

PART TWO

SYDNEY NOW AND IN THE FUTURE



Key points

- The aviation sector drives employment and economic growth. Nationally, it contributes more than \$6.5 billion per year to the economy, generating direct employment for around 60,000 people across Australia. It also indirectly stimulates a variety of other industries, including tourism (which alone directly contributes more than \$35 billion to the economy).
- Access to aviation is essential to the Sydney economy. Aviation supports the services sector, which will form 85 per cent of Sydney's economy by 2020. It is essential to Sydney's continued growth as a commercial and financial centre and to Australia's position as a pre-eminent tourist destination.
- Sydney (Kingsford-Smith) Airport is the centre of the Australian aviation network, with almost 43 per cent of Australia's international passenger movements and 23 per cent of domestic passenger movements in 2010. Approximately 50 per cent of Australia's international air freight was also transported through the airport.
- The population of the Sydney Metropolitan Area will continue to grow and is alone expected to increase from 4.2 million to 6.2 million by 2036. The greatest growth will occur in Sydney's South West, North West and West Central subregions. Proportional growth is also expected in the Central Coast subregion.
- The spatial growth of the Sydney region will need to be supported by strategic integrated land use planning and transport infrastructure investment strategies. Provision for aviation industry growth will be a key element.
- As a result of the rapid population growth that is projected to occur in Western Sydney over the next 25 years, 384,000 new jobs will be required for the area.
- The Western Sydney unemployment rate (5.9 per cent) is higher than the Sydney average of 5.0 per cent. Few jobs are currently located within the area, resulting in an average commuting time for Western Sydney residents that is 35 per cent to 50 per cent longer than the Sydney average.
- Western Sydney needs employment generators and infrastructure investment to provide local employment for its growing population and to support community development.
- The North West Growth Centre, South West Growth Centre and the Western Sydney Employment Area (WSEA) will require expanded road and rail links and improved public transport access to employment areas and major facilities, including aviation facilities, to meet population and income growth.
- The population growth projections for the Hunter and Central Coast regions indicate that significant investment in infrastructure, facilities and employment zones will also be required in those regions.
- Sydney (Kingsford-Smith) Airport is located within the Global Economic Corridor (GEC) – the key economic precinct for Sydney and an important employment zone. Growth of business in the GEC – in particular, around Sydney (Kingsford-Smith) Airport and Port Botany – will add to traffic congestion.
- The employment and residential infill density targets for City of Sydney, East, South and Inner West subregions will put additional pressure on the roads and public transport systems in these locations, which will add to congestion unless effective investment and demand management measures are put in place.

- The growing population to the west and north of the city will require efficient access to aviation services. Planning for aviation infrastructure will need to be aligned with the spatial growth of the region and linked to investment in required surface transport infrastructure.
- In the long term, Sydney's growth is expected to spread to the southwest, with potential to accommodate land for a range of urban activities including residential, employment, open space, conservation and industry. The metropolitan planning review process will provide the context for considering future urban investigation areas.
- Additional airport capacity close to the areas of major population growth would improve access to services for the residents, provide additional employment opportunities for those areas and help ameliorate the growth of road traffic and congestion in the areas around Sydney (Kingsford-Smith) Airport.

- Employment impacts would be on localised direct aviation jobs, supporting local communities and economic activity in those areas with airports and more widely dispersed indirect jobs, including in sectors such as tourism.

New South Wales is Australia's largest state economy, representing 32 per cent of Australia's gross domestic product (GDP) in 2009–10 and with a gross state product (GSP) of \$407 billion.¹ Sydney is Australia's largest city and, along with the surrounding region, is a major contributor to the Australian economy. Access to Sydney through airports and ports is critical to productivity and growth.

Currently, Sydney (Kingsford-Smith) Airport lies at the heart of Australia's aviation activity – as a hub for domestic passengers and as an international gateway for both business and tourism.

Sydney will continue to grow across the Sydney basin and beyond, and its population density will increase in many existing and new urban areas. Sydney, its surrounds and the region as a whole will need a well-planned infrastructure network that is integrated with the spatial growth of the region to facilitate economic and social development to support this future growth.

2.1 Population growth

The Sydney region² is home to approximately six million people, with more than 4.2 million living in the Sydney Metropolitan Area alone. This represents more than 60 per cent of NSW's population and 21 per cent of the Australian population. Population growth has occurred at a compound annual growth rate of 1.2 per cent per year over the past decade compared to the national rate of 1.6 per cent per year.³

While the rate of population growth in Sydney has been slower in recent years than other major cities, the total volume of people living and working in the region continues to grow, as shown in Figure 9.

1 Industry & Investment NSW, *Fast Facts*, 2011.

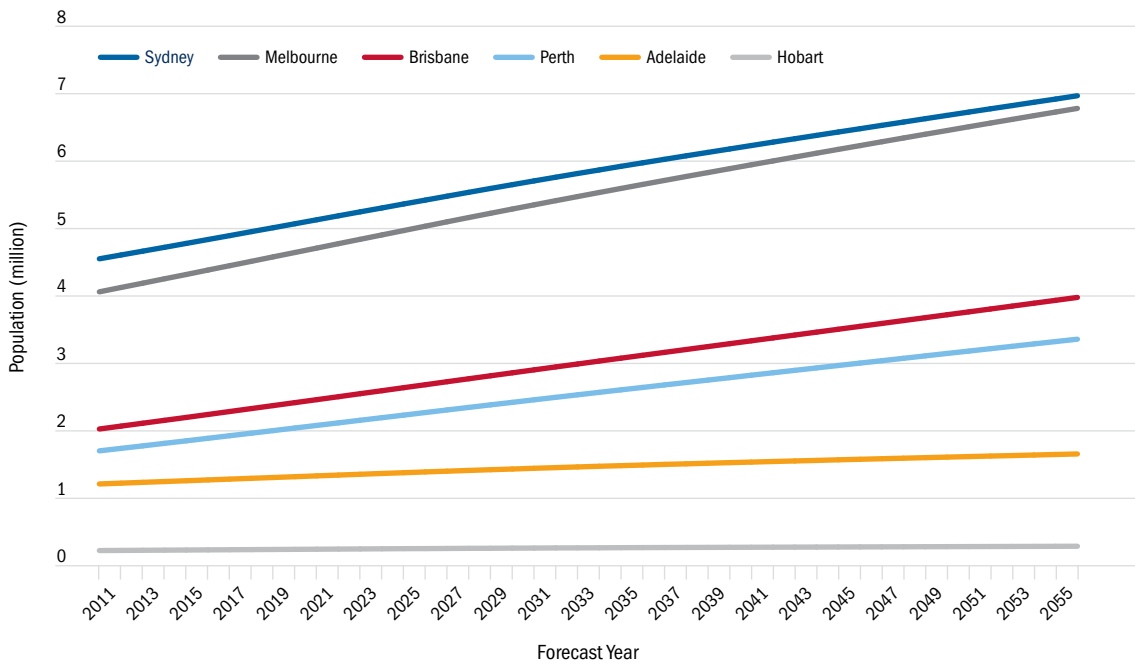
2 For the purposes of this Joint Study, the Sydney region is defined as far north as Williamtown in the Hunter and as far south as Canberra.

3 ABS Cat. 3218.0 *Population Estimates by Statistical Local Area, 2001 to 2010*, released in March 2011.

Forecasts show Sydney’s population is expected to reach 6.2 million by 2036 – a compound annual growth rate of about 1.2 per cent from 2010⁴ – with estimates reaching between seven million and 7.5 million by 2056.⁵ This is more than the current population of Melbourne and Brisbane combined; four times that of Perth; six times that of Adelaide; and 31 times that of Hobart today.

Population is expected to grow through a combination of births, higher life expectancy and domestic and overseas migration, with Sydney being the major destination for new migrants to Australia.

Figure 9 Population projections for major capital cities, 2010 to 2060

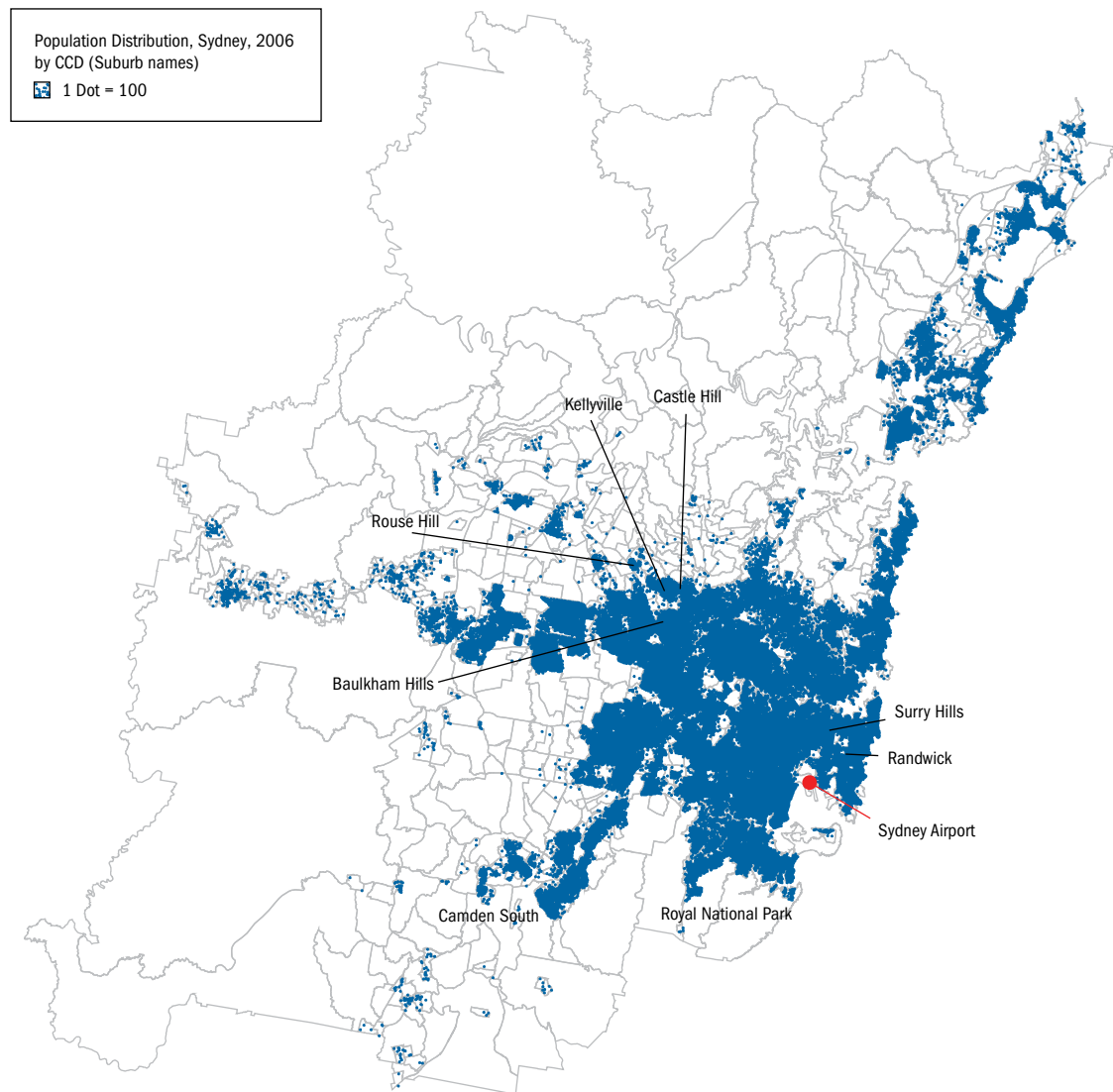


Source: ABS Cat. 3222.0 Population Projections, Australia, 2006 to 2101, Series B, released in 2008.

Figure 10 gives an estimation of Sydney’s spatial distribution.

4 ABS Cat. 3222.0 Population Projections, Australia, 2006 to 2101, Series B, released in 2008.
5 BITRE, 2011 analysis of ABS Cat. 3222.0 Population Projections, Australia, 2006 to 2101, Series B, released in 2008.

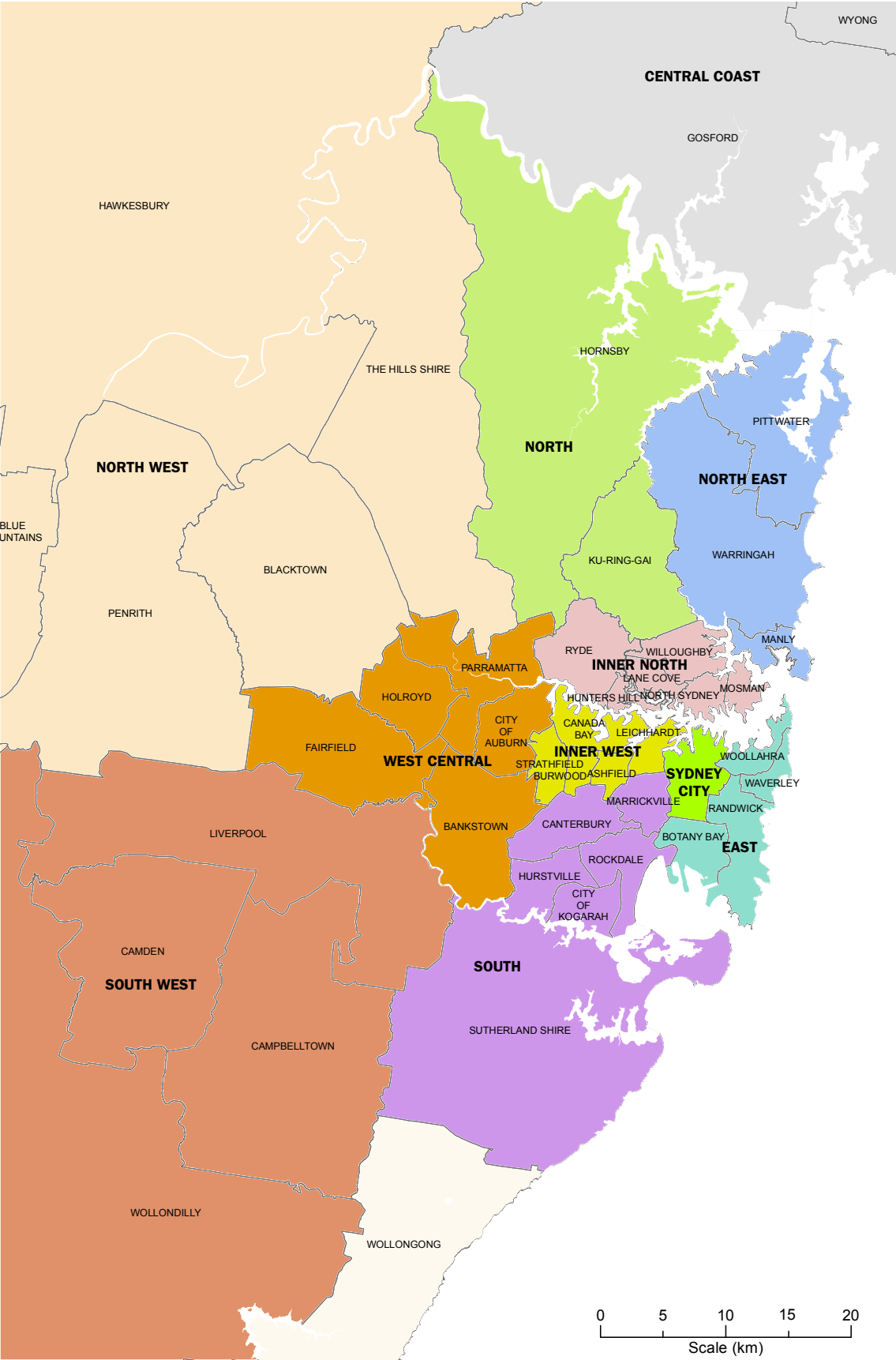
Figure 10 Sydney population density, 2006



Source: Australian Department of Infrastructure and Transport analysis of ABS 2006 data.

The spatial distribution of Sydney's population is a critical factor to take into account when considering and addressing Sydney's aviation demand and access to aviation infrastructure.

Figure 11 NSW planning subregions



Source: NSW Department of Planning and Infrastructure.

Figure 11 shows the NSW planning subregions. The NSW Government projects significant population growth in the Central Coast (an increase of 104,900). However, the greatest population growths will occur in Sydney's South West (an increase of 435,300), North West (an increase of nearly 340,000) and West Central (an increase of 158,100) subregions, as shown in Table 33.

Table 3 Population projections for Sydney subregions (population in thousands)

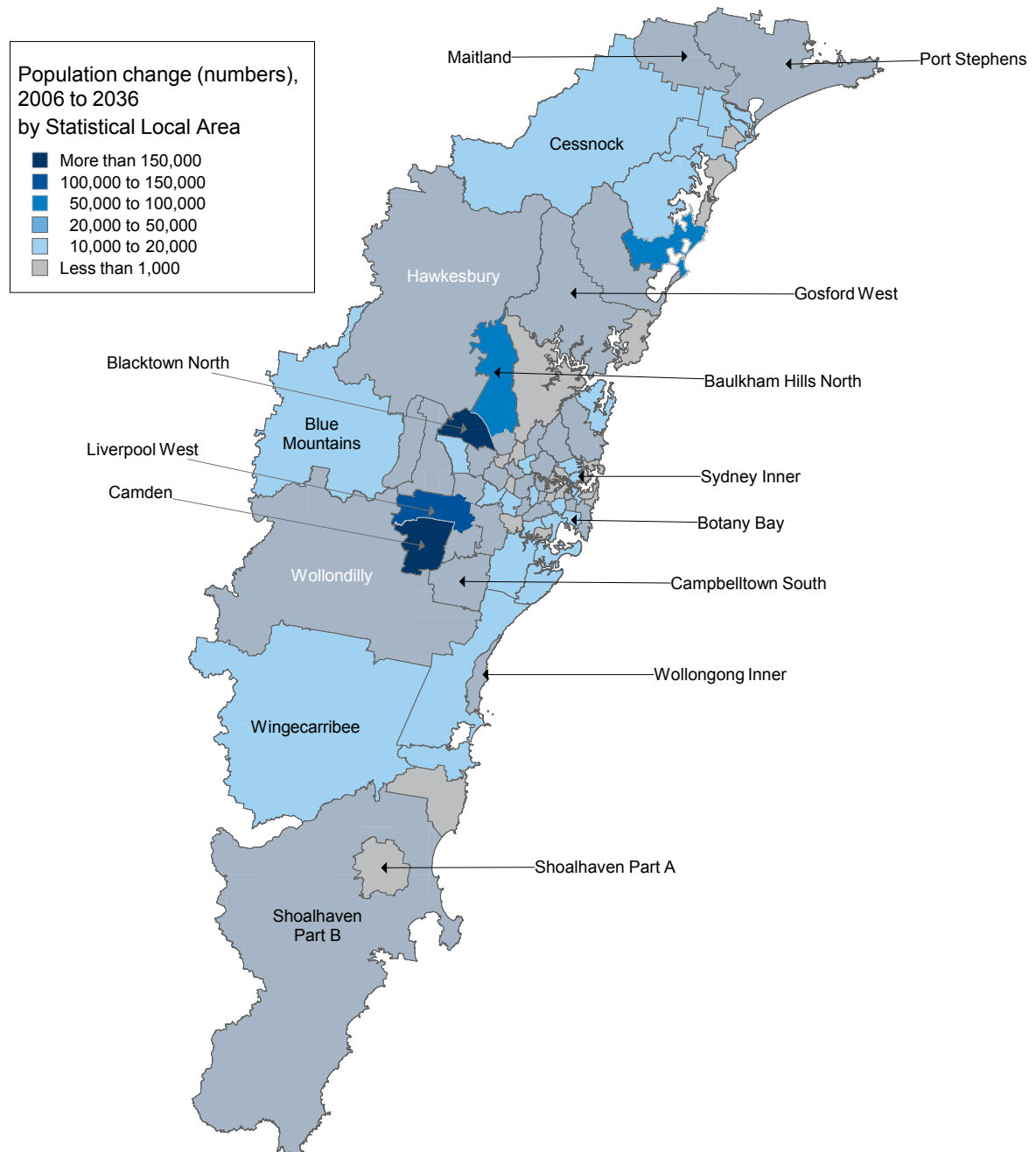
Sydney subregion	2010	2036	Growth to 2036
City of Sydney	182.2	264.8	82.6
East	299.0	334.0	35.0
Inner North	318.3	378.9	60.6
Inner West	247.8	307.0	59.1
North	278.2	321.2	43.0
North East	247.6	277.0	29.4
North West	815.7	1,155.6	339.9
South	688.9	747.6	58.7
South West	439.6	874.8	435.3
West Central	738.5	896.6	158.1
Central Coast	319.7	424.7	104.9
Total	4,577.5	5,982.1	1,404.5

Source: NSW Metropolitan Plan.

Figure 12 shows the differing levels of population growth expected in the Statistical Local Areas (SLAs) of the region between 2006 and 2036.

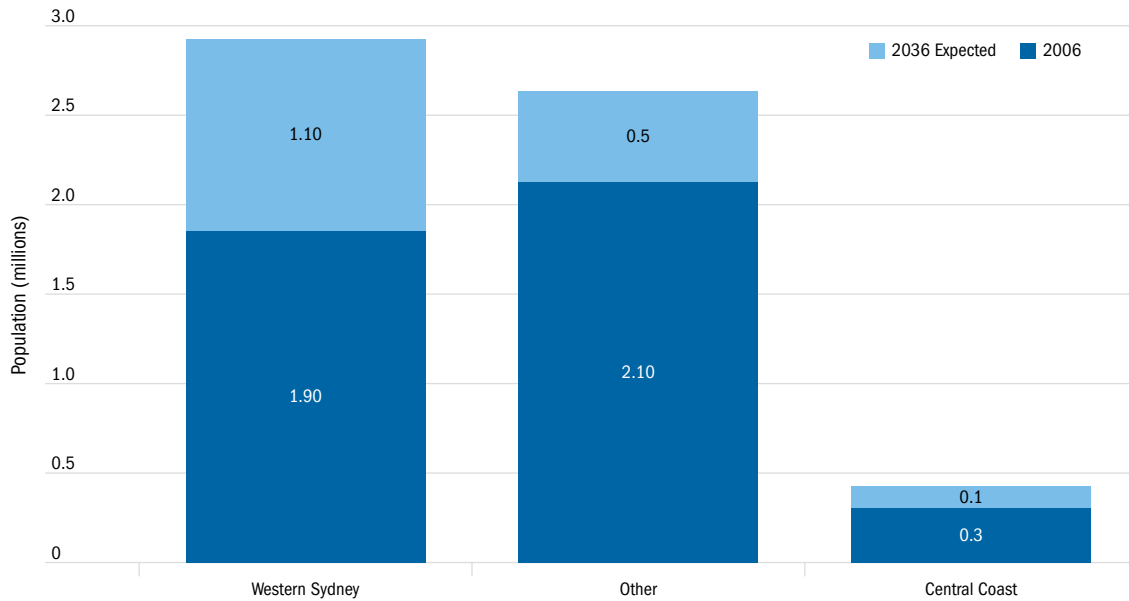
The Sydney region encompasses a broader area than just the defined Sydney Metropolitan Area. This recognises the close economic interrelationship of the broader region with the city of Sydney.

Figure 12 Greater Sydney Metropolitan Area, projected changes in population by SLA, 2006 to 2036



Source: NSW Department of Planning and Infrastructure.

The high levels of growth in SLAs in the South West and North West will mean that, by 2036, nearly half of the city's population will live in Western Sydney (48 per cent, up from 43 per cent in 2006), and the Central Coast will have increased its population by a third, as seen in Figure 13.

Figure 13 Population projections, 2006 to 2036

Source: NSW Metropolitan Plan.

2.2 Economic growth

New South Wales is Australia's largest state economy, representing 32 per cent of Australia's gross domestic product (GDP) in 2009–10 and with a gross state product (GSP) of \$407 billion.⁶ This makes it larger than the economy of Hong Kong, Thailand, Malaysia, Singapore, the Philippines or New Zealand.⁷

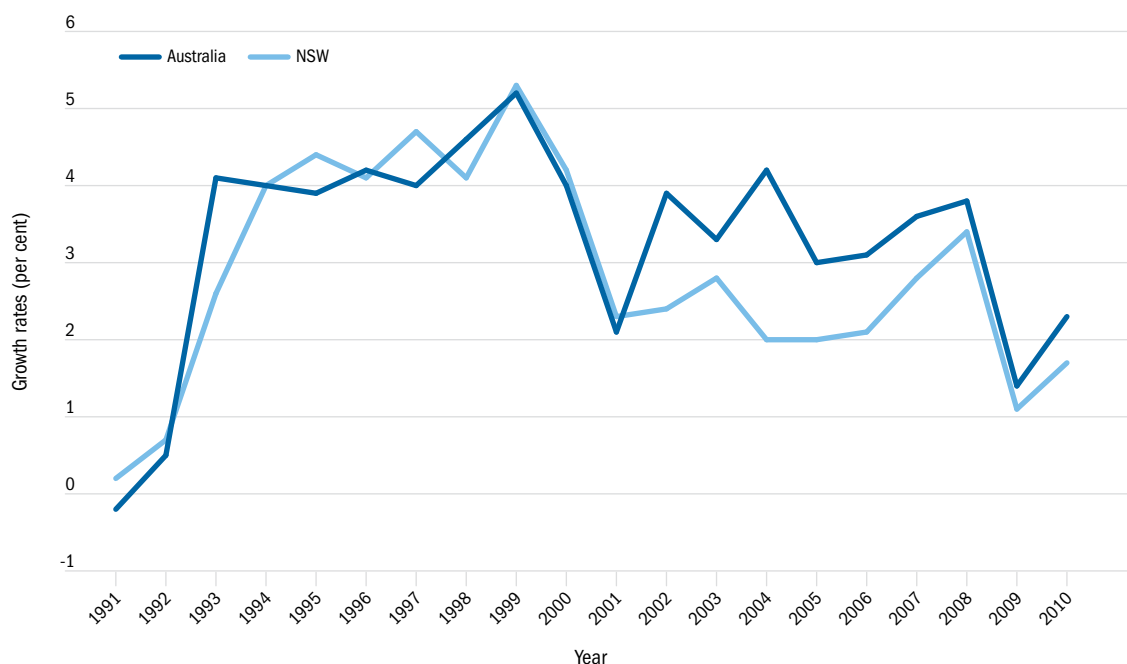
NSW 2021, the NSW Government's most recent state plan, sets goals to grow the NSW GSP per capita by 1.5 per cent per year to 2020. With population growth for NSW estimated to be around 1.2 per cent per year,⁸ this equates to growth in total GSP of approximately 2.7 per cent per year over the same period.

Despite the Global Financial Crisis and other recent threats to the global economic outlook, growth prospects remain sound. Since 1990, NSW GSP growth has averaged 2.9 per cent per year. Over these two decades, aside from a five-year period between 2002 and 2007, NSW economic growth has tracked the national GDP growth rate, with the latter averaging 3.3 per cent per year. These trends are illustrated in Figure 14.

6 Industry & Investment NSW, *Fast Facts*, 2011.

7 Industry & Investment NSW, *Fast Facts*, 2011.

8 ABS Cat. 3222.0 *Population Projections, Australia, 2006 to 2101, Series B*, released in 2008.

Figure 14 Growth rates of NSW GSP and Australian GDP, 1990 to 2010

Source: ABS Cat. 5220.0 Australian National Accounts: State Accounts, 2009–10, released November 2010.

Sydney as an economic engine for the nation

Sydney accounted for almost a quarter of Australia's GDP and 70 per cent of the NSW GSP in 2009–10.⁹

Finance and business

Approximately 44 per cent of Australia's national finance and insurance industry is located in Sydney, supported by a financial services workforce almost half the size of those in New York or London. Sydney is home to:

- 48 per cent of Australia's top 500 companies;
- the Australian Stock Exchange;
- the Australian headquarters of more than 80 per cent of foreign and domestic banks; and
- more than 60 per cent of the Asia Pacific regional headquarters of multinational companies.¹⁰

Sydney is the dominant destination for domestic business travel and for international business visitors to Australia.¹¹

Tourism and international students

The tourism industry is a major driver of economic activity for NSW, supporting more than 160,000 jobs and contributing approximately \$35 billion per year to the state economy.¹²

9 Industry and Investment NSW (now the NSW Department of Trade and Investment, Regional Infrastructure and Services), cited in the *NSW Metropolitan Plan*, 2010.

10 Industry & Investment NSW, *Fast Facts*, 2011.

11 Business travel has a higher economic benefit, as it involves a greater spend per visitor night due to more use of medium to high end hotels and hospitality sector services.

12 Tourism Research Australia, *Tourism's Contribution to the Australian Economy, 1997–98 to 2009–10*. 99 per cent of visitors travel to Australia by air, with a large proportion of domestic tourists also travelling by air.

Furthermore, according to the Tourism and Transport Forum, Sydney and its surrounds¹³ are the leading tourism destinations for international travel, generating \$6.7 billion out of the total estimated international tourism GDP for Australia of \$38.9 billion.¹⁴ Similarly, Tourism Research Australia measured total international visitor expenditure to be \$5.54 billion in 2010.

This was 50 per cent greater than expenditure in the next most popular international tourism destination of Melbourne, at \$3.65 billion.¹⁵ Sydney continues to be the most popular tourist destination in Australia when compared with other cities in the country, with the highest number of visitors and visitor nights stayed.

In the year ending March 2011, Sydney received more than 2.6 million international overnight visitors, who stayed 55.7 million nights in the region, and 7.4 million domestic overnight visitors, who stayed 20.4 million nights in the region.¹⁶ Sydney also has high repeat visitation, with almost half of the city's visitors having previously been to Sydney within the past two years; and 40 per cent intending to visit Sydney again for a holiday or leisure trip in the next 12 months.¹⁷

Those visiting NSW for education also make a significant contribution to overall visitor nights. Importantly, many of the students in Australia become a catalyst for extra tourism, as they attract visiting friends and relatives. International education tourism is a \$6 billion industry for NSW. Between 2007 and 2009, the number of international visitors arriving in Australia for vocational education and training grew by 81 per cent from 73,000 to 132,000. While this market has softened, international students will remain a substantial part of the visitor economy, spending an average of 25 per cent to 30 per cent of their expenditure on tourism activities.¹⁸

The role of aviation in supporting the region

Australians have a heavy reliance on aviation. Aviation is a driver of economic growth: it creates jobs in the sector, and has flow-on effects for other industries, such as retail and tourism. It also facilitates finance and trade. Aviation has allowed people to travel to destinations that previously may have been time or cost prohibitive. The positioning of Sydney, NSW and Australia as global centres of finance, trade, education and high-value technology development depends on access to efficient and convenient aviation services. The ability to host internationally recognised sporting and cultural events and facilitate associated tourist traffic has also been driven by the increasing diversity of aviation services to and from Australia. In particular, since deregulation of interstate services from the 1990s, the introduction of Low Cost Carriers (LCCs) from around 2000 and increased competition in the industry, the number of people flying has trebled.¹⁹

An increasingly 'connected' society is optimistic in relation to the delivery of products and services. Greater importance is now being placed in the economy on 24-hour, seven-day-a-week responsiveness, with individuals and businesses purchasing products on the internet because of its emphasis on rapid delivery. Access to a variety of imports and exports, such as seafood, has also improved due to the increased speed and efficiency of airfreight services.

Aviation's role in supporting productivity, economic growth, social cohesion and inclusion should not be underestimated. A recent parliamentary inquiry in the United Kingdom (UK) noted 'if the aviation sector were removed from the UK, the economy would collapse'.²⁰ The capacity

13 Tourism regions are selected by state tourism organisations for marketing purposes. Sydney and surrounds includes Sydney and the Blue Mountains.

14 Transport Tourism Forum, *Tourism Infrastructure Policies and Priorities*, Submission to Infrastructure Australia, October 2008.

15 Tourism Research Australia, *Facts & Figures at a Glance*, May 2011.

16 Tourism New South Wales, *Travel to Sydney Factsheet*, March 2011. Visitors include those travelling to Australia on business (including conferences), for holidays, visiting friends and family, and other purposes (this typically includes education and short-term employment).

17 Tourism New South Wales, *Perceptions of Sydney Precincts*, 2011.

18 NSW Minister for Tourism, the Hunter, Science and Medical Research and Women, Media Statement, *NSW International Education Market Number One in Australia*, 1 March 2011.

19 BITRE, *Airport Traffic Data 1985–86 to 2010–11*. In 2010–11, Australia facilitated approximately 135 million passengers per year compared with approximately 41.5 million passenger movements in 1990–91. Similarly, Sydney facilitated approximately 36 million passenger movements a year in 2010–11, compared with 12 million in 1990–91.

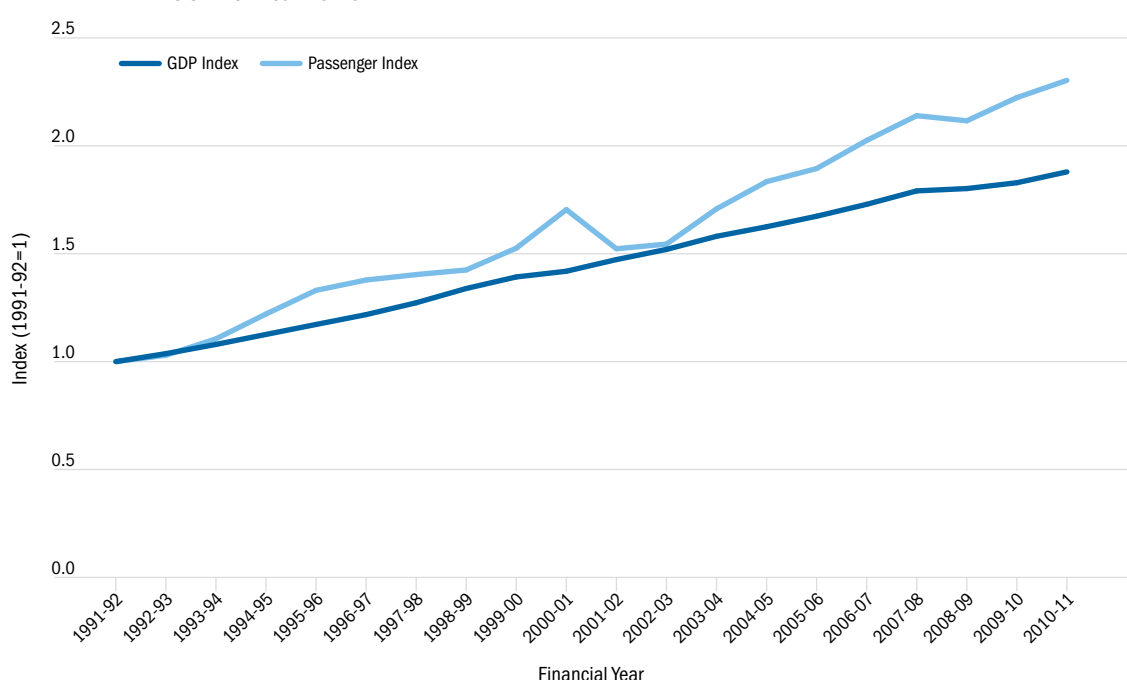
20 UK Parliament Transport Committee, *First Report into the Future of Aviation*, 2009.

restrictions on UK aviation infrastructure, especially around London, have been identified as one of the most significant impediments to economic development for the UK. Given the size of the Australian continent and the relative remoteness of many communities, reliance on aviation in this island nation is even more profound.

Balancing the growth of an airport with the impact of aircraft noise on local communities is difficult. However, any shortfall in aviation capacity will have costs in terms of loss of productivity, economic growth and employment across the range of industries noted above –not to mention the impact of the reduction in access to aviation services on social and personal needs as capacity constraints drive up airfares.

Strong growth has been experienced in both the economy and in aviation activity, as shown in Figure 15.

Figure 15 Sydney (Kingsford-Smith) Airport passenger and Australian economic growth, 1991–92 to 2010–11



Source: BITRE, ABS; Passenger movements and real GDP indexed to 1991–92.

Aviation currently contributes more than \$6.5 billion directly to the Australian economy each year, providing direct employment in the air transport sector for around 60,000 people.²¹ It also indirectly stimulates a variety of other industries including tourism (which alone directly accounts for approximately \$35 billion to the economy).²² The industry also currently facilitates 135 million passenger movements and 1.368 million tonnes of air freight each year.²³

A number of aerodromes, providing a variety of passenger and freight services, flight training, emergency services and/or leisure/tourism operations serve the Sydney region. In 2010, these aerodromes facilitated the movement of 30 million visitors and tourists and 10.1 million business passengers, approximately half a million tonnes of freight and more than 400,000 General Aviation (GA) movements.²⁴

21 ABS Cat. 5206.0 Australian National Accounts: National Income, Expenditure and Product and ABS Cat. 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly. 'Air and space transport' includes those mainly engaged in operating aircraft for transportation of passengers and freight; it excludes aerial surveying, aircraft repair, ticket sales / bookings of non-resident airlines, international and domestic freight forwarding and transport by aircraft solely for sightseeing purposes.

22 Tourism Research Australia, Tourism's Contribution to the Australian Economy, 1997–98 to 2009–10. 99 per cent of visitors travel to Australia by air, with a large proportion of domestic tourists also travelling by air.

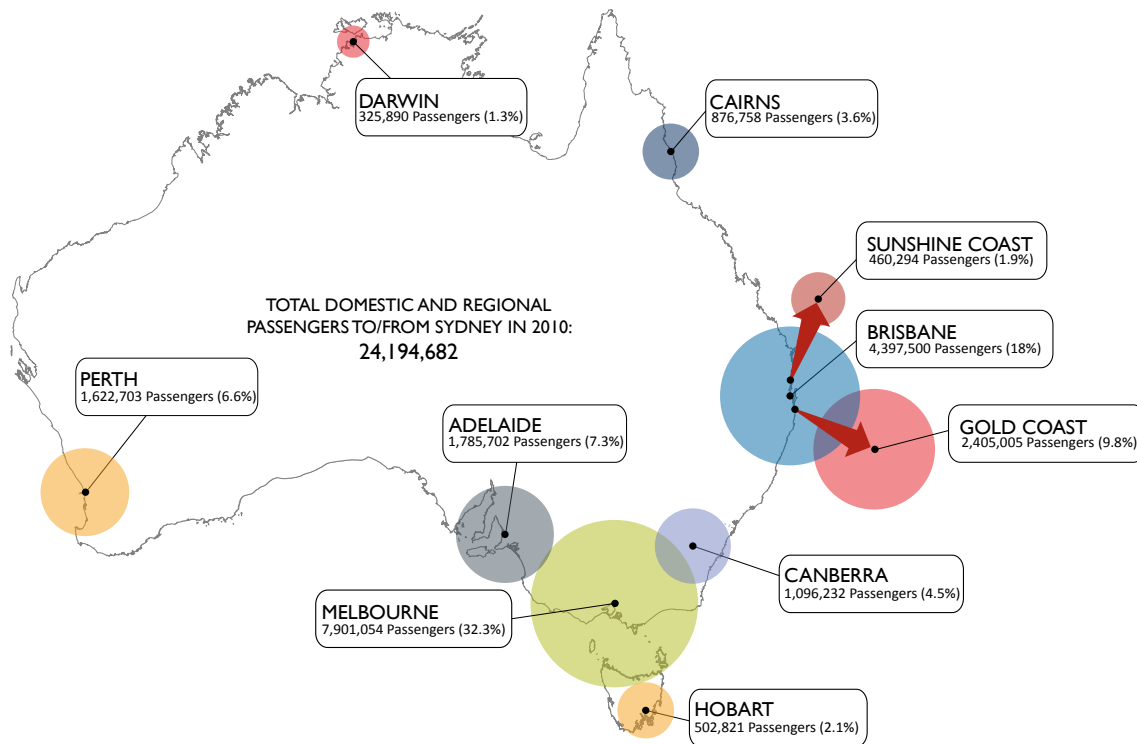
23 BITRE, Airport Traffic Data 1985–86 to 2010–11; supplementary freight data provided by BITRE.

24 Booz & Company analysis of BITRE and Airservices Australia data.

Because Sydney is Australia's largest city and Australia's economic and tourism gateway, Sydney (Kingsford-Smith) Airport is Australia's most linked domestic and international airport. In 2010, there were 107.9 million passenger movements on domestic routes within Australia – an increase of seven per cent on 2009 passenger movements. In this context, Sydney (Kingsford-Smith) Airport remained Australia's busiest airport, with 24.2 million domestic and regional passenger movements,²⁵ followed by Melbourne Airport with 21.7 million and Brisbane Airport with 15.5 million.²⁶

Figure 16 shows the volume and share of domestic passenger movements going to and from Sydney (Kingsford-Smith) Airport.

Figure 16 Domestic and regional passenger movements to and from Sydney (Kingsford-Smith) Airport, 2010



Source: BITRE.

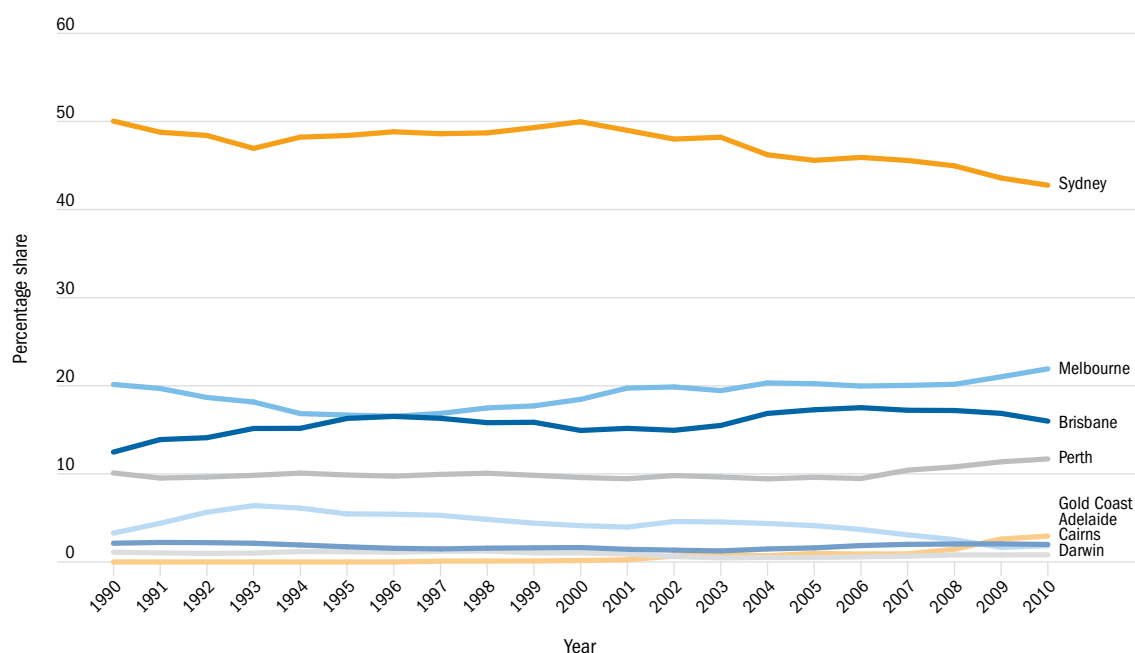
In terms of international aviation, Sydney (Kingsford-Smith) Airport has been traditionally the main gateway for Australia. Sydney (Kingsford-Smith) Airport alone accounts for almost 43 per cent of international passenger movements in Australia and approximately 50 per cent of international air freight tonnage.²⁷ (In comparison, Brisbane, Melbourne and Perth accounted for 16 per cent, 22 per cent and 12 per cent of international passenger movements respectively.)

However, this dominance has slowly been reducing in relative terms, as Brisbane and Melbourne airports attract more direct international flights and new services have been introduced in places like the Gold Coast. Figure 17 shows that, in 1990, Sydney (Kingsford-Smith) Airport accounted for 50 per cent of Australia's international passenger movements, while Brisbane, Melbourne and Perth airports accounted for 15 per cent, 18.5 per cent and 9.6 per cent respectively.

25 A small number of passengers who travel on the domestic sectors of international services are not included in this figure. Figures have also been rounded, which may account for some slight variations in aggregated figures.

26 BITRE, *Annual Statistical Report, Aviation: Domestic airline activity*, 2010.

27 Specifically, 39 per cent of Australia's international outbound air freight goes out of Sydney (Kingsford-Smith) Airport, with 54 per cent of inbound air freight coming in through Sydney (Kingsford-Smith) Airport. BITRE, *Statistical Report, Aviation: International airline activity*, 2010.

Figure 17 Australia's international passenger traffic, share by airport, 1990 to 2010

Source: BITRE.

Despite this, total passenger and aircraft movement demand at Sydney (Kingsford-Smith) Airport has continued to grow. In 2010, services operated directly between Sydney (Kingsford-Smith) Airport and 84 destinations, comprising 47 domestic and regional destinations (including Perth, Melbourne, Brisbane, Gold Coast, Adelaide and Canberra) and 37 international destinations.

2.3 Planning for growth

The Australian and NSW governments are planning for the future growth of Sydney and its surrounds. Both governments believe a strategic approach to planning that demonstrates integration between land use and key infrastructure needs in order to drive productivity, economic growth and better liveability is required. The Australian Government, together with the states, including NSW, are implementing the Council of Australian Governments (COAG) reform agenda on capital cities and has established Infrastructure Australia as the key body for assessing major national infrastructure investment proposals. The NSW Government has similarly established Infrastructure NSW.

The NSW Metropolitan Plan sets out an integrated planning framework to provide the land use, services and infrastructure required to support future growth throughout Sydney to 2036. The NSW Government has commenced a review to update the Metropolitan Plan to ensure that it responds to current policy settings and integrates with the Government's initiatives for a transport master plan and a 20-year infrastructure strategic plan.

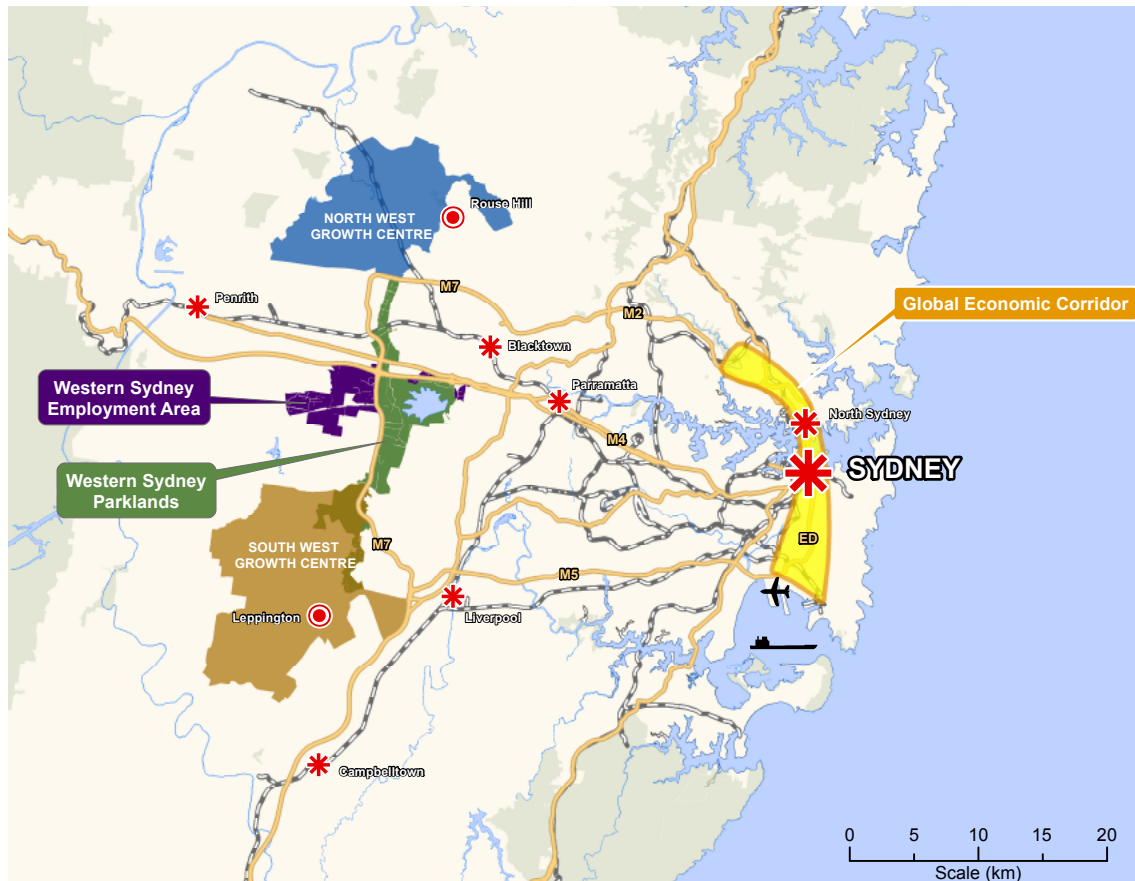
The Regional Strategy for the Lower Hunter considers future growth to 2031.²⁸

Employment growth

Employment growth in Sydney over the next 25 years will be focused on a network of existing and new centres, as shown in Figure 18 – the North West and South West Growth Centres, WSEA and the GEC, which extends from Macquarie University through to Sydney (Kingsford-Smith) Airport.

²⁸ The Regional Strategy for the Lower Hunter was last updated in 2006 and forecasts through to 2031. It will be reviewed in 2012. A number of other regional strategies interact closely with the NSW Government's plans relating to metropolitan Sydney.

Figure 18 Map of Sydney's network of existing and new centres



Source: NSW Metropolitan Plan.

Sydney is forecast to require 425,000 additional jobs by 2020 and 760,000 new jobs by 2036 to support anticipated population growth.

The most rapid population growth in the region over the next 25 years is projected to occur in Western Sydney. Approximately 384,000 new jobs will be required in this area by 2036. This represents half of Sydney's expected jobs growth.

The precinct around Sydney (Kingsford-Smith) Airport and Port Botany, the two most important international gateways for NSW, is a critical employment and economic activity zone for Sydney, NSW and Australia. Infrastructure NSW has identified the economic precinct around the airport as an area that will continue to be a principal employment zone.²⁹

Key sectors for future economic growth

The NSW Government's 2010 *Business Sector Growth Plan* identified key growth and skills requirements in five key sectors:

1. **Services industries** will account for 85 per cent of NSW industry output by 2020. Growth in exports is expected in services such as accounting, tourism, legal, consultancy and education to overseas markets, including growing markets such as India and China.
2. **Finance and insurance services** will remain the largest industry sector within NSW, based on Sydney's position as Australia's 'global city' and its highly educated multinational population.
3. **Health and aged care services** will continue to grow within the NSW economy, driven by increasing complexity, an ageing population and local innovation.

²⁹ Infrastructure NSW is developing an Infrastructure Strategy Statement for the Port Botany – Sydney (Kingsford-Smith) Airport precinct, with the first phase expected to be submitted to the NSW Government in the first half of 2012.

4. **The Manufacturing sector** will become more globally competitive and more technically advanced. Manufacturing contributed \$32.8 billion, or 10 per cent, to total industry value added in NSW in 2010 and is forecast to grow by 19 per cent by 2020. Manufacturing is the state's third largest employer, accounting for approximately 300,000 employees.
5. **The Construction industry** is expected to grow its share of the economy because of increased infrastructure requirements and demand for new dwellings.

The NSW Metropolitan Plan commits to maintaining the Sydney Central Business District (CBD) as the primary centre for national and international business, retail, tourism and hospitality. Jobs growth will continue to be driven by the finance, legal and business services sectors. By 2036, a total 454,000 jobs are targeted for the City of Sydney subregion (including the CBD, Ultimo–Pyrmont, East Sydney and a number of major research, health and educational facilities, and residential and industrial areas).

The NSW Government is investing in the development of Barangaroo, a 22-hectare former port site on the western edge of the CBD that will contain 300,000 square metres of new world-class commercial office space housing 22,000 workers; and new exhibition, convention and entertainment facilities at South Darling Harbour, co-located with the existing convention and exhibition centre. This additional capacity will support Sydney's quest to host more major international events to stimulate the visitor economy and NSW economic growth.

A key part of facilitating employment growth is the GEC, identified by the NSW Government as including commercial centres at Macquarie Park, Chatswood, St Leonards, North Sydney, Central CBD and Green Square / Mascot (including Sydney (Kingsford-Smith) Airport and Port Botany). Approximately 40 per cent of Sydney's total jobs and more than 75 per cent of Sydney's information technology and telecommunications jobs are located in this area. By 2036, North Sydney is expected to accommodate 61,000 jobs and will continue to support the Sydney CBD through value-adding economic activities such as communications, finance, insurance and engineering.

The NSW Metropolitan Plan sets an employment capacity target for Sydney (Kingsford-Smith) Airport, and its environs, that anticipates growth in the workforce from 34,000 in 2006 to 56,000 in 2036.

Within the City to Airport Corridor, significant urban renewal is occurring at Green Square, Mascot and the University of New South Wales, primarily for residential and student accommodation purposes. By 2036, Green Square in particular is expected to provide housing for more than 40,000 people and 16,000 jobs in the Green Square Town Centre alone.

Parramatta is Sydney's oldest regional city. While it is considered to be the centre of Western Sydney, it is geographically closer to the heart of the entire Sydney area. It is Western Sydney's most densely populated and job-rich centre, with 43,200 jobs and 167,400 people. It is also a major hub for transit links connecting to the key economic and growth centres. The NSW Metropolitan Plan targets an employment capacity of 70,000 jobs for Parramatta by 2036, primarily led by high growth in the corporate role of the centre and consequent demand for professionals.

Other regional cities include Penrith and Liverpool, which serve large North Western Sydney and South Western Sydney catchments. These centres are expected to support a long-term strategy of decentralisation from the central CBD by creating more jobs closer to homes to alleviate road congestion. The South West subregion in particular is expected to target a growth of more than 100 per cent on its 2010 employment level by 2036 (from 133,000 to 274,000). The second fastest growing employment area is targeted to be the North West subregion, with more than 50 per cent growth on 2010 figures (from 266,000 to 411,000).

The Central Coast and Lower Hunter are also key areas within the Sydney region. The Central Coast incorporates both the Gosford and the Wyong Local Government Areas (LGAs), which are situated to the north of Sydney. The population of the region is expected to grow from 304,700 in 2006 to more than 400,000 people by 2036.

As with the other areas already highlighted, a key focus in this area will be to encourage local job opportunities by providing capacity for more than 54,000 new jobs with the aim of reducing the proportion of people commuting outside the area for work. Most of these jobs are targeted for Gosford and Tuggerah–Wyong.

The Lower Hunter region begins 130 kilometres north of Sydney and includes the Cessnock, Maitland, Port Stephens, Newcastle and Lake Macquarie LGAs. The population of the region is expected to increase by 160,000, from 515,000 in 2006 to 675,000 persons by 2031. The NSW Government currently plans to accommodate a projected 66,000 new jobs in the region by 2031. Capacity for 85 per cent of these new jobs would be provided within identified employment zones and larger centres such as Newcastle, Charlestown, Maitland, Raymond Terrace, Cessnock, Glendale (emerging) and Morisset (emerging). The expected jobs growth by subregion is highlighted in Table 44.

Table 4 Sydney's expected employment growth, 2006 to 2036

Subregion	Base employment 2006	Employment growth 2006 to 2036	Employment growth 2006 to 2036 (%)
City of Sydney	429,000	+114,000	27%
East	136,000	+31,000	23%
Inner North	238,000	+62,000	26%
Inner West	99,000	+25,000	25%
North	83,000	+15,000	18%
North East	89,000	+23,000	26%
North West	266,000	+145,000	55%
South	193,000	+52,000	27%
South West	133,000	+141,000	106%
West Central	322,000	+98,000	30%
Central Coast	104,000	+54,000	52%
Total	2,092,000	+760,000	36%

Source: NSW Metropolitan Plan.

Land use to meet employment and population growth

To facilitate forecast employment growth, the NSW Department of Planning and Infrastructure estimates Sydney may need a further 10 million square metres of commercial floor space, five million square metres of retail floor space and 8,500 hectares of employment lands.

The NSW Government estimates an additional 770,000 homes will be required over the next 25 years in Sydney.

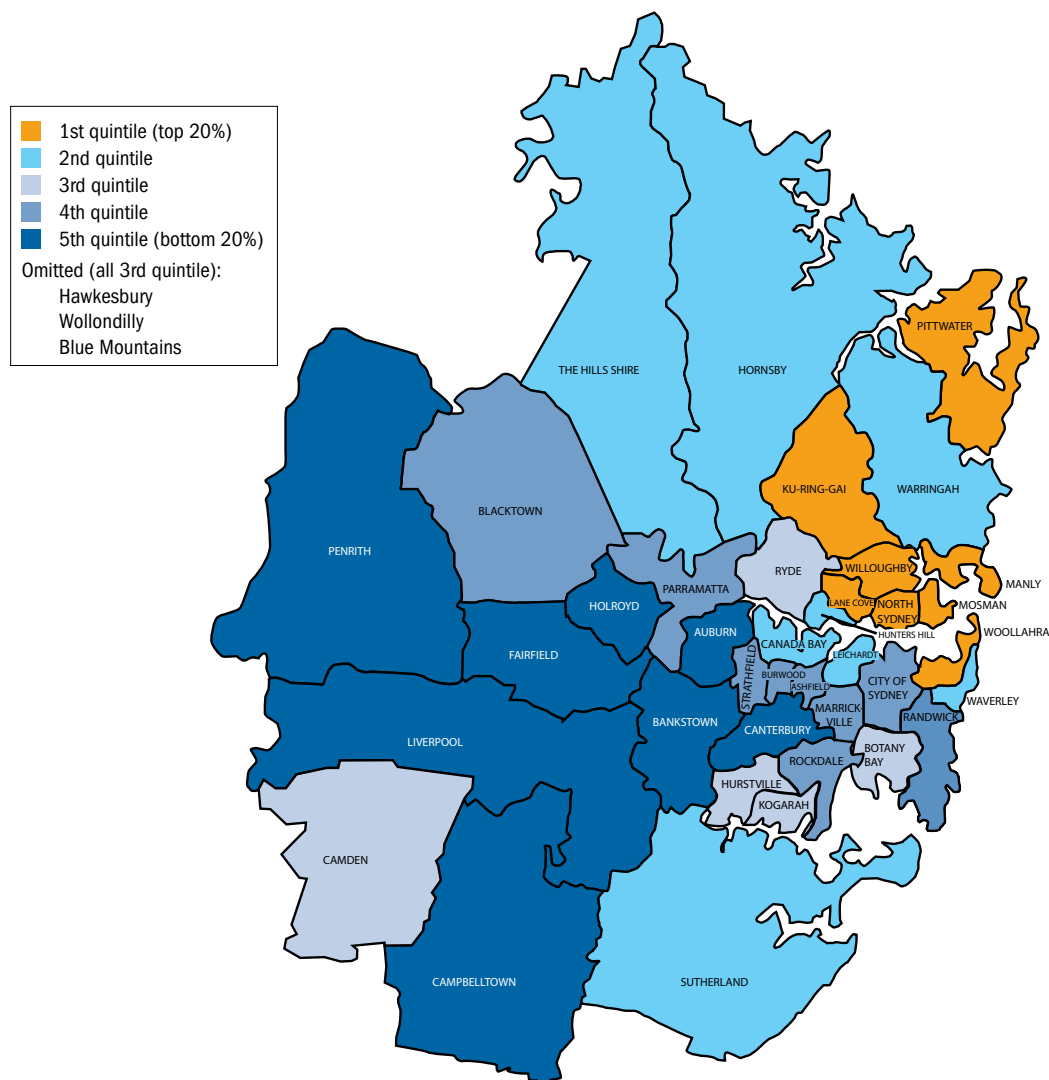
The Central Coast will require an additional 56,000 dwellings, which will be distributed between centres (33,000), infill of existing urban areas in the region (7,000) and greenfield sites (16,000). The Lower Hunter region will require an additional 115,000 dwellings.

In planning for these developments, it is important to make sure that employment growth can be integrated with population growth and residential opportunities. This promotes economic development while creating new jobs closer to home and improves the standard of living of employees by reducing travel times and distances, thus increasing time at home as well as supporting 'greener' community objectives. This approach currently underpins planning practice across metropolitan Sydney by way of managing growth between infill and greenfield areas and balancing the various environmental, social and economic impacts.

Another objective relates to the provision of sustainable employment and incomes in areas of need. The unemployment rate across Sydney in 2010 was 5.2 per cent; however, joblessness was highest in Western Sydney, with the West Central region having the highest at 8.7 per cent. The unemployment rate in specific LGAs in the region was as high as 11.5 per cent in Auburn and 8.8 per cent in Bankstown.³⁰

Employment status, undersupply of housing and a mismatch between housing preferences and availability; poor access to local community and transport infrastructure; and a decline in social capital are all factors that influence liveability. Figure 19 shows the relative low liveability in LGAs in Western Sydney.

Figure 19 Liveability clusters in Western Sydney, 2011

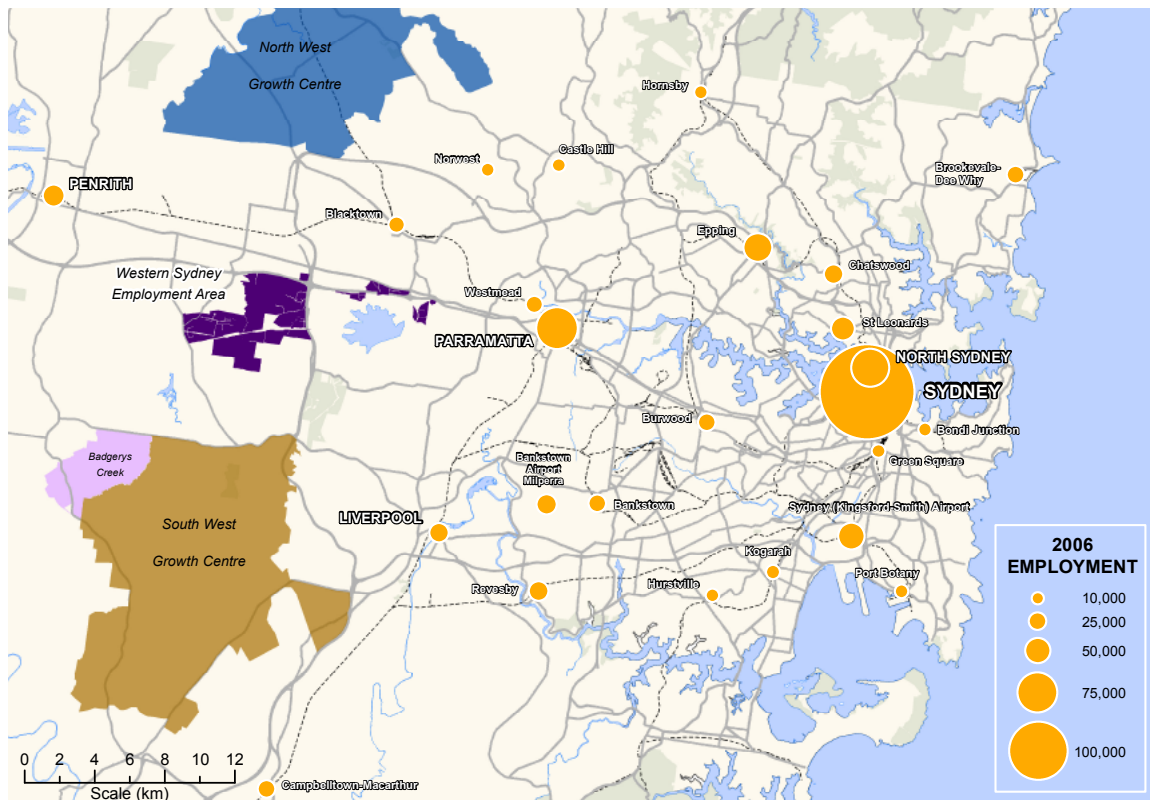


Source: Australian Department of Infrastructure and Transport.

30 Regional Development Australia, *Regional Plan for Sydney*, from ABS 2006, DEEWR Small Area Labour Market, 2010.

In order to cater for the significant employment demand in Western Sydney, WSEA is being investigated for progressive development such as warehousing, distribution, freight transport, and high-technology and research facilities. The WSEA is a 2,200-hectare piece of land near the intersection of the M4 and M7 motorways and is targeted to accommodate some 40,000 workers. In addition, the South West Growth Centre and North West Growth Centre are also being developed, with further zoning and development planned for these areas in the long term. Figure 20 shows the location of the growth centres relative to existing employment centres.

Figure 20 Sydney region growth and employment centres



Source: NSW Metropolitan Plan.

The South West Growth Centre is an area of approximately 17,000 hectares in size adjacent to the Commonwealth-owned site at Badgerys Creek. It is planned with an employment centre and transport line integrating the suburb of Leppington. It is estimated to provide 80,000 square metres of commercial floor space and employment for 13,000 people by 2036, with capacity for around 110,000 new dwellings to accommodate 300,000 residents. The NSW Government anticipates employment opportunities will be created in a range of sectors including retail, commercial office or business park developments, government services and service industries.

The NSW Metropolitan Plan has broadly identified areas between the northern boundary of the South West Growth Centre and the WSEA as providing an opportunity for long-term (25+ years) employment lands to support the economic development of Western Sydney. This area will be subject to structure planning that will define the need for long-term employment lands and supporting infrastructure.

The North West Growth Centre is a site of approximately 10,000 hectares in size that is expected to cater for about 70,000 new dwellings for 200,000 people. To date, the North West Growth Centre has developed more quickly than the South West Growth Centre, because it is an

extension of a pre-existing growth area where homes were first constructed in 1993–94. Both areas are planned for developments over the next 30 to 40 years as needs are identified in the long term.

The NSW Metropolitan Plan distributes growth across established and greenfield areas. Decisions on the appropriate levels of greenfield and infill will impact on government policies for land release, especially timing and possible uses for that land (or surrounding land) over time. The NSW Government notes some long-established employment areas are already coming under pressure to be rezoned for other uses.

Up until 2036, greenfield development within the Sydney Metropolitan Area will be focused within the North West and South West Growth Centres. Additional greenfield sites will be considered over time outside of the growth centres; however, these will be considered on a site-by-site and merit basis, and in light of infrastructure availability. No major new growth greenfield areas are anticipated in the medium term.

Beyond 2036, growth of the Sydney Metropolitan Area beyond the growth centres and those areas identified for future employment will become more heavily constrained. Expansion to the north is limited by environmental constraints, including national parks, flood-prone areas and topography, and expansion to the west is largely limited by the Blue Mountains and similar topography.

At a highly strategic level, the South Western Corridor (Macarthur South region) presents less significant constraints on long-term growth. Macarthur South provides scope to meet the long-term growth needs for Sydney with potential to accommodate land for a range of urban activities, including residential, employment, open space, conservation and industry. However, there is currently no endorsed strategy for such expansion. The metropolitan planning review process will provide the context for investigating areas for future urban expansion.

However, as land becomes more constrained, it will become more important to balance changing economic conditions and the provision of infrastructure with the availability of existing and additional employment land to support key industries in the future.

Transport infrastructure to support growth

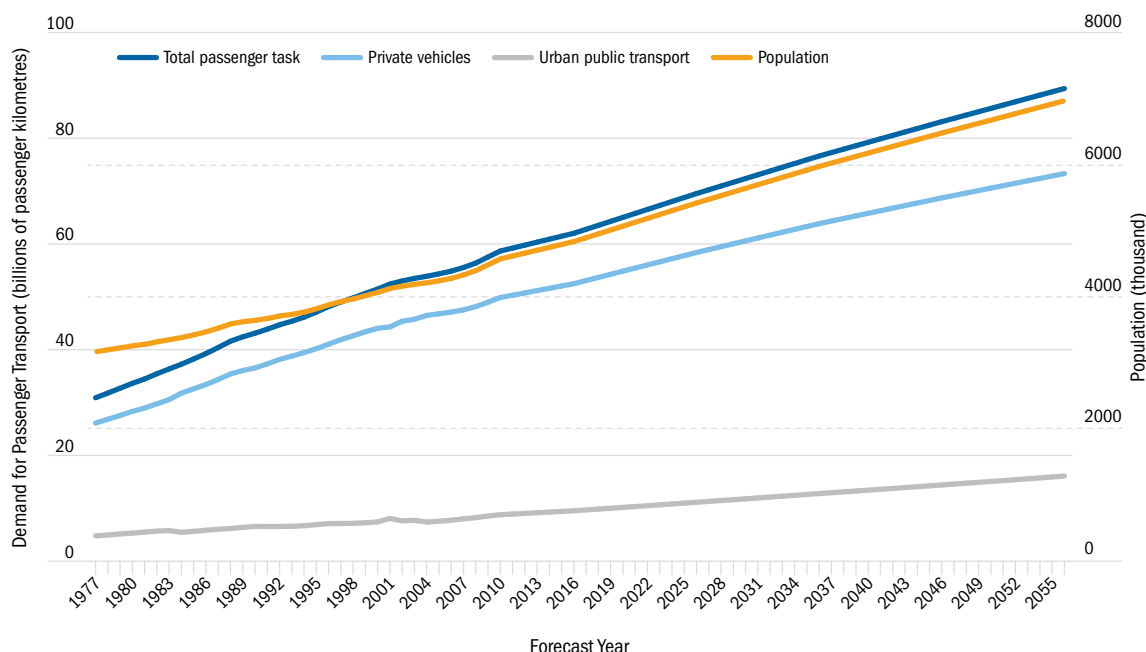
Surface transport facilitates growth in the economy by ensuring people and goods can be transported to places of employment, business, leisure activities and trade centres.

Analysis of transport needs typically considers the number and distance of trips travelled by individuals, taking into account the modes of transport used, the capacity utilised on those modes and the routes taken. The time of day that transport is required may also be considered, although usually peak and off-peak is the main distinction, with the need to cater for the peak times is a key consideration.

By 2056, the surface transport task in Sydney is projected to grow to almost 90 billion passenger kilometres (Figure 21).³¹ This represents a compound annual growth rate of 0.9 per cent per year from 2010 to 2056. Private vehicles will account for 82 per cent and urban public transport for 18 per cent of the share of traffic.³²

31 Passenger kilometres are a measure of the total distances travelled by all passengers on all trips on a given route.

32 ABS Cat. 3222.0 *Population Projections, Australia, 2006 to 2101*, Series B, released in 2008.

Figure 21 Sydney's historical and expected surface transport task, 1977 to 2056

Source: ABS Cat. 3222.0 Population Projections, Australia, 2006 to 2101, Series B, released in 2008; and BITRE Public transport use in Australia's capital cities: Modelling and forecasting (forthcoming).

Increased transport congestion

Growth in population and economic activity drives demand for transport. Under most growth scenarios, transport and traffic modelling for Sydney indicate potential for more congestion, slower travel times and increasing economic costs.

The Australian Government's *State of Australian Cities 2010* report indicated the level of car dependency in Australian cities had increased at a faster rate than population growth, creating traffic congestion problems as infrastructure and public transport failed to keep pace with population growth. While public transport use has been rising significantly in most capital cities since 1991, the *State of Australian Cities 2011* report suggests that this is now also resulting in congestion on public transport, reducing reliability.

It is estimated that the avoidable cost of congestion for Australian capital cities was approximately \$9.4 billion in 2005, with projections increasing to \$20.4 billion by 2020.³³ For the Sydney region for the same period, estimates in the NSW Metropolitan Plan suggested congestion in Sydney had a cost of around \$3.5 billion in 2005, with potential to increase to \$7.8 billion by 2020.

Congestion, if not addressed, will continue to grow as a serious negative impact on economic and social wellbeing. Mitigation of this congestion will represent a key planning challenge for both governments.

To meet growth in population and support new employment opportunities, a range of short to medium transport infrastructure enhancements has been planned for Sydney. This includes expanding the Sydney rail network with several key projects, such as the South West Rail Link between Glenfield and Leppington (serving the South West Growth Centre) and the North West Rail Link between Epping and Rouse Hill (linking to the North West Growth Centre). In addition, the Commonwealth Government has committed funding to the Epping to Parramatta line. There are also plans to expand capacity at a number of other locations across the rail network with additional tracks and other enhancements such as turnbacks.

33 Australian Government, *State of Australian Cities 2011* (citing BITRE 2007 estimates), 2011.

Based on the NSW Metropolitan Plan hierarchy of centres, along with employment and housing trends and travel patterns, 46 existing and emerging multimodal transport corridors have been identified, including:

- primary transport movement to and from the CBD, the GEC (including Sydney (Kingsford-Smith) Airport) and other major centres;
- development of major employment areas in Western Sydney, including the WSEA;
- urban renewal of existing developed areas; and
- land release areas, including the North West Growth Centre and South West Growth Centre.

These corridors are outlined in Figure 22.

Figure 22 Sydney's 46 key transport corridors

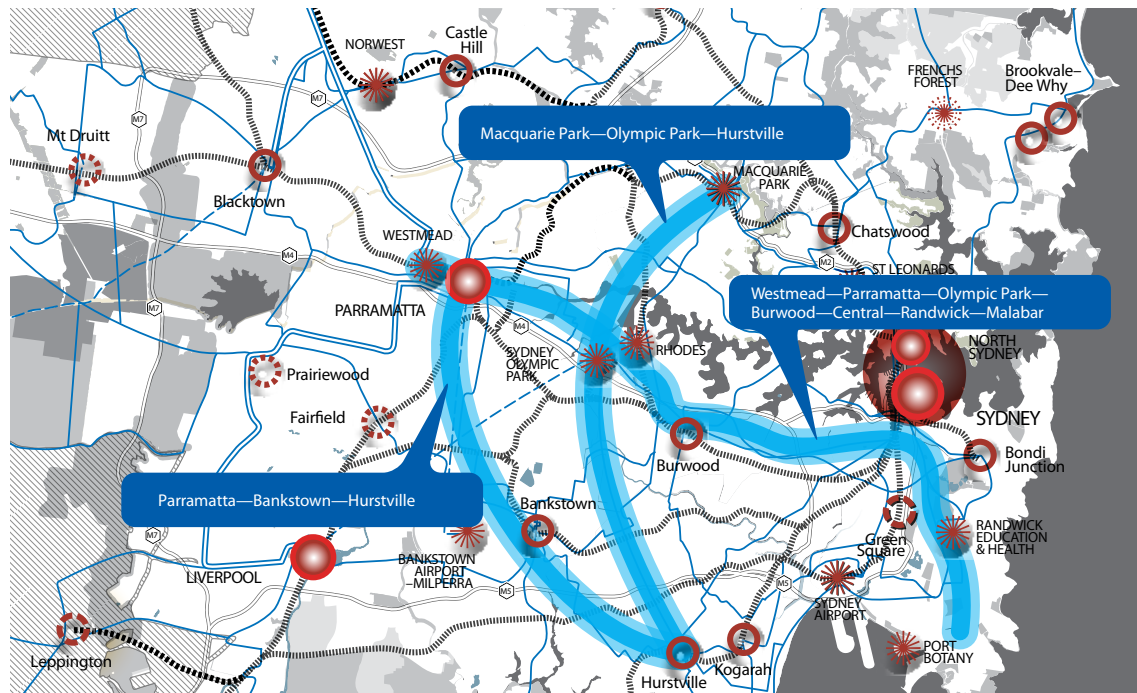


Source: NSW Metropolitan Plan.

Analysis of the demands of these corridors informs the NSW Government's immediate transport priorities, including the North West and South West rail links and progressing the M4 and M5 duplication.

Under the NSW Metropolitan Plan, the corridors shown in Figure 23 have been assessed as being critical over the long term to ensure a connected city with efficient travel options.

Figure 23 Long-term transport and urban renewal corridors for investigation



Source: NSW Metropolitan Plan.

The NSW Metropolitan Plan also identifies a number of corridors that may be used to unlock urban renewal potential in established areas. These short-, medium- and long-term corridors are:

- North West Rail Link (and extension);
- City Relief Line;
- Haymarket to Circular Quay light rail corridor;
- Westmead to CBD corridor;
- M5 East duplication corridor;
- M4 East corridor; and
- F3–M2 corridor.

An Outer Sydney Orbital, serving Western Sydney and linking to the Central Coast, is also being investigated in the long term.

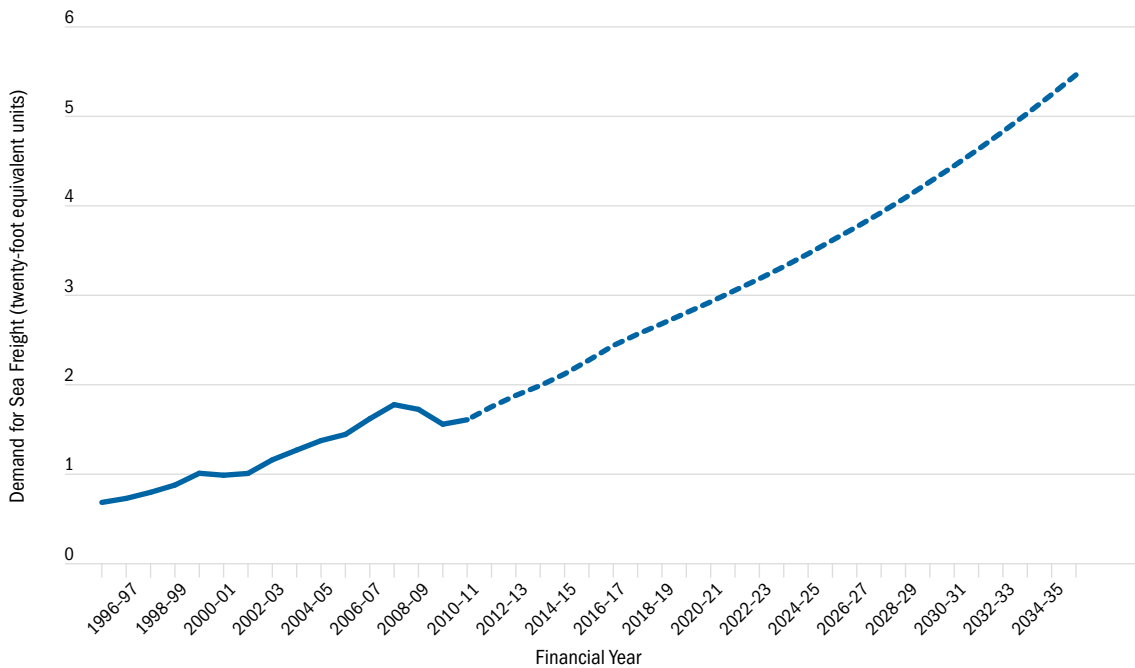
It is noted in the NSW Metropolitan Plan that the M5 Motorway corridor, linking Sydney (Kingsford-Smith) Airport and Port Botany, is already operating near capacity, with peak hour vehicle trips anticipated to increase by more than 50 per cent by 2036. This is a priority corridor for future investment, as it is becoming one of the key bottlenecks in the Sydney and national economic transport network. In addition, rail improvements are planned to provide additional services to the North West Growth Centre. The North and South West Rail Links have been identified by the NSW Government for development to extend public transport to these areas. Notably, the South West Rail Link will also connect passengers to key employment centres such as Liverpool, Sydney CBD and the Sydney (Kingsford-Smith) Airport/Port Botany area.

Freight

The precinct containing both Sydney (Kingsford-Smith) Airport and Port Botany is a major economic gateway for Sydney and Australia. In 2009–10, Port Botany (including Kurnell) imported \$41.3 billion worth of freight, making it the second largest port for sea freight imports by value in Australia, behind Melbourne.³⁴ However, the growing congestion in and around this area as industrial activity and residential development intensifies is placing greater pressure on the precinct’s ability to distribute goods efficiently.

Figure 24 shows an unconstrained projection of sea freight demand at Port Botany to 2036. The NSW Metropolitan Plan notes the container freight task through Port Botany has been growing at an average of seven per cent per year for the last 15 years.

Figure 24 Port Botany historical and expected sea freight demand, 1995–96 to 2035–36



Source: BITRE Statistical Report, Australian maritime activity to 2029–30, 2010.

Upgrades to the road network along key economic corridors will assist the movement of freight, including distribution through Sydney (Kingsford-Smith) Airport and Port Botany. Dedicated freight routes are also planned to alleviate pressure on tracks where there is shared use by passenger and freight train services. This is expected to extend to the establishment of intermodal terminals in Western Sydney. The Australian Government is committed to the establishment of a major intermodal freight facility on the current Defence site at Moorebank in South West Sydney. The growing freight task will be supported by strategies to encourage mode shift to rail, maximising road capability.

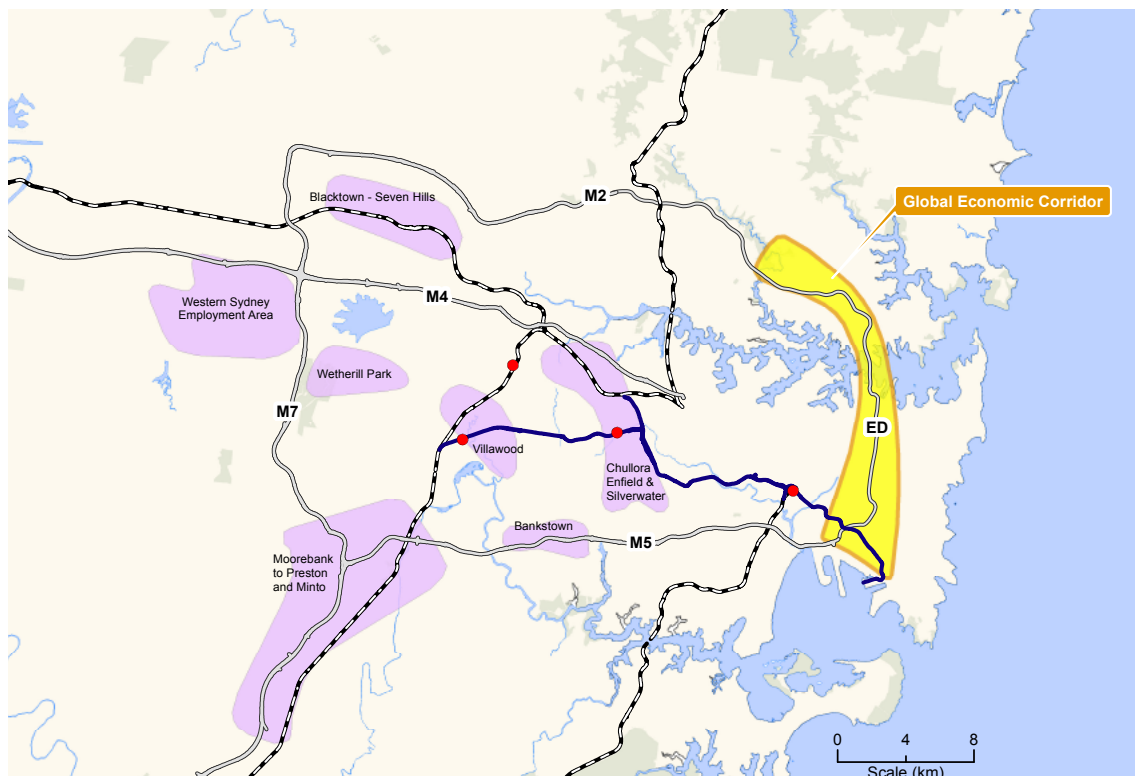
Improvements to rail infrastructure are key to reducing capacity constraints for the handling of freight to and from Port Botany and will ease some congestion around the airport. The Australian Rail Track Corporation is constructing the Southern Sydney Freight Line between Glenfield and Port Botany so that passenger and freight trains can be separated, thereby improving reliability and capacity. The Australian and NSW governments are currently funding a joint investment program for the Northern Sydney Freight Corridor to improve freight capacity and reliability in the Strathfield to Broadmeadow section of the rail network.

34 BITRE, *Australian Sea Freight*, 2009 to 2010.

The NSW Government is also developing a long-term State Freight Strategy and a Port Botany and Sydney Airport Transport Improvement Program that will outline a suite of projects and measures to ensure the transport system around the Airport/Port precinct responds to the growing freight tasks. The outcomes of this Joint Study should be a key input into the Program. Currently the ability of the Port to tranship containers is higher than the ability of the surface transport system to clear the cargo from the terminals. The NSW Government, through its state plan *NSW 2021*, has a target to double the proportion of container freight movements by rail through NSW ports by 2020.

The key existing and planned freight clusters, intermodal terminals and freight corridors across the Sydney Metropolitan Area are illustrated in Figure 25.

Figure 25 Key economic existing and planned freight clusters, intermodal terminals and freight corridors



Source: NSW Metropolitan Plan.

Strategic planning

Sydney's population is expanding west. As stated earlier in this section, by 2036, half of the city's population will live in Western Sydney, up from 43 per cent in 2006. After 2036, growth is likely to be in the south west as opportunities to expand further west and north west become constrained. The key is to ensure employment and transport systems support this expansion of housing and population.

Achieving Sydney's forward economic growth targets will be challenging. Productivity growth levels have slowed considerably over the last decade to an average of 0.9 per cent per year. While the long-term productivity growth rate for both NSW and Australia is forecast at 1.6 per cent per year, this has been the average for the last 30 years.³⁵

35 NSW Treasury, Budget Paper 6, *NSW Long term Fiscal Pressures Report*, 2011–12.

Reducing delays due to congestion will be a key part of increasing productivity.³⁶ Congestion imposes significant costs on the community and business in the form of longer trip travel times, increased greenhouse gas emissions, high transport running costs and reduced family and leisure time.

High travel times and costs will be compounded by the expected decrease in overall labour force participation arising from the ageing population (estimated at a decrease of seven per cent from 66 per cent to 59 per cent by 2045), and will impact on skills and the range of services that can and need to be provided.³⁷

These issues can make it very difficult to plan for the long term. Future planning must be strategic and integrated. In particular, it will be important to ensure that investment in transport infrastructure, including aviation infrastructure, is integrated with the spatial growth of Sydney. The focus of planning for Sydney needs to be:

- integrating residential and employment opportunities with appropriate infrastructure to prevent congestion and improve productivity and the standard of living;
- delivering the type of infrastructure required, when it is required, and ensuring connectivity between these infrastructures. This includes forward planning for when the infrastructure is no longer viable; and
- planning for expected changes in land use, which can have major implications for preserving corridors or large areas for critical infrastructure.

Strategic planning must also consider the need for investment in that infrastructure and be prioritised accordingly. The Australian and NSW governments have acknowledged the importance of investment in critical infrastructure and that it will be a major determinant in driving productivity, reducing congestion and generating long-term economic growth.

This will be particularly important in Western and South West Sydney, where the NSW Metropolitan Plan has identified a development need consistent with the region's population and employment trends. It will also be important both in Sydney and around the Lower Hunter, where it is necessary to ensure connections throughout the region provide access to key points, such as major employment and growth centres, airports and ports.

36 BITRE estimated congestion costs in Australia's capital cities would rise from \$12.9 billion in 2010 to \$20 billion per year by 2020.

37 NSW 2021 (NSW Government State Plan), citing the Productivity Commission, 2011.