

24 Economic

The construction and operation of the proposed airport is expected to generate significant economic and employment effects which will grow commensurately with the forecast increase in passenger demand over time. Overall, the Western Sydney region is expected to benefit from these effects and would experience a significant share of the increased economic activity and employment opportunities generated by the proposed airport.

Over the construction period, the Stage 1 development is forecast to create employment opportunities and value-add for the economy. In particular, construction of the Stage 1 development would:

- create about 3,180 full-time equivalent (FTE) jobs directly and indirectly in Greater Sydney during the peak of construction activity. Approximately 84 per cent of these jobs would be created in Western Sydney, including in the peak year of construction about 760 FTE direct onsite jobs, 1,240 FTE jobs in the supply chain and 660 FTE jobs through consumption effects;
- create about \$2.3 billion in value-add across Greater Sydney during the construction period, with approximately \$1.9 billion or 83 per cent of that value-add being created in Western Sydney.

During operation of the Stage 1 development, the proposed airport is expected to continue its role as a substantial source of economic and employment opportunities in the region. Operation of the Stage 1 development in 2031, for example, would:

- create about 8,730 FTE direct onsite jobs;
- potentially create a further 4,440 FTE onsite jobs within business parks on the airport site;
- generate about \$77 million in value-add for Western Sydney;
- generate about \$145 million in value-add for the rest of Greater Sydney; and
- drive growth in business profits, productivity and household income.

As a major infrastructure project, the proposed airport has the potential to redistribute employment and population growth toward Western Sydney. While this may result in relatively slower employment and population growth in other parts of Sydney, it will also contribute to more balanced and sustainable growth. Similarly, the proposed airport is expected to result in a slight reduction in value-add, business profits and worker productivity in areas outside of NSW as economic activity is redistributed towards Western Sydney.

24.1 Introduction

This chapter provides a review of the potential economic effects that could be expected as a result of the construction and operation of the Stage 1 development. The chapter draws on the findings of an analysis of economic impacts undertaken to inform this EIS and addresses the requirements of the EIS Guidelines. The economic analysis is included in Appendix P3 (Volume 4).

The EIS Guidelines include a requirement to assess both the positive and negative economic impacts associated with the proposed airport. This includes consideration at the local, regional and national level of the expected economic costs and benefits and employment opportunities likely to be generated during construction and operation.

The economic impacts of the proposed airport are expressed in terms of a number of standard economic metrics including:

- full-time equivalent (FTE) employment – representing one year of employment at full-time;
- person-years – a measure of employment effort; ten people employed for one year or one person employed for ten years would equate as ten person-years;
- economic value-add – the value of the economic output of an activity minus the value of the economic inputs required for the activity; on a large scale equivalent to gross regional product;
- industrial effects – indirect employment and value-add due to demand for goods and services created by an activity, such as demand for construction materials;
- consumption effects – indirect employment and value-add due to demand for goods and services from the workforce employed directly or indirectly by an activity;
- business profit – the share of value-add in real returns to business owners and investors;
- household income – the share of value-add in income received in household wages;
- worker productivity – value-add generated per worker per year; and
- net imports – the balance of the real value of exports and imports in a region, representing both domestic, inter-regional trade and international trade.

24.2 Methodology

This section provides an overview of the methodologies used to identify and assess economic and employment impacts. These methodologies are described further in Appendix P3 (Volume 4).

24.2.1 Construction

The employment and value-add effects from the construction of the Stage 1 development were assessed in terms of FTE employment, economic value-add and indirect industrial and consumption effects.

Direct employment during construction was estimated based on the indicative construction schedule and component activities. Indirect jobs were projected with industry standard economic multipliers for industrial and consumption effects. Economic value-add was similarly estimated with industry standard economic multipliers in the REMPLAN input-output economic model.

24.2.2 Operation

The employment and value-add of the operation of the Stage 1 development were assessed in terms of FTE employment, economic value-add and indirect industrial and consumption effects. The assessment was conducted with the aid of a land use econometric model and a computable general equilibrium model.

Direct employment during operation was estimated as part of airport planning. The estimate was validated by a benchmarking exercise that determined the average FTE employment per million annual passengers across a number of other airports in Australia and internationally.

Employment at business parks at the airport site during operation was estimated by applying a ratio of employees to the floor space of proposed land uses. This approach is consistent with the approach taken in *A Study of Wilton and RAAF Base Richmond for Civil Aviation Operations* (Department of Infrastructure and Transport 2013).

The land use econometric model was used to determine the resulting employment and population densities in and around the airport site and Western Sydney. The model considered factors including accessibility of employees to places of employment, accessibility of employers to employees, connectivity of supply chains between businesses and other factors such as the availability of public amenities and attractions. The model was developed from the base spatial units developed by the NSW Bureau of Transport Statistics, which reflect population mobility.

The computable general equilibrium model represents transactions between individuals, business and government. These transactions can involve consumption, labour, capital, property and trade. The model was used to predict economy-wide impacts including employment and value-add plus other metrics including business profit, household income, worker productivity and net imports at the regional, state and national scale.

The results of the land use econometric model and computable general equilibrium model were presented at a number of spatial scales, including:

- Greater Sydney – which includes both Western Sydney and the rest of Sydney;
- Western Sydney which includes the following local government areas (LGAs):
 - South West – Liverpool, Fairfield, Camden, Campbelltown and Wollondilly;
 - West – Penrith, Hawkesbury, Blue Mountains; and
 - West Central – Blacktown, Canterbury-Bankstown, Cumberland, Parramatta, The Hills.
- the rest of Sydney – which is comprised of the remaining Greater Sydney LGAs that are not included in Western Sydney;
- the rest of NSW – which is comprised of all areas within NSW but outside of Greater Sydney; and
- the rest of Australia – which is comprised of all states and territories outside of NSW.

24.3 Existing environment

24.3.1 Overview

The airport site is located within Badgerys Creek and Luddenham, about 50 kilometres west of the Sydney central business district (CBD) in Western Sydney.

Western Sydney is the third largest regional economy in Australia. With a population of about two million, it is home to about nine per cent of Australia's population and makes up 47 per cent of the residents of Greater Sydney. The population is also expected to grow quickly with a further one million residents expected by 2030 (SGS 2015).

The economy of Western Sydney is heavily reliant on manufacturing, which is in decline and is forecast to continue to decline in the future. Many residents in Western Sydney are forced to travel long distances for higher pay professional jobs in other parts of Sydney, which also contributes to existing congestion problems on the Greater Sydney road network.

Despite the size and predicted growth in the region, there is recognised economic inequity between Western Sydney and Greater Sydney. Although around half of the Greater Sydney population resides in Western Sydney, it has only a third of total jobs. Around 30 per cent of Western Sydney's workforce travel to other parts of Sydney for work.

This job deficit is expected to increase as the population of Western Sydney grows while the majority of jobs continue to be generated in the Sydney CBD. Western Sydney also has relatively low household incomes, averaging about 90 per cent of Greater Sydney.

The NSW Government's *A Plan for Growing Sydney* (DP&E 2014) focuses heavily on the role of Western Sydney in driving the growth of Sydney and NSW over coming decades. In particular, it identifies that an additional 400,000 jobs will be required in Western Sydney over the next 25 years to slow the job deficit. The plan also identifies Parramatta as the second CBD in Greater Sydney supported by regional centres including Liverpool, Campbelltown-Macarthur and Penrith. These areas are envisaged as centres for jobs, transport and services.

Western Sydney is nonetheless undergoing a major transition to a more highly urbanised region, evidenced by numerous major residential and transport infrastructure initiatives such as the Australian Government's Western Sydney Infrastructure Plan, NSW Government's priority growth areas, multiple road and rail projects and the proposed airport.

The above initiatives are discussed further in Chapter 21 and Chapter 23.

24.4 Assessment of impacts during construction

24.4.1 Employment

24.4.1.1 Western Sydney

The number of FTE jobs expected to be generated within each construction sector, by type of activity and for each financial year during the construction of the Stage 1 development, is presented in Table 24–1 and Table 24–2. As shown, construction of the Stage 1 development at its peak would create about 760 FTE jobs in Western Sydney – increasing to 2,660 jobs when indirect industrial and consumption effects are also considered.

The cumulative employment impact is measured in 'person-years' which represents the total amount of work effort that would be needed to complete the construction of the proposed airport. The Stage 1 development is expected to support a total of about 11,350 person-years of employment in Western Sydney over the duration of construction, including about 3,230 person-years of direct employment and a further 8,120 person-years of indirect employment from industrial and consumption effects.

Table 24–1 Direct onsite FTE jobs during construction in Western Sydney

Employment type	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total (person years)
Site preparation (Civil)	52	141	103	15	26	61	28	-	427
Aviation (Civil)	-	-	27	159	128	114	74	104	605
Site preparation (Contract administration)	4	14	22	23	21	12	2	-	97
Site preparation (Supervisory and management)	16	48	78	80	73	44	7	-	346
Aviation (Contract administration)	-	-	3	40	97	113	107	60	419
Aviation (Supervisory and management)	-	-	4	55	135	157	148	84	583
Aviation (Building)	-	-	-	74	124	256	217	82	754
TOTAL	72	203	236	446	605	758	583	330	3,231

Note: Y1 = year one, Y2 = year two, etc.

Table 24–2 Direct and indirect FTE jobs during construction in Western Sydney

Employment type	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total (person years)
Direct jobs	72	203	236	446	605	758	583	330	3,231
Indirect jobs									
Industrial effect	117	331	386	729	988	1,238	953	540	5,281
Consumption effect	63	178	207	391	530	664	511	290	2,834
TOTAL	251	712	828	1,565	2,123	2,660	2,047	1,160	11,346

Note: Y1 = year one, Y2 = year two, etc.

The expected annual contribution to employment in Western Sydney over the construction period is shown Figure 24–1.

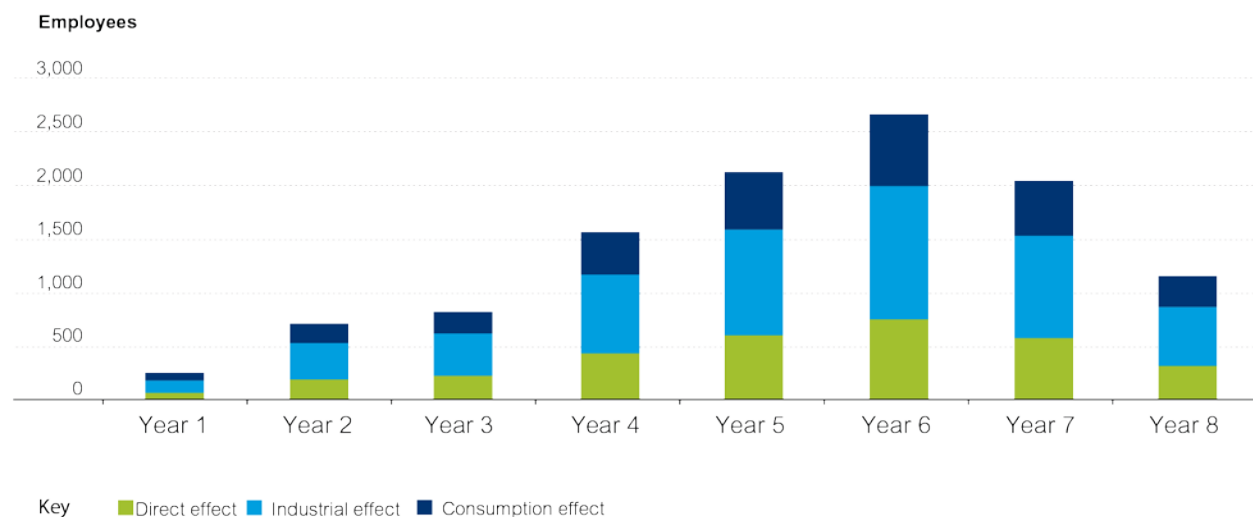


Figure 24–1 Direct and indirect FTE jobs during construction in Western Sydney

24.4.1.2 Greater Sydney

The potential economic footprint across the Greater Sydney region (including Western Sydney) associated with the construction of the Stage 1 development is summarised in Table 24–3. The table presents the number of FTE jobs expected to be generated in the Greater Sydney region in each financial year during the construction period.

When the Greater Sydney region is included in the analysis, the expected employment impact associated with the construction of the Stage 1 development is higher as more indirect jobs are captured within this larger geographical area. Despite this, most of the employment impact is expected to remain within the Western Sydney region.

The Greater Sydney employment footprint is expected to reach about 3,180 FTE jobs during the construction peak. Over the construction period this would result in about 13,560 person-years of employment generated across Greater Sydney. This means that approximately 84 per cent of all direct and indirect jobs generated by the proposed airport during construction are forecast to be located in Western Sydney.

Table 24–3 Direct and indirect FTE jobs during construction in Greater Sydney (including Western Sydney)

Effects (FTE jobs per year)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total (person years)
Direct jobs	72	203	236	446	605	758	583	330	3,231
Indirect jobs									
Industrial effect	130	369	429	810	1,099	1,377	1,060	600	5,874
Consumption effect	99	179	325	614	833	1,043	803	455	4,451
TOTAL	300	850	990	1,870	2,537	3,178	2,446	1,386	13,556

Note: Y1 = year one, Y2 = year two, etc.

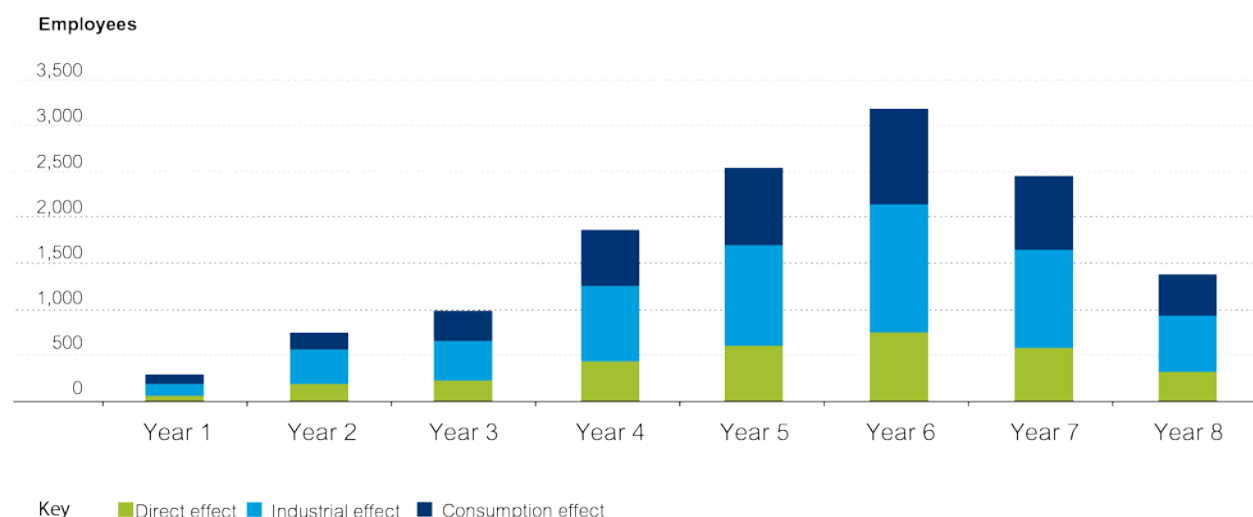


Figure 24–2 Direct and indirect FTE jobs during construction in Greater Sydney (including Western Sydney)

24.4.2 Economic value-add

24.4.2.1 Western Sydney

The potential economic footprint related to the construction of the Stage 1 development is summarised in Table 24–4. The table presents the forecast economic contribution expected for the Western Sydney region in each year in terms of millions of dollars of value-add.

Table 24–4 Potential economic value-add during construction in Western Sydney

Contribution	Value-add (\$ million)								
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total
Direct contribution	16	44	52	98	132	166	128	72	707
Indirect contribution									
Industrial effect	17	47	55	104	141	176	136	77	751
Consumption effect	10	28	33	62	84	105	81	46	446
TOTAL	42	119	139	263	356	446	344	195	1,904

Note: Y1 = year one, Y2 = year two, etc.

Value-add during construction of the Stage 1 development is estimated to be \$446 million during the peak year of construction – including \$166 million in direct value-add and \$281 million in indirect value-add created by industrial and consumption effects. The total value-add over the entire construction period is estimated to reach around \$1.9 billion.

The expected annual contribution to value-add over time for the Western Sydney region is shown in Figure 24–3.

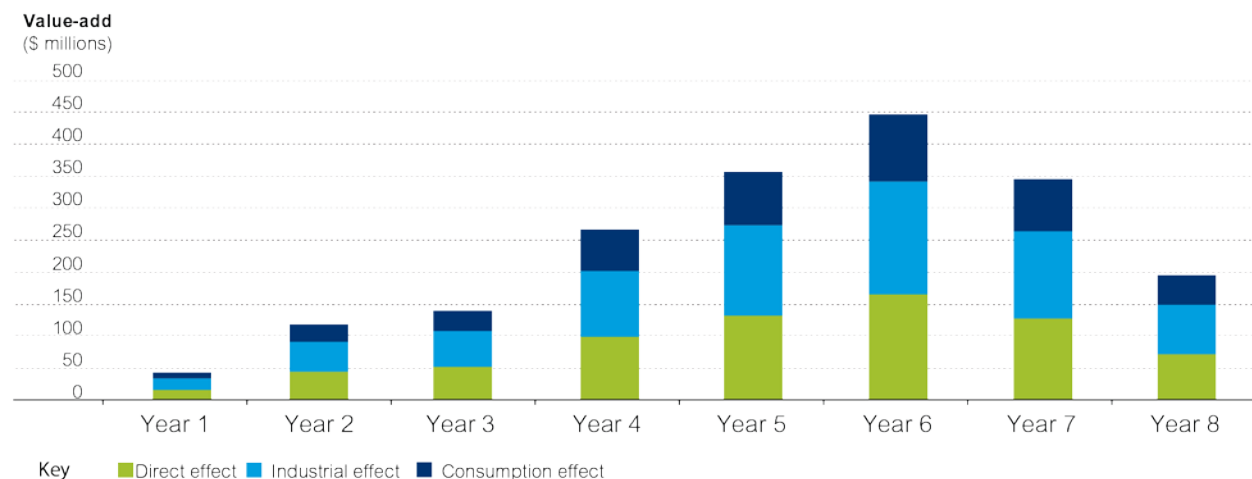


Figure 24–3 Potential economic value add during construction in Western Sydney

24.4.2.2 Greater Sydney

The potential economic footprint across the Greater Sydney region associated with the construction of the Stage 1 development is summarised in Table 24–5. The table presents the value-add that would be generated for the Greater Sydney region in each year during construction.

Table 24–5 Potential economic value-add from construction in Greater Sydney (including Western Sydney)

Contribution	Value-add (\$ million)								
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Total
Direct contribution	16	44	52	98	132	166	128	72	707
Indirect contribution									
Industrial effect	19	55	64	121	165	206	159	90	880
Consumption effect	16	45	52	99	134	168	129	73	716
TOTAL	51	145	168	318	431	540	416	235	2,304

Note: Y1 = year one, Y2 = year two, etc.

Similar to employment impacts, the value-add footprint for Greater Sydney would be larger than that for Western Sydney, reaching up to \$540 million in the peak year of construction and up to \$2.3 billion over the construction period – about 83 per cent of which would be generated in Western Sydney.

The expected annual contribution to value-add over the construction period for the Greater Sydney region is shown in Figure 24–4.

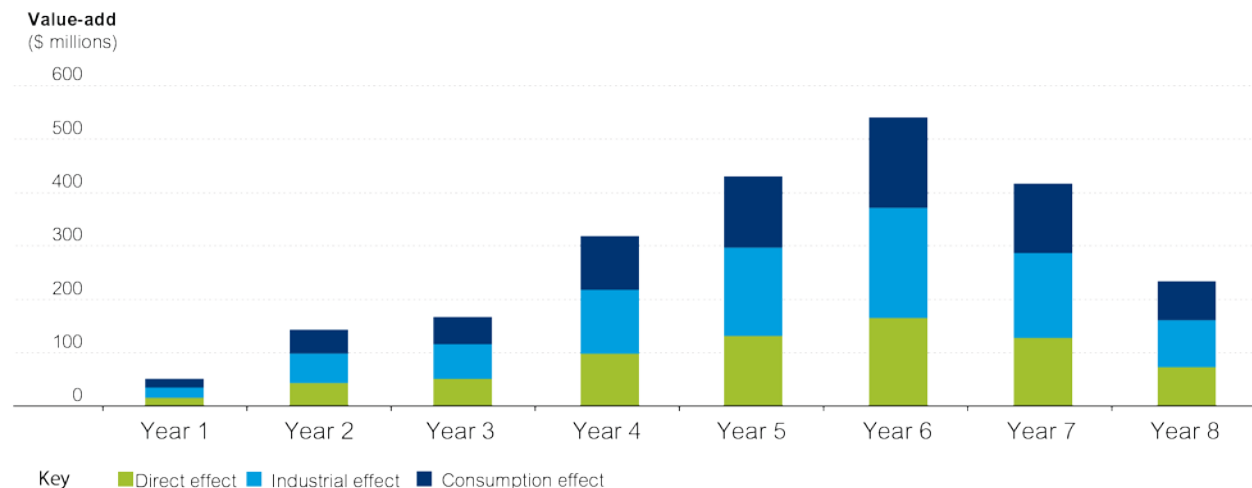


Figure 24–4 Potential economic value add from construction in Greater Sydney (including Western Sydney)

24.5 Assessment of impacts during operation

24.5.1 Economic value-add

The Stage 1 development of the proposed airport would result in economic effects for Western Sydney and the wider region. These effects would benefit industries beyond the aviation sector, and extend to businesses and employees in industries such as construction, utilities, trade, transport, accommodation, retail, professional services, tourism and hospitality, and administration. These effects would have flow-on benefits to individuals through increased household income and greater access to employment opportunities.

The economic impacts associated with the Stage 1 development are commensurate with the 10 million annual passengers forecast to be accommodated. As the proposed airport grows beyond 10 million annual passengers it is predicted that the economic benefits would also increase. An overview of the potential economic impacts associated with the long term development is presented in Chapter 39 (Volume 3).

Table 24–6 provides an overview of the economic impacts associated with operation of the Stage 1 development. The figures presented are for the year 2031 in order to ensure consistency with data provided by external sources as described in Appendix P3 (Volume 4).

Table 24–6 Potential economic impacts of operation in 2031 (undiscounted 2015 \$AUD)

Metric	Western Sydney	Rest of Sydney	Rest of NSW	Rest of Australia	Total
Value-add (\$ millions)	\$77	\$145	\$23	-\$39	\$205
Business profits (\$ millions)	\$27	\$42	\$11	-\$8	\$73
Productivity per worker (\$/worker)	\$90	\$95	\$20	-\$4	\$17
Household income (\$ millions)	\$44	\$50	\$15	\$32	\$140
Net imports (\$ millions)	\$23	-\$36	\$5	\$55	\$47

In 2031 the operation of the proposed airport could generate an additional \$205 million in value-add per year across Australia. Of this, approximately \$77 million would be generated in Western Sydney alone. There is a reduction in value-add in the rest of Australia (outside NSW), reflecting the proposed airport's role in attracting economic activity to the region, however this reduction is small given the overall size of the Australian economy. The increase in value-add is supported by increases in productivity per worker, averaging \$90 per worker in Western Sydney and \$95 per worker in the rest of Sydney.

The operation of the Stage 1 development would also result in economic benefits for business in the regions surrounding the airport site. In 2031 the proposed airport would generate an additional \$27 million in profits for businesses in Western Sydney and \$42 million in increased profits for businesses in the rest of Sydney. There are smaller positive benefits to the rest of NSW and a small negative impact on the rest of Australia, again reflecting the proposed airport's role in redistributing economic activity to Western Sydney and the broader metropolitan area.

In relation to household income, the proposed airport would generate \$44 million and \$50 million in additional household income for Western Sydney and the rest of Sydney. It is expected there would be significant regional spill-overs, with a substantial share of gains in the rest of Australia.

24.5.2 Direct employment

Airports are one of the most important employment hubs in Australia, generating diverse employment opportunities – including jobs in transport, postage, warehousing, administration, safety, retail, accommodation, food services, manufacturing, professional and technical services, information media and telecommunications (BITRE 2013). These jobs tend to cover a wide range of job classifications and educational qualifications (BITRE 2013).

In 2031 the operation of the proposed airport is expected to generate a total of 13,170 FTE jobs on the airport site. This would include approximately 8,730 FTE jobs directly associated with the operation of the proposed airport, and 4,440 FTE jobs in the manufacturing, business services and consumer services sectors as part of the non-aeronautical developments that may occur within a business park on the airport site.

A breakdown of the expected employment can be seen in Table 24–7.

Table 24–7 Onsite FTE jobs during operation of the Stage 1 development (2031)

Category	Employment (FTE) in 2031
Direct airport jobs	8,730
Onsite business park	4,440
Total	13,170

24.5.3 Employment distribution

The land use econometric model (see Section 24.2.2) estimates the change in employment growth that would occur across Greater Sydney as a result of the operation of the Stage 1 development.

Potential changes in employment growth are expected to be driven by:

- changes in access to new or relocated firms (measured by the number of jobs) resulting from the redistribution of employment to areas around the airport site;
- changes in access to workers and customers resulting from the change in population associated with the development of the proposed airport; and
- increases in employment zones in the area surrounding the proposed airport due to changes in land use and increased commercial and business development areas.

A summary of the expected effects of the proposed airport on employment growth in 2031 is presented in Table 24–8. As shown, the Sydney West district is anticipated to see the largest increase in employment across Western Sydney in 2031. The Sydney South West and Sydney West Central districts are also likely to experience employment increases.

Overall, areas around the airport site that currently have very little employment growth would see large proportional increases, with an additional 6,900 FTE jobs in Western Sydney. This growth is additional to employment at the proposed airport and business park discussed in Section 24.5.2.

The strongest population growth is estimated to occur in the following LGAs:

- Penrith;
- Blue Mountains; and
- Wollondilly.

The land use econometric model assumes these increases in employment growth are caused by the redistribution of employment growth from elsewhere in Greater Sydney. Employment as a whole is predicted to grow in the future, meaning this redistribution represents slowed employment growth in some areas rather than a net reduction in employment.

Table 24–8 Additional employment growth caused by the proposed airport in 2031

Region	Additional employment growth in 2031
Western Sydney	6,900
Sydney South West	2,000
Sydney West	3,000
Sydney West Central	1,900
Rest of Sydney	-7200
Rest of NSW	300

24.5.4 Population distribution

The land use econometric model (see Section 24.2.2) also estimates the change in population growth that would occur across Greater Sydney as a result of the operation of the Stage 1 development.

Potential changes in population growth would be driven by:

- changes in access to jobs as a result of increased employment opportunities in the region;
- increased attractiveness of travel zones that would be closer to a major airport (with the introduction of the proposed airport), and
- amenity impacts to the immediate surrounding area (noise, visual, and other amenity issues) and changes in surrounding land uses that may reduce population densities.

A summary of the effects of the proposed airport on population is provided in Table 24–9. The table shows that land use change due to the Stage 1 development would result in an additional 17,900 residents in Western Sydney. The strongest population growth is estimated to occur in the following LGAs:

- Penrith;
- Blue Mountains;
- Blacktown;
- Wollondilly; and
- Camden.

The district of Sydney West is anticipated to see the largest increase in additional population in 2031 as a result of the Stage 1 development. This strong growth would be expected as a result of some redistribution of population growth from the rest of Sydney, the rest of NSW, and the Sydney West Central district. As a result of these impacts, areas outside of Western Sydney (rest of Sydney and rest of NSW) are expected to experience slower population growth.

The land use econometric model used in the assessment (see Section 24.2.2) assumes these increases in population growth are caused by the redistribution of population growth from elsewhere in Greater Sydney. Population as a whole is predicted to grow in the future, meaning this redistribution represents slowed population growth in some areas rather than a net reduction in population.

Table 24–9 Additional population growth caused by the proposed airport in 2031

Subregion	Additional population growth in 2031
Western Sydney	17,900
Sydney South West	4,900
Sydney West	16,200
Sydney West Central	-3,200
Rest of Sydney	-14,000
Rest of NSW	-3900

24.6 Mitigation and management measures

Overall, the economic impacts of the proposed airport are expected to benefit the local, regional and national economies. These benefits would increase commensurate with passenger demand.

It is recognised that these positive economic impacts may result in positive and negative social impacts and these have been discussed further in the social impact assessment in Chapter 23. The social impact assessment also includes a number of mitigation measures to enhance the economic and social benefits and minimise negative social impacts of the proposed airport.

24.7 Conclusion

The construction and operation of the Stage 1 development would have positive impacts on the economy at a local, regional, and national scale. Western Sydney in particular will experience the majority of these positive impacts, with substantial increases in value-add and employment.

The construction and operation of the proposed airport would result in significant direct employment at the airport site. In the peak year of construction, the proposed airport would directly employ about 760 FTE workers and indirectly support another 2,420 FTE jobs. In 2031, the operation of the proposed airport would directly employ about 8,730 FTE workers and potentially generate another 4,440 FTE jobs in business parks on the airport site.

The operation of the proposed airport would also cause a redistribution of employment growth and population growth to Western Sydney. Not including direct employment at the airport site, in 2031 the operation of the proposed airport would cause the redistribution of 6,900 FTE jobs and 17,900 residents into Western Sydney from other parts of Sydney and NSW.

In terms of economic benefits, construction of the proposed airport would generate about \$2.3 billion of value-add for Greater Sydney, about 83 per cent of which would be generated in Western Sydney. In 2031, operation of the proposed airport would value-add about \$205 million. Value-add would grow commensurate with passenger demand at the proposed airport.

As people and businesses move to take advantage of these opportunities in Western Sydney, it is expected to result in a corresponding slowing of growth in population, employment and economic value-add in other parts of Sydney. This would not represent an absolute reduction but rather slightly slowed growth. This redistribution will ameliorate the inequity currently experienced in Western Sydney and accordingly facilitate more balanced and sustainable growth.