also expressed on a five year basis). The table shows the City has exceeded its target (when expressed on a five year basis).
- In addition, the target in the Sustainable Sydney 2030 document, of 48,000 dwellings between 2006 and 2030, is close to being met (when expressed annually); with 1647 dwellings constructed per year on average so far against an annual average target of around 2000 dwellings.

TABLE 10. CITY OF SYDNEY LGA HOUSING SUPPLY (1996-2011) AND METROPOLITAN PLAN TARGETS (2006-36) DESCRIBED IN FIVE YEAR INTERVALS

Total housing supply (1996-2011)	Housing supply 5 yr average (1996-2011)	Metro Plan target	Supply minus target
49,107	16,369	8,903	7,466

Source: Department of Planning and Infrastructure (2010), SGS calculations, 2013

Therefore residential uses in the study area are best restricted to mixed use areas, where they can facilitate economic development outcomes and attract specific employment activity.

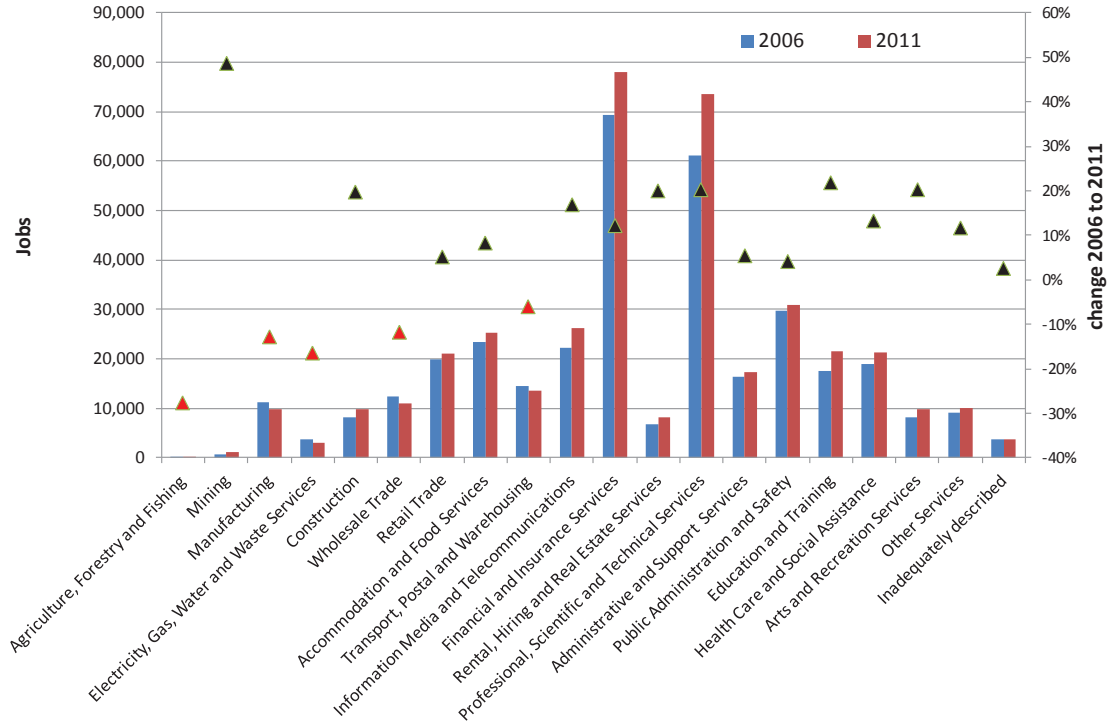
- The strategic importance of the main study area for employment uses suggests that it is not appropriate for significant conversion to residential uses.
- However, in a modern economy, and given the critical role of knowledge and creative industries which thrive in higher density, 'edgy' areas, there may be a role for some genuine 'mixed use' insertions in the study area, where residential uses might be allowed. These ideas are discussed in more detail below.

4.5 Mixed use activities

Knowledge-based and creative industries are a continuing and key source of employment growth

- Globalisation is likely to continue to drive a separation between the 'thinking' part of the value chain and the making or manufacturing of goods, and their distribution. In advanced economies this 'unbundling' of the value chain is manifest in the proliferation of knowledge or creative industry activities, which are at the 'thinking' end of the value adding process. Sydney remains the pre-eminent national dispenser of these advanced business services (Spiller 2004), which continue to grow.
- Figure 22 shows employment in the City of Sydney between 2006 and 2011, and the change in employment, at a 'one digit' ANZSIC industry classification level. The continued growth in financial and insurance services (notwithstanding the GFC), information media and telecommunications and professional, scientific and technical services, can be seen below.

FIGURE 22. CITY OF SYDNEY EMPLOYMENT BY 1 DIGIT ANZSIC CATEGORY 2006 & 2011



Source: ABS, Census (place of work Cat. No. 2006), 2011, derived by SGS Economics and Planning, 2013

– Table 5 showed that within the categories of information media and telecommunications and professional, scientific and technical services, the growth in creative industry and internet related activities is particularly pronounced. For example jobs in Professional, Scientific and Technical Services grew by over 8000 people while jobs in Internet Publishing and Broadcasting grew by 157 percent.

Knowledge-based and creative industries flourish in higher density and mixed use areas

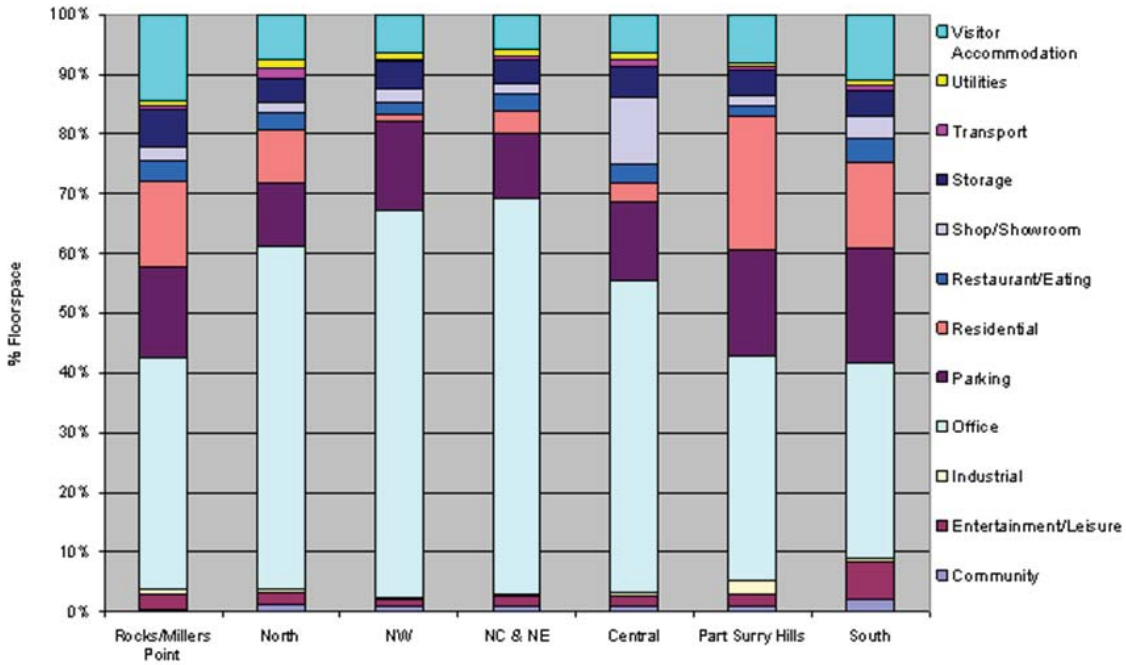
– As Florida (2003) has observed creative workers are attracted by vibrant, diverse, mixed-use centres characterised by high density residential, office employment and retail. In inner Sydney then it is not surprising that the creative sector clusters of employment are in areas such as Surry Hills, Chippendale and parts of Ultimo-Pyrmont. Figure 23 shows the concentration of jobs in the creative and information, communication and technology sectors in the City of Sydney (from work done by SGS in 2007 for the Sustainable Sydney 2030 project, as measured by the 'location quotient' of the share of workers in these sectors in travel zones compared to the City overall).

FIGURE 23. CLUSTERS OF CREATIVE AND ICT INDUSTRIES IN THE CITY OF SYDNEY

Source: ABS, Census (place of work Cat. No. 2006), 2006, derived by SGS Economics and Planning, 2007

– These 'fringe' CBD areas are characterised by fine grain subdivisions (with a diversity of lot sizes), slow moving through traffic, relatively narrow streets, a mix of building typologies and a diverse and dense mix of uses. Data from the 2001 City of Sydney Floorspace Survey (though somewhat dated) illustrates how Surry Hills and the South (including Chippendale) precincts, compared to the other different CBD precincts, have a particularly diverse mix of uses including a greater share of residential uses (Figure 24).

FIGURE 24. FLOORSPACE (%) BY CBD PRECINCT, 2001



Source: City of Sydney Floorspace Employment Survey, derived by SGS Economics and Planning, 2006

– In the acknowledged creative precincts in the City of Sydney (for example, Pyrmont and Surry Hills), the ratio of residents to jobs is increasing at a rapid rate, and is edging toward 1 to 1 in Pyrmont (Table

11). Creative and knowledge precincts are fueled by the friction of activities and interactions that mixed employment and residential areas generate. Grant (2002, p.73) emphasises that mixing uses is a form of sustainable development and an element of theories of good urban form because it promotes 'economic vitality, social equity and environmental quality'.

TABLE 11. RATIO OF RESIDENTS PER JOB 2006 & 2011

	2006	2011	% change 2006-11
Pyrmont	0.86	0.95	0.09
City East	0.74	0.73	- 0.01
Surry Hills west	0.39	0.47	0.08
Main study area	0.12	0.15	0.02
CBD	0.09	0.10	0.01

Source: Bureau of Transport Statistics, Small area employment forecasts, August 2012.

To support creative and knowledge industry growth carefully selected pockets within the study area might be suited to a greater mix of uses, including some residential

- In her famous book *The Death and Life of Great American Cities*, Jane Jacobs (1961) highlights four key characteristics of vibrant and diverse cities:
  - high densities and population and activities
  - mixtures of primary uses
  - small-scale, pedestrian-friendly blocks and streets
  - retaining old buildings mixed in with new.
- Within the study area there are two potential precincts where the conditions for a genuine mix of economic and residential activities might be facilitated, based on the existing subdivision patterns, built form and ownership diversity. Figure 25 shows the Surry Hills 'grain' alongside the grain in the north and south east of the study area, at the same scale. These two areas represent the best prospects for an intrusion of mixed use activity, at the edge of the study area. Both have good proximity to public transport (the northern area in particular is near Green Square station). It is important that controls be established that preclude 'instant' conversion to residential in these areas, as has been the case in some other mixed use areas where land values have sustained significant residential development but only modest employment related development.
- It will also be important that new planning controls encourage the provision of infrastructure as sites are developed for higher and better uses. An example of this approach currently exists in the planning controls relating to the Green Square urban renewal area.
- Green Square is planned for high rise office development and may take on a role as an overflow location for CBD industries, but the nearby small subdivision patterns should be protected to enable the organic growth of clusters of creative industries.

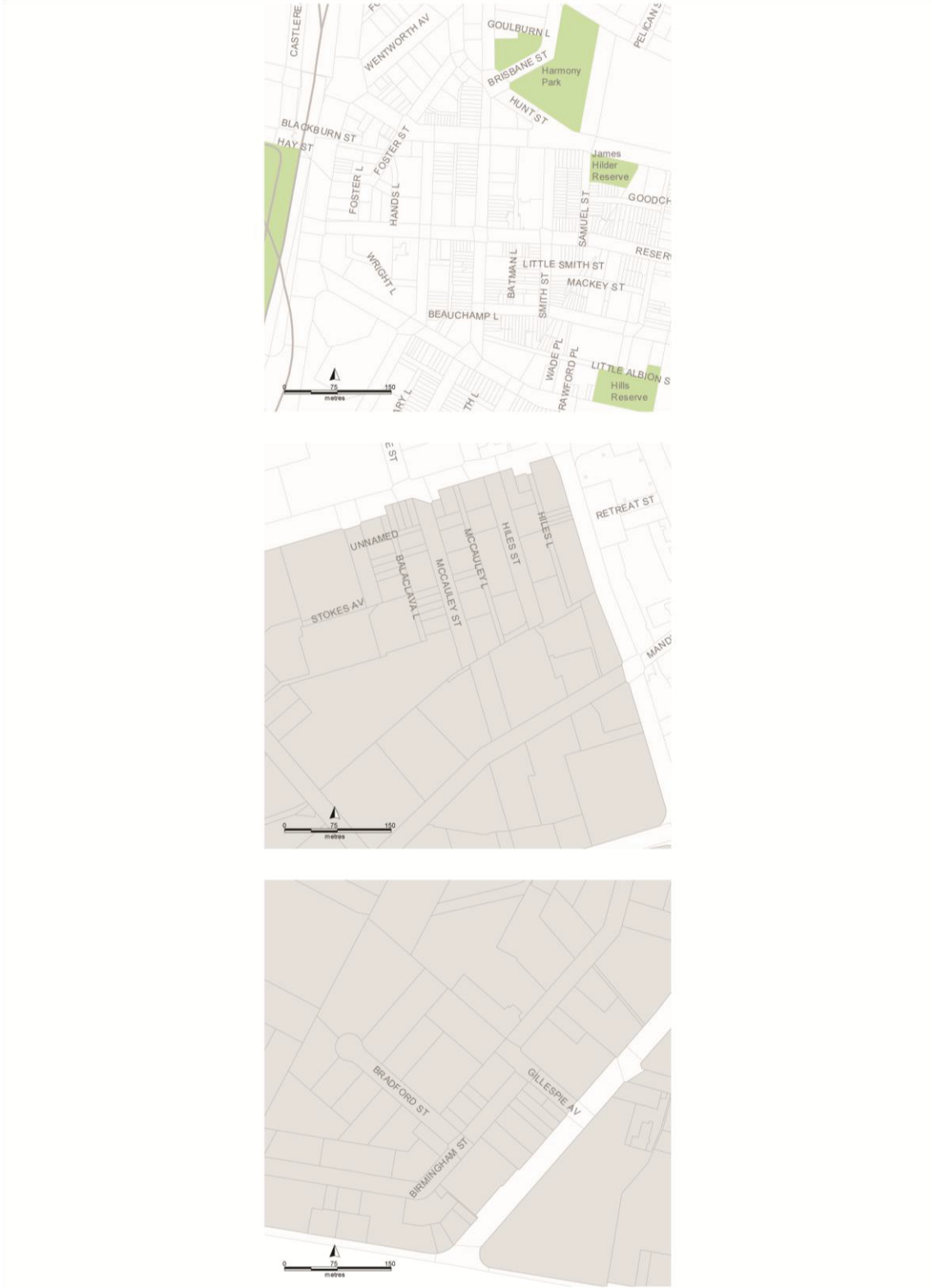
4.6 Commercial uses

Allowing for more commercial activities would add to the future supply potential and contestability within the Sydney market

- Sydney's stocks of accessible, central employment lands are modest compared to Melbourne's. While commercial activity is highly varied in different precincts, and the 'high end' office activities will always favour a CBD location, the study area could contribute to the long term supply pipeline for commercial and office activities in inner and central Sydney. It would act to somewhat constrain property values and office rents, which are high in Sydney in international terms.
- While Green Square is developing its commercial presence slowly, as the amenity of this area increases overtime, and a critical mass of activity is in place, its accessibility and competitive positioning will become a major asset for office employment. The study area's appeal for commercial and office activities will also be evident in due course. Building the economic character of

neighbouring and fringe areas through well-placed clusters of lower value office uses could be a means to build the critical mass more generally, and ultimately attract larger firms to the town centre.

FIGURE 25. SURRY HILLS COMPARED TO THE NORTH AND SOUTH EAST OF THE STUDY AREA



Source: SGS Economics and Planning, 2013

Need to balance high employment uses against need for employment lands

- Though the main study area should accommodate higher intensity employment, the zoning and controls should also enable the area to support less intensive but still strategic economic activities. These activities are not necessarily major job generators, but contribute to the efficient functioning of the city and broader economic development aims.
- From this perspective there is a need to balance the provision of opportunities for more intense employment activities with the area's strategic economic value.

Public transport provision may need to be increased to service more intense office and commercial employment

- While the Green Square rail station represents a major public transport asset it is only really accessible to development at the northern end of the study area. If more 'pure office' or commercial activities were to be allowed in the study area a significant plan for public transport upgrades might be necessary. As it is, projections suggest that the transport capacity in the corridor between the CBD and Airport is likely to be exhausted in the next 15 to 20 years.
- A major transit corridor along Botany Road and potentially a new station on the Airport link line at Doody Street should be considered in future. Such investments would be fundamental to securing a much more intensive employment outcome in the study area.

4.7 Retail uses

Allowing more retail in key locations in the main study area should be considered

- More retail may be required to service the current and future working and resident populations of the main study area and surrounds. New cafés are increasing the local amenity and attracting a greater number of people at the weekends. This is consistent with a more diversified employment outcome.
- Two or three smaller retail centres in the wider area should be planned for to increase the area's vitality and to encourage walking. These designated centres could be a focus for retail anchors such as small to medium size supermarkets or other food and grocery outlets, including in innovative and compact formats. Options for these centres would include Doody Street (in association with a future rail station if this ever eventuated), the head of the canal (building on the existing Grounds of Alexandria cafe and proximity to residential areas across Euston Street) and further development of the existing IGA and small centre at the corner of Queen Street and Botany Road.

However the scale of the retail should be limited

- Green Square should remain the pre-eminent town centre with large retail premises and large scale retail attractors being focussed in that location.
- It is important that controls be established that limit the size, scale and location of standalone retail premises and retail clusters, support the role of the planned major centre of Green Square, support the objectives of the mixed business area, and do not place undue pressure on the road network.
- The precise use mix and role of such centres, and their relationship to Green Square and the other existing centres in the south Sydney area, would need to be the focus of further study.

Neighbouring LGAs may become more attractive for bulky goods

- Bulky goods are being encouraged to locate along Princes Highway in Marrickville LGA. The presence of Ikea and heavy passing traffic may attract more of these uses to the area.
- While the Draft Botany Bay LEP proposes B5 zones to the south (which mandatorily permit bulky goods), the mainly small lot sizes in these areas are likely to limit the take up of land for this use. It is noted, however, that Bunnings is considering a store on the southern side of Gardeners Road.

- Over time, as the study area increases its value as a higher value employment location, large floorplate bulky goods uses may consolidate their activities or seek alternative sites in other LGAs. In the meantime though the existing O'Riordan Street and Gardeners Road precinct remains a good central location for these types of activities.

4.8 Special uses

Heavier industries could be suited to the southern end of the canal in the main study area

- Land in Marrickville LGA on the western side of the canal south of Canal Road is owned by Sydney Airport, and to the north of Canal Road is the vacant Alexandria Landfill site, owned by Dial a Dump Industries. This means that the south-western end of the main study area around the canal, and near these other sites, may be a good location for more traditional industrial uses in the long term. This would also be appropriate given its relatively isolated nature and proximity to Gardeners Road. While its exact location is unclear a portal for the proposed WestConnex portal in the vicinity of the study area would also provide good transport access for trucks, and attracting freight and logistics and heavier industry would take advantage of the area's lower desirability for other uses given the heavy traffic and noise that would likely result.
- This area would also be an appropriate site for urban services such as concrete batching plants and council depots requiring a location within the study area.
- It is noted that some of this land is zoned Special Uses and is reserved for potential future roads.

The increasing local residential population requires essential services and infrastructure

- Some significant infrastructure has been lost from southern Sydney, such as the South Sydney Hospital at Zetland and emergency response facilities. Demand for community and health facilities can be expected to increase as the population in the wider south Sydney area increases and matures. Accommodating future community and health facilities in or near the Green Square Town Centre, is appropriate.
- Growing employment and residential populations will create additional demand for open space, recreation facilities, childcare facilities and affordable housing. Finding room for and incentivising these uses in planning controls is important.
- There are few schools and childcare facilities in the area, particularly given the increasing residential population of Mascot, Rosebery and Zetland and young families choosing to stay in the city. There may be potential to locate compact educational facilities in or close to Green Square Town Centre, which would encourage public transport use and walking and cycling trips and minimise traffic, as well as facilitating a vibrant centre with community facilities for public use.

5 EMPLOYMENT AND FLOORSPACE SCENARIOS

5.1 Introduction to alternative scenarios

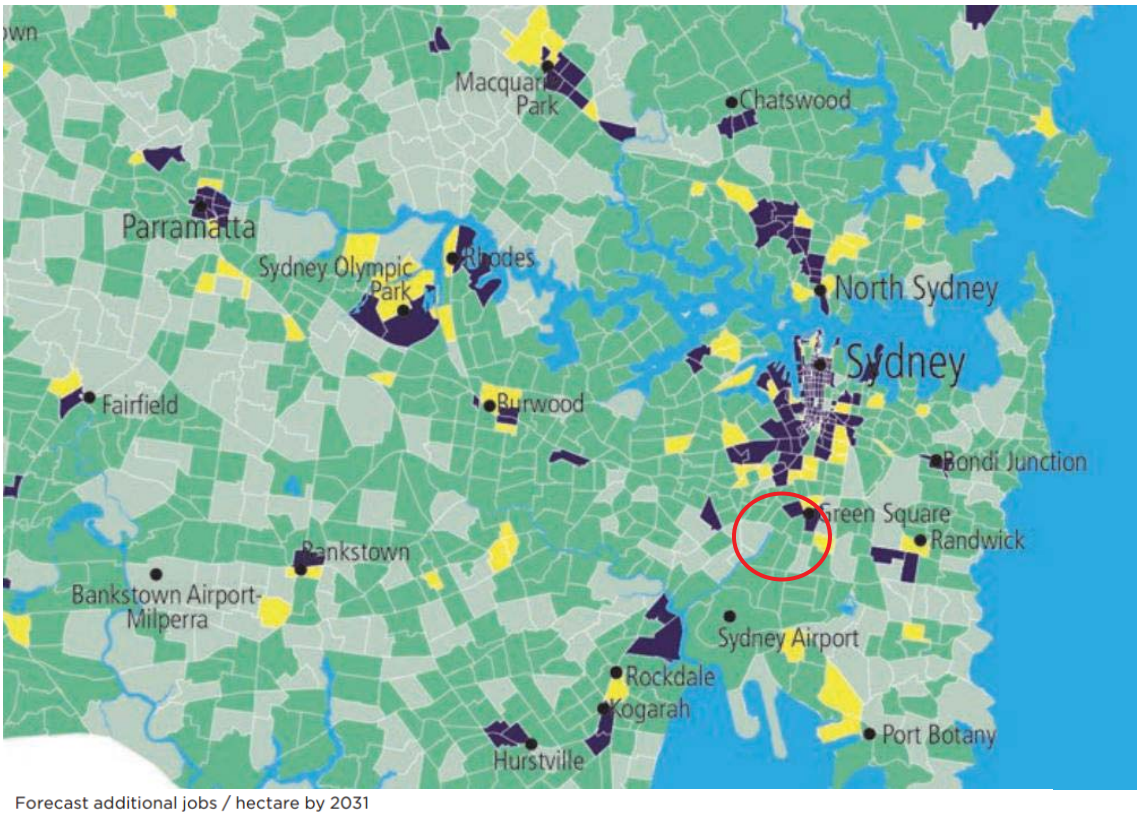
The Bureau of Transport Statistics (BTS) prepares employment projections for Sydney at five yearly intervals to 2031 using a forecasting model. This model:

- estimates total Greater Metropolitan Area (GMA) employment for each historical and forecast year
- analyses trends in employment by industry, geographic subregion and specific job node
- distributes GMA total employment forecasts using forecast shares derived from trend analysis
- adjusts for major new developments (BTS, 2013).

Although the model itself is not publically available, it appears to be principally driven by historical trends with some adjustment for large scale developments that have been announced. This implies that little, if any, consideration is given to strategic opportunities to increase employment across Sydney, or the potential to intensify employment in underutilised areas above trend forecasts. In addition, the model does not factor in the way various land uses may change over time (for example, becoming more space efficient or requiring more or fewer staff), above that observed in historical trends and projected on that basis. Furthermore the forecasts are metropolitan wide and appropriately reconciled at that level, and it is not possible for them to incorporate a detailed understanding of local area industry dynamics, trends in investment and locational decisions and supply side prospects.

The forecasts show a small increase in the job density of the main study area; with the majority of future employment allocated to the CBD and surrounds and North Sydney (Figure 26). An additional 2300 jobs are projected for the main study area between 2011 and 2036 and around 140,000 for the City of Sydney as a whole.

FIGURE 26. JOBS GROWTH FORECAST, 2011 TO 2031, GLOBAL ECONOMIC CORRIDOR



Source: NSW Long Term Transport Master Plan, 2012

These are the official government forecasts and, despite their significant limitations, are the best available data. If the economy of the study area continues on a trend-based trajectory as adopted by these employment forecasts, there will be significant underutilised capacity in the main study area (detailed in appendix 4). Given that development of high bay modern industrial warehouses appears unfeasible in the current market (as shown in appendix 5), perpetuating the existing industrial zoning across much of the study area may lead to increasing vacancy levels.

As such, adopting these forecasts for strategic planning may unnecessarily constrain the economy in the main study area.

In addition, potential longer term supply constraints in traditional office markets imply that other locations need to be considered for higher value employment uses within the Global Economic Corridor, in order for Sydney to remain competitive.

These factors justify an alternative planning approach; one which more actively utilises the land in this strategic location, assumes employment above that projected by historical trends, diversifies economic prospects, and reduces the significant proportion of vacant sites and buildings.

Below are three scenarios reflecting the different demands on the study area as reflected in the discussion in section 4, in addition to the base case of a continuation of the current zoning. The alternative scenarios are:

- one with a residential focus
- a second with a commercial (office) orientation
- a third with a mixed economy transitional focus.

For each scenario the implications for employment and provision of dwellings have been considered using estimates of likely and achievable densities within each zone. These consider likely build out/ take up in general rather than to a fixed point in time. Each scenario is assessed for its advantages and disadvantages given the discussion of strategic issues and considerations outlined earlier.

An overview of the broad objectives for individual precincts or uses in the new scenarios is as follows:

Mixed business	To provide flexibility and appropriately zoned sites for a mix of business and economic activities on a spectrum from industrial to warehousing to commercial and allowing for integrated and combined uses in a single development.
Mixed use	To provide genuine mixed use activities with potential for work/live opportunities, encouraging a roughly even proportion of jobs to residents. Residential provision should be car park constrained and with a requirement for some affordable housing to provide genuine alternative lifestyle options.
Bulky goods	To provide appropriate large floorplate bulky goods opportunities in a consolidated precinct.
Business park	To accommodate larger campus-style office buildings with a higher employment density than in the mixed business area.
Industrial	To accommodate traditional industrial uses, including heavy industry, urban services such as depots, and population serving light industrial such as panel beaters, as well as distribution and warehousing activities. Population serving industrial and urban services uses are conservatively estimated to require 339,000 square metres of land to 2036, as detailed in appendix 6.
Residential	To provide a mix of housing including lower rise, Torrens title, medium density housing as well as some higher density developments. This would include some affordable housing and most likely would require restricted parking to limit the impacts and congestion on the local and regional road network. Value capture mechanisms could be possible here, providing funding for public domain improvements.
High density residential	To provide higher density accommodation in tall apartment blocks, taking advantage of proximity to the canal and Sydney Park, district views, and limited neighbour impacts if parking were to be restricted. Value capture mechanisms could be possible here, providing funding for public domain improvements.

For the residential, commercial and mixed economy scenarios, employment and dwelling projections have been developed and are based on conservative estimates of achievable densities for each area.

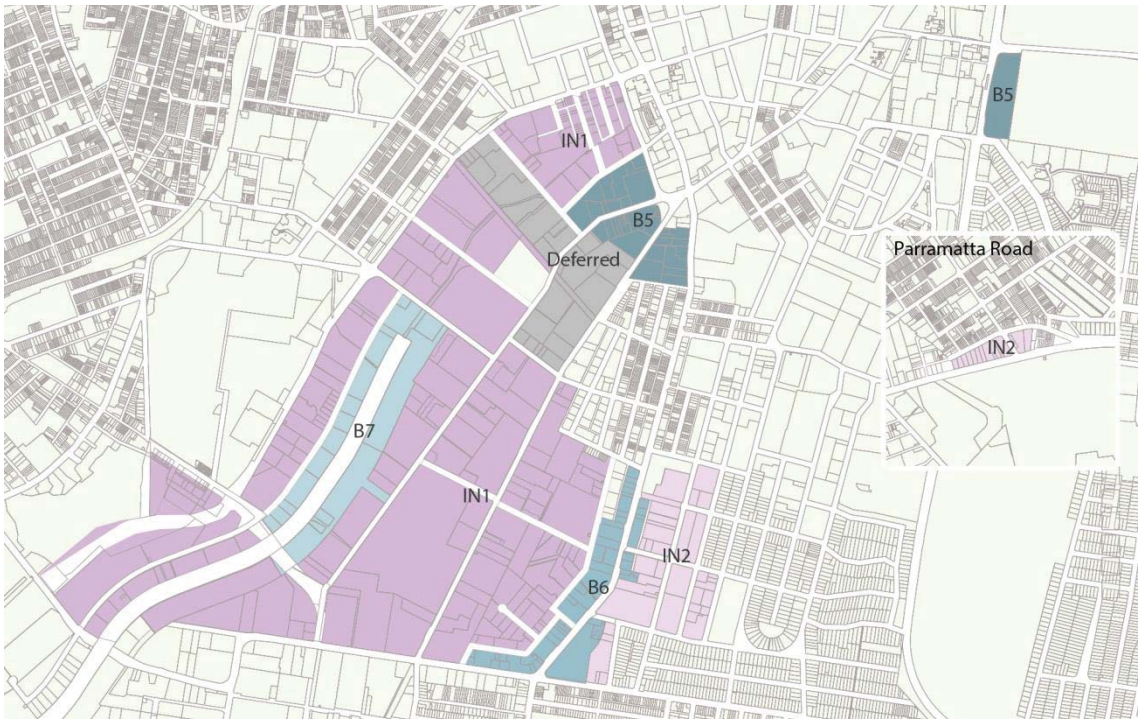
- Current densities in the proposed industrial and bulky goods areas were assumed to continue; that is, employment in these areas is assumed to remain the same (although this may be a conservative approach, if there is scope for intensification of uses).
- The dwelling densities of neighbouring areas with a similar profile to the vision for the proposed residential parts of the study area were used as a basis for estimating achievable densities.
- For the proposed mixed business, mixed use and business park areas, there was no employment data available for comparable areas. As such, achievable job density figures were estimated using SGS's professional expertise, based on land audits and commercial and industrial lands studies completed

for a number of inner city councils (including Randwick LGA, Botany Bay LGA, Marrickville LGA and Leichhardt LGA).

5.2 Base case: existing zoning

In this scenario, the current zoning of the study area does not change. Office uses are anticipated to be accommodated outside the main study area in Green Square Town Centre or through intensification of the Sydney CBD, and around Mascot station and Redfern-Waterloo. The current mix of development uses remains but generally accommodates industrial uses – traditional industrial, strategic industrial relating to the airport and CBD in particular, and population serving industrial.

FIGURE 27. BASE CASE



Source: SGS Economics and Planning, 2013

Advantages

- Maintains employment lands, providing for direct airport and port related uses (including catering and freight related but not higher value and mixed airport related activities)
- Low scale employment uses will have relatively low impact on increasing traffic and transport pressures
- Limits the risk of increasing rents pricing strategic uses out of the study area

Disadvantages

- There is a high proportion of existing vacancies (comprising 19 percent of floorspace in the main study area), which raises questions as to the viability of the current land use and zoning scenario
- Substantial economic , traffic, built form and access issues limit the attractiveness of the study area for general industrial uses, particularly when such uses are in decline and some can locate on cheaper and more suitable sites in western Sydney
- The current zonings do not reflect existing land uses, particularly higher value business-park type employment, such as at the Sydney Corporate Park, and the bulky goods corridor along O'Riordan Street
- The nature of industries and demand for space

are changing and the current scenario does not accommodate this
- IN1 zoning does not provide sufficient flexibility to attract newer forms of industrial use
- Employment opportunities are limited for the growing population of young and educated residents in the area

Employment and dwellings

Data collected for the City of Sydney Floorspace Employment Survey shows that the study area currently accommodates 17,247 jobs and 387 dwellings, as shown in Table 12. Although the BTS projections assume a modest increase in employment in the future, in reality the base case of the current zoning actually implies a lesser potential for the area than was occurring under the previous zoning controls. As such, it is assumed that the profile of the study area does not change in this scenario.

TABLE 12. BASE CASE EMPLOYMENT AND DWELLINGS

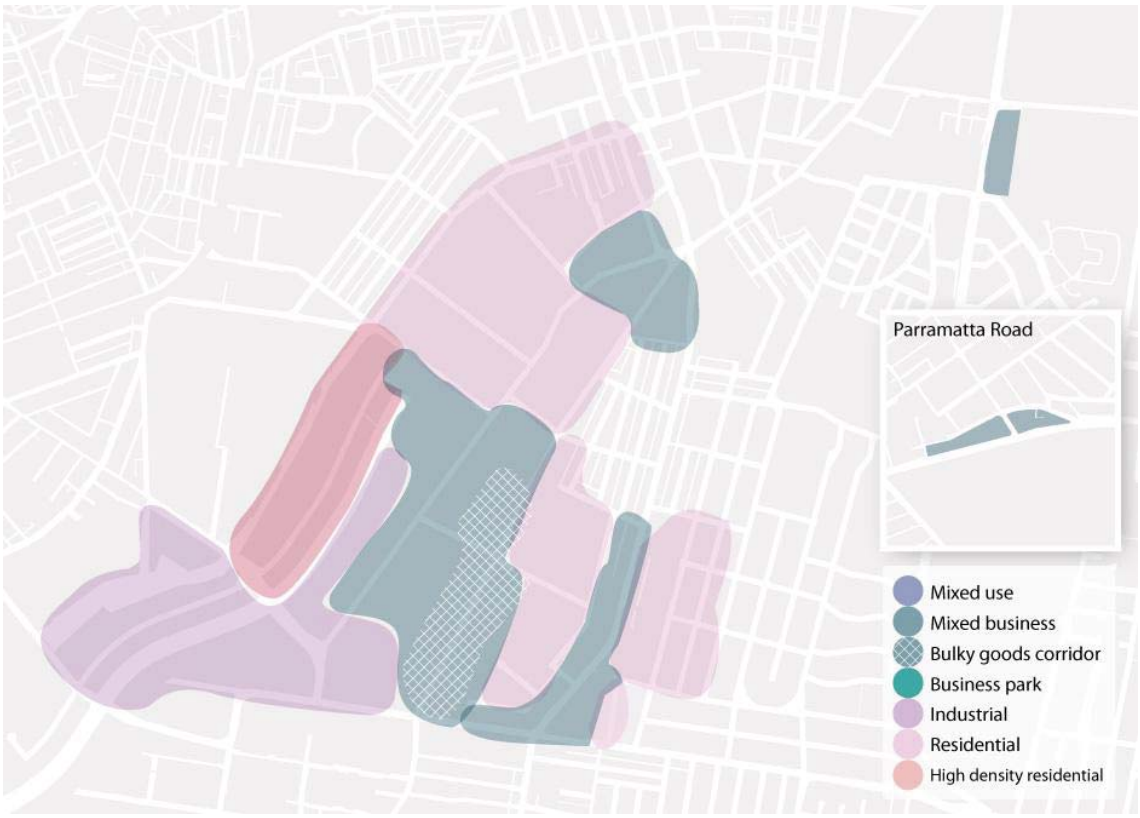
	Area sqm	Area Ha	Jobs	Job density (J/Ha)	Dwellings	Dwelling density (D/Ha)
B5	129,073	12.91	953	74	-	-
B6	109,147	10.91	683	63	296	27
B7	158,763	15.88	311	20	-	-
IN1	1,538,355	153.84	11,612	75	9	0
IN2	166,522	16.65	1,836	110	5	0
Deferred	175,350	17.53	1,788	102	-	-
0 (road reservations)	9,248	0.92	64	69	77	83
Total	**2,286,458**	**229**	**17,247**		**387**	

Source: City of Sydney Land audit data, 2012, SGS Economics and Planning calculations, 2013

5.3 Residential scenario

This scenario includes a component of industrial land in the south west of the site and proposes mixed business areas in a small central area between O'Riordan Street and Bourke Road as well as along Botany Road and immediately to the south of the Green Square town centre. Elsewhere the areas are rezoned for residential, including high density residential east of Sydney Park and west of the canal.

FIGURE 28. RESIDENTIAL SCENARIO



Source: SGS Economics and Planning, 2013

Advantages

- Providing residential land in the study area will increase the supply of housing and potentially assist in providing more affordable accommodation in the City of Sydney
- Potential for high density residential to fund infrastructure
- Provides sufficient industrial land to accommodate population serving uses (namely local light industrial and urban services) to beyond 2036, given the projected future population

Disadvantages

- Shift of focus from employment to residential is inconsistent with the study area's position in the Global Economic Corridor
- The increase in residential land may cause land use conflicts and interface issues, particularly with adjacent industrial lands, hindering business operations
- An increase in residential population is likely to further increase traffic congestion and car parking issues, adding to growth pressures and affecting the viability of employment generating uses
- Limited industrial lands for strategic uses related to the airport, and potential displacement of lower value but important industrial uses if pressure on these areas raises rents
- Limited opportunity to attract high value knowledge jobs and creative uses
- Environmental constraints such as flooding and contamination may restrict the suitability of land for residential land uses
- Cost of mitigating constraints may create significant pressure for very high densities to achieve feasibility. This in turn may have unacceptable amenity, traffic and parking, and

other impacts
- There is currently inadequate open space and community infrastructure to support residential uses
- Further reduction in commercial and industrial floorspace /stock withdrawals
- Significant residential development may affect operations at Sydney Airport (for example, by increasing the duration of the flight curfew) and restrict its potential for future expansion

Employment and dwellings

This scenario assumes capacity for around 3000 fewer jobs compared to the base case – a total of 14,260 jobs – and an additional 6259 dwellings (Table 13).

TABLE 13. ESTIMATED IMPACT OF RESIDENTIAL SCENARIO

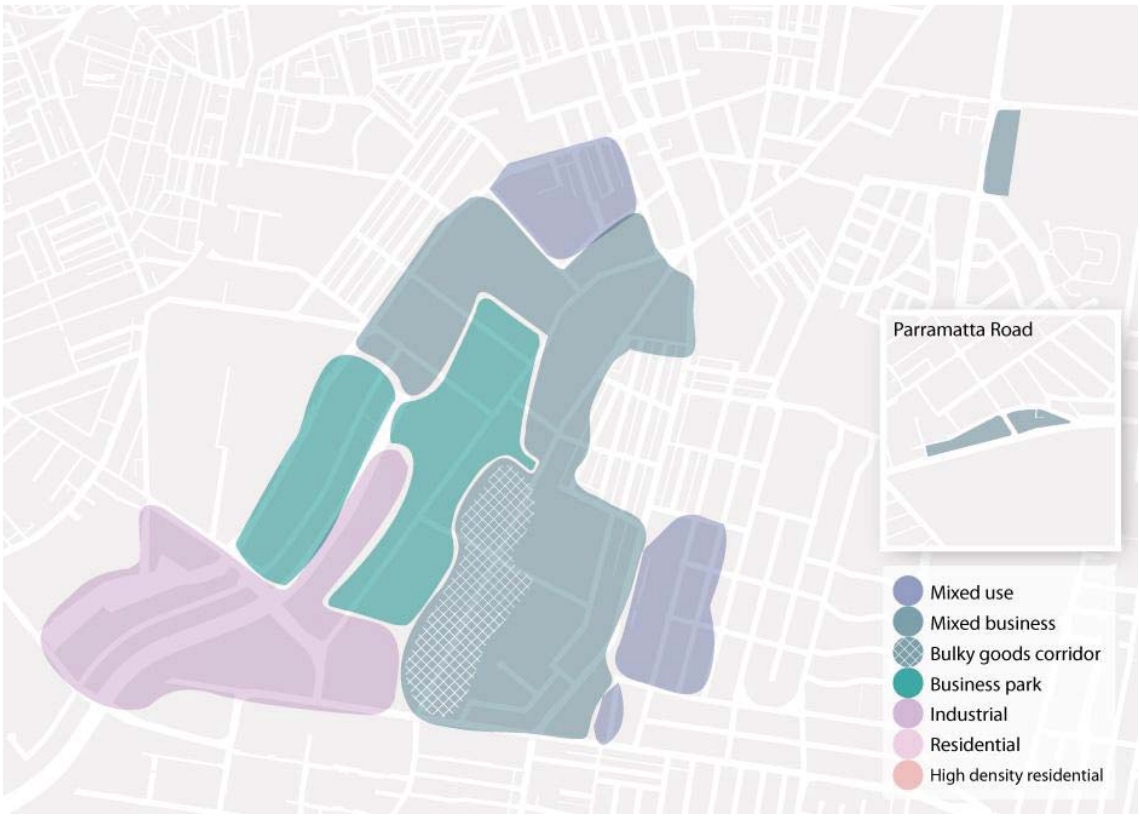
	Area sqm	Area Ha	Jobs	Job density (J/Ha)	Dwellings	Dwelling density (D/Ha)
Jobs						
Mixed business	839,554	84.0	11,920	142	187	0
Industrial	390,060	39.01	2,340	60	-	-
Total	1,229,614	123	14,260		187	
Dwellings						
Residential	880,350	88.04	-	-	4,693	53
High density residential	176,505	17.65	-	-	1,765	100
Total	**2,286,469**	**229**	**14,260**	**-**	**6,645**	**153**
Difference from base case	11	0	-2,987		6,259	

Source: City of Sydney Land audit data, 2012, SGS Economics and Planning calculations, 2013

5.4 Commercial scenario

This scenario includes a component of industrial land in the south west of the site, business park uses west of the canal, small mixed use areas to the north and south east. Otherwise a mixed business zoning would predominate including a bulky goods corridor on the southern end of O'Riordan Street.

FIGURE 29. COMMERCIAL SCENARIO



Source: SGS Economics and Planning, 2013

Advantages

- Strategic justification for commercial land given the likely constraints on supply elsewhere in the city and the opportunity to reinforce the economic role of the study area within the Global Economic Corridor
- Reflective of existing uses and changing nature of the economy, particularly the existing demand for bulky goods and growing professional services industry of employment
- Provides sufficient industrial land to accommodate population serving uses (namely local light industrial and urban services) to beyond 2036, given the projected future population
- Commercial uses provide a buffer between existing residential lands to the east of the study area and remaining industrial land uses
- Potential for hotel accommodation to be developed to support CBD and airport provision
- Likely to increase the viability of the study area and lower vacancy levels by permitting a variety of employment generating uses
- Offers opportunities for public transport patronage and minimises conflict with other demands on the road network, such as for airport-related uses

Disadvantages

- Potential for business park area to compete with Green Square town centre, delaying or jeopardising its development as a major centre
- Limited industrial lands for strategic uses related to the airport, and potential displacement of lower value but important industrial uses if pressure on these areas raises rents
- Potential to substantially increase traffic and transport pressures in study area
- Limited role in addressing housing supply

Employment and dwellings

This scenario assumes capacity for more than double the amount of jobs than the base case (19,396 additional jobs, giving a total of 36,643 jobs), and a similar amount of dwellings (Table 14).

TABLE 14. ESTIMATED IMPACT OF COMMERCIAL SCENARIO

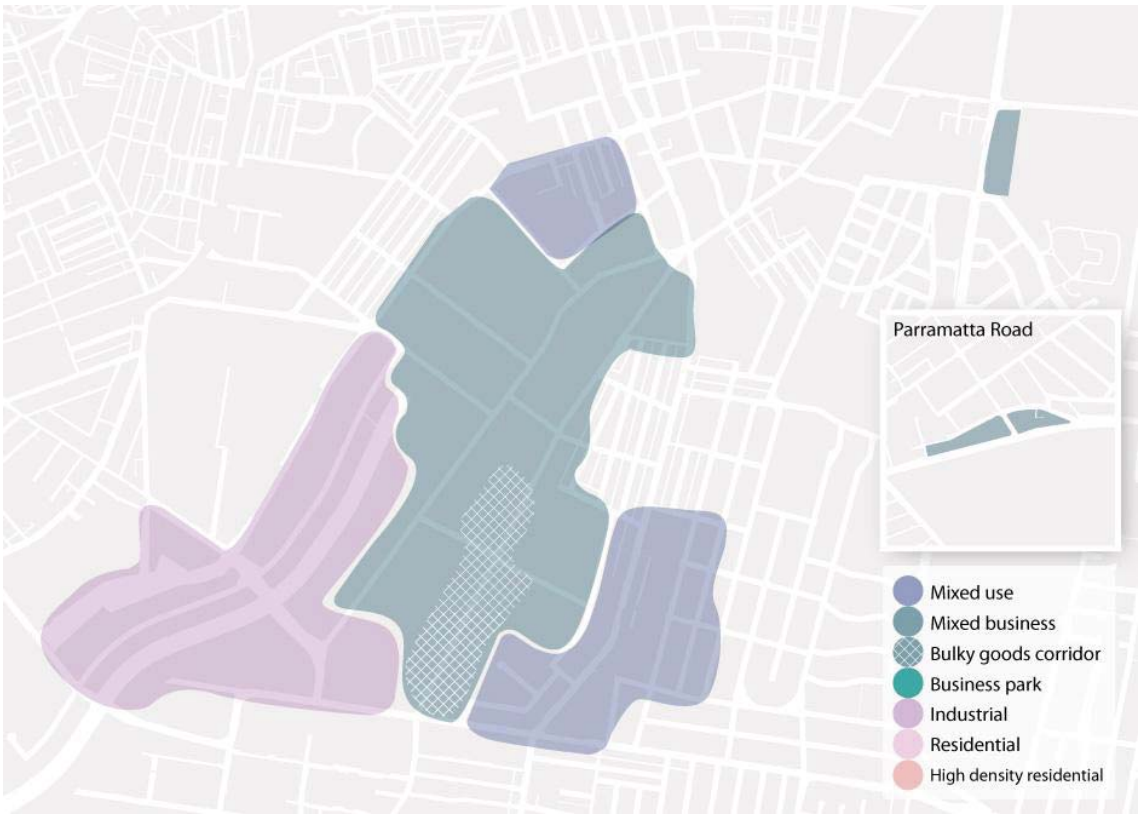
	Area sqm	Area Ha	Jobs	Job density (J/Ha)	Dwellings	Dwelling density (D/Ha)
Jobs						
Mixed use	280,529	28.05	3,366	120	270	10
Mixed business/ Enterprise corridor	970,807	97.08	14,184	146	13[1]	0
Business park	670,093	67.01	16,752	250	-	-
Industrial	390,060	39.01	2,340	60	-	-
Total	2,311,490	231	36,643		283	
Dwellings						
Residential	-	-	-	-	-	-
Total	**2,311,490**	**231**	**36,643**		**283**	
Difference from base case	25,032	3	19,396		-104	

Source: City of Sydney Land audit data, 2012, SGS Economics and Planning calculations, 2013
[1] Note: the Parramatta Road site currently houses 13 dwellings. Although no new dwellings are projected in the mixed business zone, these 13 existing dwellings are assumed to remain.

5.5 Mixed economy scenario

This scenario includes industrial land in the south west of the site and extending either side of the canal, as well as extended mixed use areas to the north and south east (either side of Botany Road). Elsewhere mixed business uses would predominate, including a bulky goods corridor on the southern end of O'Riordan Street.

FIGURE 30. MIXED ECONOMY SCENARIO



Source: SGS Economics and Planning, 2013

Advantages

- Supports the current mix of freight and logistics, urban services, light manufacturing, office/business park uses, and creative uses through providing precincts which continue to support these existing land uses activities
- Maintains additional industrial land beyond the requirements for population serving demand to 2036, which can accommodate strategic uses relating to the airport, port and CBD that require industrial zoning
- Supports the position of the study area within the Global Economic Corridor
- Reflects the changing economy through provision of flexible areas to cater for growing knowledge-based and creative industries
- Mixed use areas provide a buffer between existing residential lands to the east of the study area and commercial and industrial land uses, as well as increasing local amenity and reducing interface issues
- Potential for hotel accommodation to be developed to support existing CBD and airport provision
- Likely to increase the viability of the study area and lower vacancy levels by permitting a variety of employment generating uses
- Mixed use areas have the potential to attract higher value, creative type uses; the clustering of which facilitates productivity and growth
- Balances the policy objective to promote employment growth,

Disadvantages

- Potential displacement of lower value but important industrial uses if pressure on these areas raises rents
- Limited opportunities to increase the supply of housing, although higher than in commercial scenario given larger mixed use area

with the need to retain land for strategic industrial and population servings uses that tend to have lower job yields (but which are essential for the efficient operation of the city and have an economic value in their own right)

– Decreases risk and ensures the quantum of industrial land that is retained by the study is sufficient, such that future demand for industrial land does not place undue pressure on land and rent prices

Employment and dwellings

This scenario assumes capacity for 10,255 additional jobs compared to the base case – a total of 27,502 jobs – and a conservative estimate of an additional 468 dwellings (Table 15).

TABLE 15. ESTIMATED IMPACT OF MIXED ECONOMY SCENARIO

	Area sqm	Area Ha	Jobs	Job density (J/Ha)	Dwellings	Dwelling density (D/Ha)
Jobs						
Mixed use	439,388	43.94	5,273	120	842	19
Mixed business	1,280,494	128.05	18,830	147	13[1]	0
Industrial	566,565	56.66	3,399	60	-	-
Total	2,286,448	229	27,502		854	
Dwellings						
Residential	-	-	-	-	-	-
Total	**2,286,448**	**229**	**27,502**		**854**	
Difference from base case	-10	0	10,255		468	

Source: City of Sydney Land audit data, 2012, SGS Economics and Planning calculations, 2013

[1] Note: the Parramatta Road site currently houses 13 dwellings. Although no new dwellings are projected in the mixed business zone, these 13 existing dwellings are assumed to remain.

5.6 Recommended scenario

The recommended scenario for the study area is the mixed economy scenario. It is consistent with the roles for the area discussed in section 2 on the strategic context, balances the range of competing uses in the study area discussed in section 3 and scores highest from a policy perspective against the strategic assessment of employment lands (as described in appendix 7). Most importantly, it addresses the question of the strategic employment context, which is fundamental to Sydney's future competitiveness and is of national significance.

This scenario (and the analysis in this report) raises the need for a more comprehensive review of the significance of the industrial areas in general in the subregion. If the main study area is dedicated to a higher order mixed business role then it is important that other employment land precincts within the inner Sydney area also be protected so that they may play their own role in the subregion and Sydney's broader economic geography.

The following section focuses on the roles of particular precincts in the preferred, mixed economy scenario and recommendations for implementation.

6 RECOMMENDED LAND-USE STRATEGY

The vision for each precinct and associated actions consistent with the preferred scenario are discussed below. Refer to appendix 8 for a risk assessment of moving from the existing zoning to the proposed scenario.

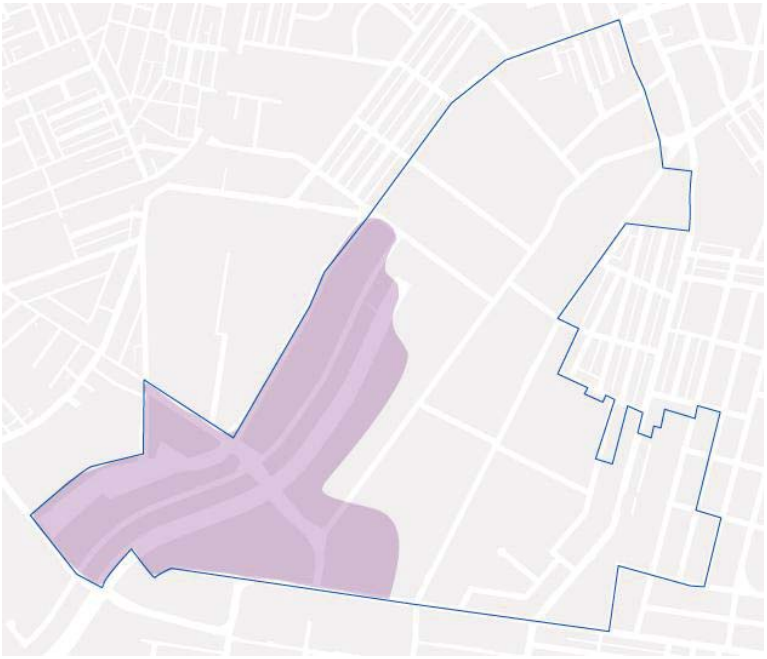
6.1 Industrial area

Land use recommendation

Zoning in the south western corner of the main study area should accommodate both heavy and light industry. The zone is to allow for population serving industrial uses (local light industrial and urban services required to service the current and projected population of the LGA) and strategic industrial uses (for example, airport related and freight and logistics uses and some CBD support services such as archiving activities).

The vision for the zone is for 'pure industrial' with only minimal 'ancillary' uses to support the industrial uses and employment in the zone.

Map



Recommendations

- Ensure the objectives of the zone achieve the vision for the zone.
- Provide flexibility to accommodate a variety of light and heavy industrial uses and allow firms choice as to where they locate depending on their requirements.
- Review floor space ratios to ensure they are appropriate to accommodate the activities envisaged and the vision for the zone.
- Allow for ancillary uses that support the working population of the zone, for example childcare, kiosks and so on. However, ensure that the scale of those

uses does not compromise the vision of, or efficient functioning of the zone.

Justification

The proposed industrial area:

- provides sufficient land to accommodate the population serving industrial uses (local light industrial and urban services) to service the current and projected population of the LGA to 2036; conservatively estimated to be around 339,000 square metres of floorspace in 2036, as detailed in appendix 6
- provides additional land of approximately 150,000 square metres[14] to accommodate strategic industrial uses, for example those related to the airport, in addition to that available in the mixed business areas. Earlier analysis shows a need for approximately 440,000 square metres of land for airport-related freight and logistics uses. Industrial areas surrounding the airport (such as those to the north, west and those to the east, where SGS found excess capacity in its 2008 Botany Bay study) are anticipated to principally accommodate this demand with some able to be accommodated amongst the 'strategic industrial uses' allowed for in the proposed zone. It is noted that some of these uses will also be able to be accommodated in other zones within the main study area.
- balances the need to retain land for industrial uses with the opportunity to turn over some underutilised industrial zoned land for higher value uses
- perpetuates the existing land uses in this area and planned location of council depots to the east of the canal
- aligns with zoning and future plans in the adjoining LGAs of Marrickville and Botany Bay along the study area boundaries
- consolidates heavier uses in an isolated location, buffered from other uses by the Alexandra Canal, Sydney Park, and main roads
- provides good accessibility to Sydney Airport and road networks, including the proposed exit of WestConnex along Qantas Drive, and therefore has potential to attract related freight and logistics uses.
- returns land zoned B7 – Business Park in the current Sydney LEP 2012 along the Alexandra Canal to an industrial zoning. This reflects existing (and planned) land uses and recognises that higher order uses will continue to remain unfeasible until such time as there is active intervention by Sydney Water to clean up the canal. Perpetuating the B7 – Business Park zoning in this location will only act to artificially inflate land prices.
- will not reduce the quantum of industrial land so much that demand pressures would have a detrimental impact on land prices, that is, additional land allowed for 'strategic uses' would de-risk, to some extent, potential land cost increases.

[14] This excludes land planned for acquisition for road reservations, as provided by the City of Sydney.

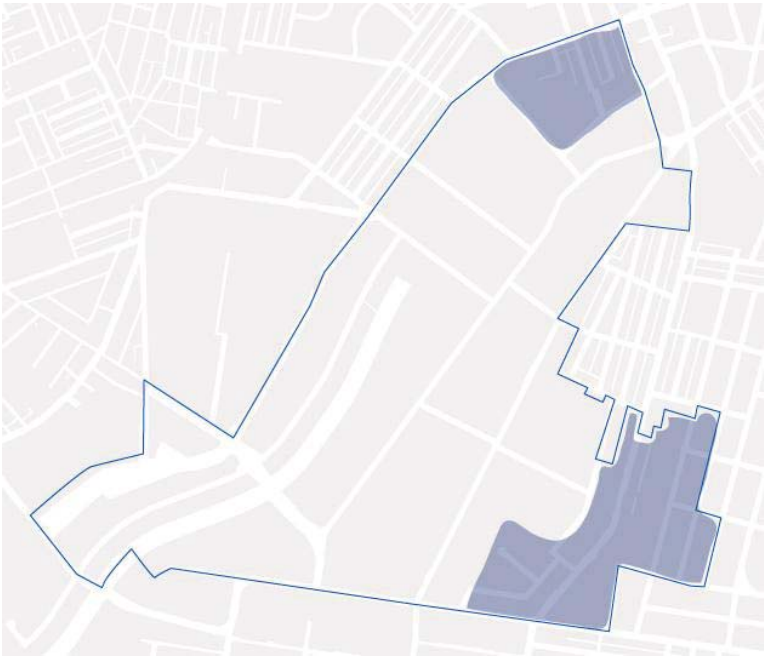
6.2 Mixed use areas

Land use recommendation

Zone the northern and eastern precincts of the study area for a mix of employment and residential uses, ensuring that a genuine 'mix' emerges.

The vision for this area is a genuine mixed use precinct supporting a relatively even mix of employment-generating uses and affordable residential development. Development should support sustainable travel behaviour including minimising car usage.

Map



Recommendations

- Ensure that as the rezoning of these precincts creates increased land values, a portion of the value uplift is directed towards works or services aimed at achieving the objectives of Sustainable Sydney 2030.
- Ensure the objectives of the zone achieve the vision for the zone by actively encouraging a genuine mix of affordable residential and non-residential uses.
- Ensure the zone provides flexibility to support both employment and appropriate residential uses.
- Undertake a character, heritage and urban design assessment of the proposed mixed use precincts, recognising that appropriate controls will need to be developed that, for example:
  - protect the existing grain and street network
  - respect the scale of the existing built form including the retention of some existing buildings
  - establishes height and floor space ratio controls that are appropriate for the zone.
  - actively promote affordable housing
  - minimise the barriers to innovative housing conversions for 'work-live' outcomes
  - provide for no or low parking associated with the housing in these mixed use precincts.
- Explore opportunities to encourage child care and other local infrastructure needed to support the growing population in the region.

Justification

The proposed mixed use areas:

- fit with the developing character of the precinct east of the main study area, where residential buildings and associated retail and services are increasing (with cafés such as Kitchen by Mike on Dunning Avenue, Bourke Street Bakery and Sonoma adding to the amenity of the area and catalysing development)
- take advantage of the features of both proposed locations, in terms of small lots, older industrial buildings, and quieter roads, which could facilitate development of diverse, dense and creative economy precincts
- are likely to continue to attract creative uses, which cluster in fringe areas with high amenity and lower rents rather than town centres (with Rosebery already home to a number of such uses, including firms in the fashion industry, media and communications sector, architects, graphic designers and so on)
- provide services and retail for adjoining residential populations in Rosebery, Zetland and Alexandria
- provide an opportunity to promote affordable housing and a diverse housing mix
- provide a buffer between the predominantly residential areas outside of the main study area and proposed commercial uses in the centre of the main study area
- take advantage of current or proposed transport options – with the northern precinct accessible to Green Square train station, and the eastern precinct accessible to the Botany Road bus corridor.

6.3 Mixed business areas

Land use recommendation

Zone the centre portion of the main study area and the Parramatta Road and South Dowling Street precincts for mixed business uses. The zone should ensure sufficient flexibility to encourage and accommodate a variety of economic activities, as well as 'other' uses likely to attract and support higher value activities in these areas.

The vision for this area is a mixed business precinct in a flexible land use zone. The zone should continue to support warehouse and light industrial uses but also facilitate higher value employment such as offices where appropriate. Retail should be limited in scale and should complement the Green Square Town Centre and other village centres. The zone should continue to support bulky goods uses in limited areas.

Map

Recommendations

- Ensure the objectives of the zone achieve the flexible vision for the zone and encourage a mix of employment activity in the zone.
- Allow for some other non-residential uses, such as entertainment facilities, churches and markets, which support employment activity and/or service the local population. These uses should be limited in scale so they do not detract from the vision of the zone.
- While some retail activity is consistent with the aim of increasing flexibility in the zone and allowing for a variety of employment generating uses, individual retail activities should be limited in scale so that they complement retail activities in the Green Square Town Centre and do not have a detrimental impact on other employment uses in the zone.
- Recognise there are a number of industrial-retail businesses in the main study area, and that these uses should continue to be permitted in the zone.
- Premises with an active frontage to O'Riordan Street should be permitted to accommodate bulky goods premises (in areas where they currently exist) under Schedule 1 of the Sydney LEP 2012 (which permits additional uses for particular land that may otherwise be prohibited by a land use table). Bulky goods should continue to be consolidated on the South Dowling Street site and in the main study area along O'Riordan Street, where there is an existing cluster and to ensure these uses do not 'crowd out' the potential for other mixed employment activities in neighbouring areas.
- Undertake additional analysis of the built environment and review height and floorspace ratio controls to ensure they are appropriate for the zone.
- Explore opportunities to encourage child care and other local infrastructure needed to support the growing population in the region.
- Encourage sustainable transport choices and where possible introduce measures to minimise parking associated with new development.

Justification

The proposed mixed business areas:

- fit with the existing mix of commercial and business uses in the Parramatta Road precinct and in much of the main study area, including business park type developments such as the Sydney Corporate Park
- provide excellent access – with the main study area close to the airport and CBD and all sites either close to or on major arterial roads
- are minimally affected by aircraft noise
- provide flexibility to accommodate a range of uses that generate employment given the wide variety of sites within the study area, with potential for office developments, small manufacturing businesses such as catering firms, laboratories, warehousing, integrated operations and so on
- can also provide flexibility for a range of uses that attract employment and add to diversity, particularly in the main study area, such as sport and recreational facilities, cafés, and accessibility to Green Square Town Centre and retail precincts
- accommodate higher value employment for the growing residential population of the neighbouring areas (particularly younger and highly educated residents) and minimise travel times
- have good accessibility by public transport for the most part, with Green Square train station to the north of the main study area and major bus routes in or close to all three precincts, although there is potential to increase the number of routes, services, and perhaps expand the hours of operation.

6.4 Retail precincts

Vision

Planned retail precincts of an appropriate size and location will support the effective functioning of the commercial and mixed use precincts of the study area, as well as the wider area.

Map

Recommendations

- Recognise the major centre role of Green Square Town Centre in providing services, office uses and employment, and protect strategic industrial, commercial and mixed use areas by concentrating anchor retailers (such as supermarkets) in nominated centres.
- Develop a hierarchy of small retail centres in the main study area and surrounding suburbs, considering possible locations at Rosebery, close to the Grounds of Alexandria cafe at the northern end of the canal and Doody Street. This would consider the best locations for these centres, the need for amenities to service businesses and new residents in the area, the projected increase in the local population, the projected redevelopment of Green Square Town Centre, and structure planning issues, transport accessibility, linkages to other centres and so on.
- Explore planning controls that encourage walking and cycling to these locations

Justification

The proposed retail areas:

- provide local retail services for residents and workers in Rosebery and close to the Grounds of Alexandria cafe at the northern end of the canal (and in future at Doody Street if a rail station is established)
- acknowledge that while there is growing demand for bulky goods locations, there are opportunities for these businesses to locate in neighbouring LGAs (such as along the Princes Highway in Marrickville LGA) or to intensify operations in the study area
- are unlikely to compete with the retail planned for Green Square Town Centre.

6.5 Support actions

A subregional approach is needed.

Issue

A regional approach is required to determine the necessary supply of inner metropolitan Sydney employment lands (with industrial lands being an important subset) needed to service the airport and port and provide appropriate service industry land, and action taken to ensure that these lands are protected. This will reduce the likelihood of the industrial lands in the main study area becoming overburdened and consequently unviable for lower value uses. It will also allow for enhanced transport planning and neighbouring residential planning, once the role of the different precincts is made more certain.

Action

Lobby state government to consider the provision and protection of strategic industrial and employment lands at a subregional level. The objective should be to develop a state planning instrument that protects and maintains inner Sydney employment lands for strategic and other uses consistent with their attributes and location.

Traffic and transport issues in the study area must be addressed

Issue

The traffic and transport network will continue to come under considerable pressure from growth at the airport and port, as well as population growth in Green Square and Mascot, and other surrounding areas. It is noted that the land use strategy recommended by this study will also create some additional pressure on the road and transport networks in and around the study area.

In exhibiting the background report (appendix 1), the City of Sydney received a submission from Roads and Maritime Services (RMS) recommending that:

- the implications of the Employment Lands Study be assessed
- a Traffic Management and Accessibility Plan (TMAP) be prepared for the study area, which takes into consideration the Green Square TMAP 2008, the Mascot Town Centre TMAP 2012 and other relevant studies and strategies.

These recommendations are supported.

Actions

- Undertake a local high level traffic and transport study to inform the preparation of planning proposals which will implement the recommendations of this report.
- Work with Transport NSW to develop a TMAP for the study area that is responsive to the land use recommendations and ensures sufficient levels of public transport are provided to and through the study area. Some considerations for this study should be:
  - Whether Botany Road could be 'calmed' to support the development of the proposed mixed use precinct, including providing for on-street parking, and elevating its role as a public transport corridor over heavy slow traffic
  - The potential to establish Bourke Road and O'Riordan Street as the principal arterial roads through the study area
  - Prospects for a rail station on the Airport line at Doody Street
  - Continuing to plan for and invest in pedestrian and cycle paths (safe for all users), as well as the general improved amenity of the study area, to promote walking and cycling as an alternative to car usage
  - Opportunities to introduce measures that address potential conflicts between cyclists and heavy vehicles.

Manage flooding issues

Issue	Flooding will continue be an issue in parts of the study area. There is a need to manage flooding in the study area and ensure new development is responsive to flooding constraints.
Actions	– Ensure planning controls promote the Liveable Green Network Plan to provide a corridor along the alignment of the trunk drainage channel from Alexandra Canal to Bourke Road. – Integrate the outcomes of the Alexandra Canal Floodplain Risk Management Study and Plan into future planning controls.

Harness opportunities to improve the public domain

Issue	Improvements to the public domain are required in the study area in order to satisfy demand created by growing numbers of employees and residents locally, to attract new firms (particularly those in higher value and creative industries) which will encourage development and renewal, and in general to provide a higher level of amenity for workers, residents and visitors.
Actions	Prepare a public domain strategy to consider through-site links, pedestrian amenity, potential for green corridors, minor land dedications for community uses, recreational needs, longer term prospects for redevelopment of the Alexandra Canal and Shea's Creek, cycle paths and so. The focus should be on functionality and accessibility, not necessarily on beautification. It is important these elements of the public domain are recognised in new planning controls.

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