

PART TEN

SUMMARY OF FINDINGS AND KEY POINTS



P10

10.1 Overview

The Steering Committee's objective has been to develop a strategy for addressing aviation demand in the Sydney region to support economic growth and increased productivity. The Steering Committee recognises the need to balance the development of aviation services with the needs of communities and the environment. It also recognises that planning for aviation development needs to be integrated with the broader land use and land transport plans for the region, including the development of future growth areas and employment zones.

The Steering Committee's work has involved examination of the:

- pace and pattern of likely growth of Sydney and the planning for how growth will be accommodated;
- forecast future demand for aviation in the region;
- capacity of existing infrastructure, including airports and supporting ground transport networks, to cope with the demand;
- extent to which there will be gaps in capacity to meet that demand;
- practical and economic implications if the demand is not met; and
- options for addressing the demand into the future.

Regular Public Transport (RPT) passenger operations (of the aviation sectors) have the greatest effect on economic and social outcomes, particularly since the majority of air freight is carried in the cargo hold of RPT aircraft. The Steering Committee's work has focused mainly on RPT, but also recognises the importance of capacity for freight-only, General Aviation (GA) and Defence operations.

The relationship between aviation demand and capacity is not static. Airport operators, airlines, passengers and surface transport service providers will seek to adapt to changing circumstances, including the growing capacity pressures. Developments in the aviation markets, both international and domestic, will affect patterns of demand over time. The Steering Committee has examined strategies to address demand into the long term, while also considering options to address the short- and medium-term challenges.

Part Two of this Report examines the forecast growth of Sydney and the planned patterns of development for residential population, employment and transport networks. The greatest population growth will occur to the west, with substantial growth also to the north. The siting of Sydney (Kingsford-Smith) Airport does not provide ready access to these areas. There are also targets for substantial infill in existing areas, including those close to the airport, which will add further pressure to the road network servicing Sydney (Kingsford-Smith) Airport.

Part Three examines the forecast demand for aviation in the Sydney region. Even on conservative estimates, demand for RPT services is expected to double to nearly 88 million passengers by 2035 and again to more than 165 million passengers by 2060. Continued demand growth is also forecast for freight services. The focus of this demand will remain on Sydney (Kingsford-Smith) Airport.

Part Four examines the capacity of existing airports to cope with the forecast demand. A key issue is the extent to which there is scope to expand capacity at the existing airports. It also identifies growing capacity issues at Sydney (Kingsford-Smith) Airport in the areas of terminal gates and aprons, aircraft parking, taxiways and runways. The effects of the capacity pressures are already evident to some extent and will grow.

Part Five considers the impacts of these pressures. These include practical impacts such as increasing delays for passengers, disruption of the network and incapacity to accommodate new

services, in particular international services. The impacts also include substantial economic costs over time and affect broader productivity, employment outcomes and growth.

Part Six discusses options for upgrading or facilitating more efficient operations at Sydney (Kingsford-Smith) Airport to meet the expected demand. Issues addressed include both the scope for infrastructure improvement and change to the regulatory settings. Part Six also deals with options for upgrading the ground transport links to Sydney (Kingsford-Smith) Airport.

Part Seven outlines that Canberra and Newcastle airports will assist in meeting specific elements of the demand but are too far from the population base to serve a major share of the Sydney demand. While there are options for Bankstown Airport and RAAF Base Richmond to assist in meeting the demand, neither provides a long term solution.

Part Eight outlines the process for identifying potential sites for a new supplementary airport and the analysis of sites against key criteria.

Part Nine discusses potential use of the Commonwealth-owned Badgerys Creek site if it is not to be used for an airport.

A summary of the key points against each of these parts is set out below. The Committee's recommended strategy and conclusions are then set out in Part Eleven.

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.

Part Three – Demand for aviation in the Sydney region

- Aviation activities in the Sydney region have been growing over the past decade. As at 2010, the sector consisted of:
 - 40.1 million Regular Public Transport (RPT) passenger movements and 344,000 RPT aircraft movements accommodated through Sydney (Kingsford-Smith) Airport, Canberra Airport and Newcastle Airport;
 - 400,000 tonnes of international freight and more than 100,000 tonnes of domestic freight, accounting for 50 per cent and 30 per cent of Australia's international and domestic air freight tonnage respectively;
 - more than 400,000 General Aviation (GA) movements across a number of aerodromes in the region.
- With the continued economic and population growth, there will be increased aviation demand in the region. On an unconstrained basis (presuming all necessary capacity is provided to meet growth), estimated demand in the Sydney region would be for:
 - 57.6 million passenger and 421,200 RPT aircraft movements by 2020;
 - 87.4 million passenger and 528,600 RPT aircraft movements by 2035; and

- 165 million passenger and 800,800 RPT aircraft movements by 2060.
- This exceeds the total number of current domestic and international passenger movements across Australia (135 million in 2010).
- It is estimated that unconstrained demand for air freight tonnage would quadruple between 2010 and 2060.
 - Demand for international and domestic air freight tonnage in the region is forecast to grow rapidly by approximately 3.2 per cent per year between 2010 and 2060.
 - The majority of air freight demand in the Sydney region is expected to continue at Sydney (Kingsford-Smith) Airport. However, the roles of Bankstown, Newcastle and Canberra airports in serving air freight demand are expected to increase.
- GA growth in the Sydney region has been modest compared to RPT but is expected to increase by 50 per cent between 2010 and 2060.
 - Bankstown Airport is forecast to continue to provide the largest volume of GA activity in terms of aircraft movements, with modest growth expected at Canberra and Camden airports and RAAF Base Richmond.
- With the exception of RAAF Base Williamtown, military movement growth in the region is likely to remain relatively constant throughout the forecast period. It is expected that military operations at RAAF Base Williamtown will rapidly increase as a result of the introduction of the Joint Strike Fighter program from around 2017.
- Sydney (Kingsford-Smith) Airport will continue to be the primary airport in the region in terms of both RPT and freight services.
- While Canberra and Newcastle airports will see continuing growth in demand for RPT services, this is not expected to reduce demand at Sydney (Kingsford-Smith) Airport.
- Unconstrained demand for passenger movements at Sydney (Kingsford-Smith) Airport, which already facilitates 89 per cent of passenger movements in the Sydney region, is forecast to more than double by 2035 and quadruple by 2060, to 76.8 and 145.7 million passenger movements respectively.
 - This correlates with expected unconstrained demand for approximately 430,000 and 650,000 RPT aircraft movements in 2035 and 2060 respectively.
- As Sydney's spatial and economic growth continues to increase population and income growth in Western Sydney, demand for usage of the airport from this area will increase.
- Continued growth in business, the strength of emerging international markets such as China and India and the development of new innovative Low Cost Carrier (LCC) markets will be significant drivers of demand growth which will need to be accommodated in the Sydney region.

Part Four – Capacity of existing airports to cope with forecast demand – Key points

Sydney (Kingsford-Smith) Airport

- The *Sydney Airport Master Plan 2009* (the Master Plan) includes a program of upgrades to terminals, taxiways, aprons and gates, reflecting Sydney Airport Corporation Limited's (SACL's) assessment that, with those changes, the airport can cope with forecast demand to 2029.
- This Joint Study has identified that a range of capacity pressures will have significant implications well before 2029 and these will continue to increase with growth at the airport.

- Investment in infrastructure upgrades is important to help address the impacts of those capacity pressures, but the constraints of the site mean that the capacity of the airport will not be able to be upgraded to meet the level of demand forecast in the longer term.
- At current demand levels, the existing gates, stands and apron areas are already heavily utilised at each terminal during peak times. Specifically:
 - all available contact gates at the current International Terminal (T1) are utilised during the morning peak period 7.30am to 10.00am;
 - all available contact gates at current Domestic Terminal 2 (T2) are utilised at various times during the day. Some stand-off capacity is available at these times, although much of it is limited to turboprop operations at 'walk out' stands;
 - gates at the current Qantas Domestic Terminal 3 (T3) are consistently in use throughout the day; and
 - individual apron areas are already virtually at full capacity during peak times.
- It is estimated, by 2015, there will be a shortfall of 25 aircraft stands compared to projected demand based on the infrastructure shown in the Master Plan. This shortfall could be reduced if terminal and apron work proposed in the Master Plan is brought forward.
- By 2020, there will be an estimated shortfall of 18 stands, even if works proposed in the Master Plan for 2014 to 2019 have been completed.
- There is already a requirement to tow aircraft off to remote stands, particularly from the International Terminal, to free up gate availability in peak periods. This has flow-on effects to the runways and taxiways.
- Taxiway capacity also becomes an issue where there is congestion and delay arising from a shortage of gates or parking stands or when queues develop as a result of the imbalance between usage of the two parallel runways.
- There are significant limitations on runway 16L/34R due to its shorter length. Standard operating procedures generally preclude aircraft above B767 from using runway 16L/34R. On runway 16L/34R the taxiway fillet design does not cater for long wheel base aircraft such as the B777-300. This creates an imbalance between the two runways and reduces the capacity to operate the parallel runway system efficiently.
- Currently, delays on the taxiways and apron areas are estimated to be approximately six minutes for each arrival and 12 minutes for each departure during peak period movements.
- Capacity pressures at the airport will contribute to increases in these delays. The delays will be exacerbated when the airport experiences reduction in capacity due to factors such as non-visual conditions due to rain, storms, low cloud or fog, or when winds require use of the cross runway.
- Over the Master Plan period, taxiway delays can only be kept within tolerable (but far from ideal) limits if airspace and air traffic management procedures can be changed and the fleet mix allows a more even spread of traffic flow onto the main and parallel north-south runways.
 - Airservices Australia has advised that there remains significant challenges to achieve the required runway rebalancing.
- The site of Sydney (Kingsford-Smith) Airport measures some 907 hectares, small by comparison to other major airports in Australia and overseas.
 - Any further extension of the site is limited by urban development and by Botany Bay to the south, the Cooks River to the west and Port Botany to the south-east.

- The constraints of the small airport site rule out any significant realignment of runways or major rationalisation of the taxiway and apron systems. A change to the movement cap could provide some additional capacity, provided the necessary gate, taxiway and parking capacity can be made available.
 - Analysis by Airservices Australia indicates that, in good weather conditions, the parallel runway system could process between 85 and 87 runway movements per hour and that sustainable capacity of the runway system would be around 85 movements per hour.
 - An increase in the maximum movement rate would require substantial investment in taxiway, apron and gate capacity as the current infrastructure struggles to handle for sustained periods even the current peak movement levels of close to 80 movements per hour.
- The limited space at the airport affects the scope to provide appropriate wingtip clearance for very large aircraft along certain taxiways, which may affect the scope for continued upgauging to those aircraft types in the medium and longer term.
- The scope for operations at the airport to recover following periods of reduced capacity will progressively decrease as movements increase, leading to longer periods of disrupted operations at the airport and flow-on impacts throughout the aviation network.
- Capacity pressures will limit the scope for airlines to schedule new services. Under the Slot Management Scheme operating at Sydney (Kingsford-Smith) Airport, the slot allocations which are a prerequisite for scheduling operations are limited to 80 per hour, consistent with the runway movement cap.
- Allocations for peak periods (7.00am to 9.00am and 5.00pm to 7.00pm) are already at or close to this limit – for example:
 - on Fridays, the allocations for the 7.00am and 8.00am hours are full; and
 - on Thursdays, the allocations for the 7.00am hour are full.
- As demand continues to grow, airlines will increasingly be unable to schedule new services at their preferred times. Assuming the airlines are able to reschedule proposed services to the nearest available slots, the peak will continue to spread.
 - By 2020, all slots on weekdays between 6.00am and 12.00noon and between 4.00pm and 7.00pm would be fully allocated.
 - By 2027, there would effectively be no slots unallocated, with unmet demand for more than 100 flights per day.
- In practice, the scope for airlines to shift proposed services to suboptimal schedules will often be limited and the proposal for new services may be shelved if the preferred slot is not available.
 - The impacts of limited capacity will be seen in foregone services well before the projected allocation of all slots. As fewer slots become available, Sydney will increasingly miss out on the benefits from new services.
- The lack of available capacity means that, for the busiest hour (8.00am to 9.00am):
 - demand for an estimated four movements in that hour will not be met by 2015;
 - demand for an estimated 12 movements will not be met by 2020; and
 - demand for an estimated 85 movements will not be met by 2060.
- Demand is likely to increase in all hours of the day.
 - Demand will first exceed the maximum that can be allocated in peak hours, then in the hours around peak times.
 - By 2035, it is unlikely that there will be usable capacity available for new services at Sydney (Kingsford-Smith) Airport.

- As movement numbers grow over time at the airport, the scope to use the noise-sharing modes under the Long Term Operating Plan (LTOP) will decrease. Airservices Australia analysis on the effect of forecast demand on the LTOP suggests:
 - By 2015, nine hours of the day will have scheduled movements above 55 movements per hour, approximately the rate above which the noise sharing modes cease to be viable options for managing the air traffic.
 - By 2035, only two hours in the late evening will operate at less than 55 movements.
- Assessments undertaken for the Sydney Airport Community Forum (SACF) have found the LTOP targets are not being met with the levels of traffic demand now presenting at the airport.
- In the absence of major investment in the surface transport networks serving the airport, continued growth of passenger air services would also lead to overloading of the road and rail systems.
 - Increasingly, road traffic to and from the airport will be subject to substantial delays.
 - At the current train capacity of eight trains per peak hour to the CBD, by 2013 services past the airport in the morning peak will be full before they reach the airport stations.
 - By 2018, even with the increase proposed by the NSW Government to 12 trains per hour, trains would be at capacity during peak hours unless additional rolling stock and train paths can be allocated to the airport rail link.
 - Sometime between 2015 and 2023, the capacity of existing road junctions at the entrance to the Domestic Terminal precinct will be exceeded, resulting in a near constant traffic jam on key roads to the CBD and the motorway (this does not include the impacts on the M5 motorway itself).

Canberra and Newcastle airports

- Canberra Airport and RAAF Base Williamtown (Newcastle Airport) have physical capacity to meet the level of their projected demand, but the scope for growth of civil operations at Newcastle Airport is limited by agreement with RAAF, reflecting the projected requirement of RAAF Base Williamtown as an operational base.
 - The scope for RAAF Base Williamtown (Newcastle Airport) to support the demand in the growing Hunter and Central Coast regions over the longer term is unclear.

Part Five – Impacts if demand is not met

- If no additional capacity is made available, demand would exceed capacity by 54 million passenger movements and more than 760,000 tonnes of air freight per year in 2060.
 - The cumulative total of unmet demand would be more than 665 million passenger movements and nine million tonnes of air freight between 2035 and 2060.
- By 2060, the economy-wide (direct and flow-on) impacts of the Australian economy could accumulate to a total of \$59.5 billion in foregone expenditure and \$34.0 billion in foregone gross domestic product (GDP) (in 2010 discounted dollars and considering a medium elasticity scenario).
 - The NSW economy would be the worst affected, with losses across all industries totalling \$30.6 billion in foregone expenditure and \$17.5 billion in foregone gross state product (GSP) (discounted).
 - In terms of employment impacts, an annual average of 12,700 full time equivalent (FTE) positions in NSW and 17,300 FTE positions nationally could be foregone.

- Any delay in acting would have adverse economic impacts for NSW and Australia.
- By 2035, the economy-wide impacts could accumulate to as much as \$2.3 billion in foregone NSW GSP and \$6.0 billion in foregone GDP for the Australian economy. In terms of expenditure within the economy, over the period to 2035 foregone expenditure could total \$2.6 billion for NSW and \$8.9 billion for Australia.
 - Over the period to 2035, 400 FTE jobs per year could be foregone in NSW and 600 FTE jobs per year nationally. This means that employment is expected to be lower than would otherwise be the case if capacity were made available.
- In the short term, other cities could gain a boost to passenger numbers and consequent economic activity from services, passengers and freight operators that cannot access Sydney. However, given a portion of unmet Sydney region demand would be diverted overseas instead of interstate, and some travel will be suppressed, overall, Australia would experience a net economic loss.
- These estimates are considered conservative, given the use of medium scenarios for redistribution and suppression of unmet demand. In addition, a wide range of impacts associated with aviation infrastructure is difficult to monetise due to the role of aviation as a facilitator for trade and economic activity.
- Delay brings the risk that the remaining options to add aviation capacity will disappear, as Sydney's spatial growth and associated land use development encroach on the few potential sites remaining.
 - Delay in action would constrain the ability of governments to provide additional airport capacity in the future.

Part Six – Options to better utilise Sydney (Kingsford Smith) Airport to gain capacity to meet forecast demand

- SACL, Airservices Australia and airline operators are continuing to work on ways to improve efficiencies in operations at the airport. Efficiencies available include airside infrastructure works to add new gates, terminals, taxiway and apron capacity, improved Air Traffic Management procedures, better coordination of arrivals and departures traffic and improved airport ground movements coordination.
 - These are important to help manage congestion and contain delays to some extent but will not address the capacity shortfall in the medium and longer term. This includes the proposed new infrastructure concept outlined by SACL in December 2011.
- There is no real option to increase the capacity of Sydney (Kingsford-Smith) Airport significantly, as:
 - There is no scope to build new runways or to substantially reconfigure or upgrade runways in the existing airport footprint.
 - Options to expand the airport into surrounding suburbs would be prohibitively expensive and would not add any significant new capacity to the airport.
- Options have been raised in the past for an additional runway or new airport at Kurnell, but this would have major environmental impacts and would be prohibitively expensive.
 - Furthermore, airspace interactions with Sydney (Kingsford-Smith) Airport would reduce the level of additional capacity attained.
- Options for changing the legislated operational requirements at Sydney (Kingsford-Smith) Airport could provide some additional capacity but would not meet the medium- to long-term capacity gap, particularly in the peak periods.

- Increasing the movement cap and slot allocations to allow 85 movements per hour in the weekday morning and evening peaks (a one per cent increase in total slots per day) would postpone the impacts of capacity pressures by only one year; however this would be targeted to provide additional capacity at times with the greatest constraint (that is, six per cent increase in total peak slots).
 - Increasing the movement cap to 85 movements per hour for all non-curfew hours would provide a six per cent increase in total slots available to be allocated. This would be expected to result in approximately a three-year postponement of the impacts.
- Increasing the permitted movements during the curfew shoulder periods would have minimal impact on capacity pressures.
 - Allowing movements in the morning shoulder period (5.00am to 6.00am) to the maximum limit permitted under the curfew legislation would only add 0.1 per cent in available slots, although it would assist in clearing the morning international peak arrivals.
 - Allowing movements in the evening shoulder period would have even less impact on the capacity gap, as there are less slots available under the *Sydney Airport Curfew Act 1995* as compared to the morning shoulder.
- Limiting access to Sydney (Kingsford-Smith) Airport by smaller aircraft would potentially open up a small amount of additional capacity for international and domestic services using larger aircraft.
 - A large proportion of regional services are operated with small aircraft. NSW intrastate aircraft movements comprise approximately 20 per cent of all slot allocations and RPT activity at the airport yet only carry about six per cent of total airport passengers. While the current arrangements support access by regional passengers to Sydney and connecting services, they do not promote efficient economic use of the airport's constrained capacity.
 - Achieving a 30 per cent reduction in the number of movements by aircraft up to 40 seats could free up to two per cent of total airport slots depending on the level of services merged or withdrawn, providing for growth of larger aircraft movements for approximately one year.
- A reduction in the protection of access to Sydney (Kingsford-Smith) Airport by intrastate services would raise broader issues for government consideration, including the impacts on:
 - regional centres which rely on convenient aviation links to the state capital for a range of social and economic activity;
 - viability of regional aviation operators; and
 - regional passengers, a high proportion of whom transfer onto domestic and international flights at Sydney (Kingsford-Smith) Airport.
- There is a need to address the growth of congestion in the road network serving Sydney (Kingsford-Smith) Airport.
 - A key element is to increase the use of public transport – in particular, the train services operating to stations at the Domestic and International Terminals but also bus services.
 - Investment in upgrading roads and intersections around the airport will also be essential.

Part Seven – Options to better utilise other existing infrastructure to gain capacity to meet forecast demand

- Bankstown Airport could be upgraded and made available to accommodate a limited level of operations by turboprop Regular Public Transport (RPT) aircraft.
 - A proposal by the airport operator for a 220 metre extension of the main runway would enable up to Code 3C aircraft to operate at the airport.
 - Airservices Australia advises that the operation of RPT jet aircraft at Bankstown would conflict with operations at Sydney (Kingsford-Smith) Airport in some conditions.
- Bankstown is Sydney's major GA airport, with a large volume of Visual Flight Rules (VFR) flights, including a high proportion of training flights. The operation of Instrument Flight Rules aircraft at levels of more than 10 to 12 per hour would create significant disruption and risks to VFR activity.
 - If a significant level of RPT services – above about 10 per hour – were to commence at Bankstown, provision would need to be made to relocate GA activity to other airports.
- The commencement of any significant level of RPT activity at Bankstown and any extension of the runway would require regulatory approvals, with public consultation and assessment of the environmental impacts.
 - Given the location of Bankstown Airport in a heavily urbanised area, aircraft noise and impacts on road congestion are likely to be significant issues of local concern.
- Utilisation of Bankstown Airport for RPT services would require upgrades of airport and road access infrastructure to the airport. Any upgrades should also consider linkages with Sydney (Kingsford-Smith) Airport and be consistent with NSW Government transport plans.
- RAAF Base Richmond is presently capable of accommodating jet RPT services but would require a significant upgrade of airport infrastructure to accommodate civil traffic.
 - The RAAF supports opening up the Richmond base to civil access, as it is compatible with its plans for a reduced presence and would extend the life of the RAAF Base at the location.
- Based on preliminary cost estimates, an initial investment of around \$150 million would provide a functional joint civil/RAAF facility able to handle around one million passengers per year.
 - An investment of \$500 million would extend the capacity to an estimated five million passengers per year.
- RAAF Base Richmond has significant operational limitations, including:
 - the prevalence of fog at certain times of the year and the proximity to the Blue Mountains;
 - operations on the east-west runway would have some impact on flight paths to Sydney (Kingsford-Smith) Airport.
- In addition, the communities of Richmond and Windsor, which are located close to the ends of the current east-west runway, would experience a level of additional aircraft noise from civil operations.

- Better noise outcomes and additional capacity could be achieved if additional land was acquired and a new runway was constructed on a north-south alignment. This would provide a major airport able to service all market segments. However, it could cost around \$4.0 billion for a single 2,600 metre runway with a terminal suitable for up to 20 million passengers per year, or around \$10.0 billion for a single 4,000 metre runway and terminal facilities suitable for 30 million passengers per year.
- RAAF Base Richmond will remain a constrained site and it would be challenging to develop it into a parallel runway airport. However, providing civilian access to the site based on use of the existing runway would serve the growth of North West Sydney and Western Sydney.
- Canberra and Newcastle (Williamstown) airports are important airports serving RPT markets to the south and north of Sydney. Neither is located close enough to the population of Sydney to take the role of Sydney's second RPT airport, but both will provide additional options for a small proportion of passengers who are prepared to travel the extra distance.
- Canberra Airport is the only curfew-free airport within reach of Sydney and provides the potential for night-time services which cannot be accommodated at Sydney (Kingsford-Smith) Airport, including overnight freight services, and possibly some international Low Cost Carrier (LCC) services. It is important that Canberra's 24-hour unrestricted curfew-free status be protected.
- Newcastle Airport serves the growing population in the Hunter Valley region and parts of the Central Coast. The civil operations are conducted under an agreement with the RAAF. However, because of RAAF requirements, the scope for continued growth of civil services is unclear.
- Other aerodromes in the region may also want to attract some RPT (such as Illawarra Regional Airport). However, even if a combination of the options considered for maximising the use of existing airports is implemented, they do not provide sufficient additional capacity to meet the long-term demand for aviation services in the Sydney region.

Part Eight – Options to develop new infrastructure to gain capacity to meet forecast demand

- Initially, all parts of the Sydney region were considered to find a site suitable for either:
 - a 'Type 1' airport – a full service airport serving all market segments capable of handling a future parallel runway layout; or
 - a 'Type 3' airport – a single runway airport serving all market segments.
- Eighteen localities were identified for further assessment, from which five were shortlisted. A small number of specific sites were identified within these five localities as offering the best potential for a new airport.
- Key issues in the shortlisting and site assessment included proximity to demand (within 90 minutes travel time of Sydney's population centre); site suitability; aviation development capacity; airspace conflicts with existing airports and flight paths; environment impacts; and proximity to growth centres.
- The sites listed below are assessed as the more suitable sites in each locality.

Table 63 Sites identified as more suitable (on technical analysis), by locality

	Localities				
	Central Coast	Hawkesbury	Nepean	Burratorang	Cordeaux-Cataract
More suitable Type 3 Airport(s) sites	Wallarah	Wilberforce	Badgerys Creek Luddenham Bringelly Greendale	Silverdale Mowbray Park	Wilton Wallandoola
More suitable Type 1 Airport(s) sites	Wallarah	Wilberforce	Badgerys Creek Luddenham Bringelly Greendale	Mowbray Park	Wilton

Source: Australian Department of Infrastructure and Transport.

- A quantitative assessment was made against the criteria that could be monetised, to arrive at Relative Cost Benefit Ratios for these sites. An additional qualitative analysis was made of the sites against the criteria that cannot be monetised.
- The sites in the Nepean locality were assessed as clearly superior against most criteria compared with the sites in any other locality. The key advantage of these sites is their relative proximity to the sources of potential demand and the associated benefits that would accrue to airport users. Site development costs were also estimated to be relatively lower than for compared with most of the sites in other localities.
- The next best ranking site in the quantitative assessment was Wilberforce in the Hawkesbury locality. Its main advantage was also proximity to potential demand including nearby commercial growth opportunities. Its main disadvantages were noise impacts on communities and sensitive uses as well as the potential social impacts of land acquisition. Furthermore, a Type 3 site located at Wilberforce would require its runway alignment to be parallel or near parallel to RAAF Base Richmond with coordinated control between the two airports in order to operate both facilities. A Type 1 airport located at Wilberforce is likely to require closure of RAAF Base Richmond or relocation of RAAF activities to the Wilberforce site.
- Following the four Nepean sites and Wilberforce, the next best ranking site in the quantitative analysis was Somersby in the Central Coast, which had relatively high development costs but also reasonable levels of economic benefits. It also received a relatively mid-range ranking against the qualitative criteria. However, Somersby would be constrained in operational capacity terms due to airspace interaction with Sydney (Kingsford-Smith) Airport.
- Wilton in the Cordeaux-Cataract locality rates just behind the Nepean and Hawkesbury sites and level with Somersby on BCR (although with a slightly lower NPV) in the quantitative assessment for a Type 1 airport. It has the best ranking in terms of noise impacts on existing communities. Its capacity would not be constrained through airspace interaction with Sydney (Kingsford-Smith) Airport.
 - Wilton is located further from the potential market under existing planning instruments but would be well located if Sydney's longer-term growth is to the south-west.
- Mowbray Park in the Burratorang locality rated mid-range in the quantitative analysis and had mixed ratings on the qualitative analysis. It has a relatively lower noise impact on local communities compared to most other sites but is not well located in terms of potential demand.
- The Relative Cost Benefit Ratios were higher for Type 1 airport developments than for Type 3 developments, reflecting the high economic value that a major airport would provide in the long term.

- Sites that enable initial development as a Type 3 airport with the capacity to be extended to a full Type 1 airport in the future would best allow for the medium- and long-term growth in the Sydney market.
- Given the analysis of capacity pressures on Sydney (Kingsford-Smith) Airport, the supplementary airport would need to be available for initial use between 2025 and 2030.
- To finalise a decision on the best location for a supplementary airport, additional work will be required on detailed site studies and environmental assessment.
- Indicative costs of land acquisition for the shortlisted sites range from \$40,000 to \$70,000 per hectare for sites in the Central Coast, Nepean and Cordeaux-Cataract localities; to \$140,000 to \$215,000 per hectare for sites in the Hawkesbury and Burratorang localities. Including an allowance for risk and contingency suggests costs per site between \$30 million and \$600 million, dependent on airport type and location.
- Based on high-level, strategic cost estimates, indicative generic construction costs of airport infrastructure would be in the order of \$1.7 billion for a limited service Type 3 airport and \$5.3 billion for a maximum Type 1 airport with parallel runways.
- A large additional cost in most locations would be the earthworks costs to prepare sites for airport infrastructure owing to the undulating nature of the land. For example, land preparation costs for the development at a location such as Wilton could range from \$350 million for a Type 3 airport development to \$810 million for the ultimate Type 1 airport site preparation. For the range of shortlisted localities and airport types, and factoring in an allowance for risk and contingency, indicative earth-works costs are between \$140 million and \$1.2 billion.
- Supporting infrastructure such as road, rail and utilities costs would be additional to the above high-level costs. These could comprise significant cost elements of up to \$950 million for a Type 3 airport and up to \$3.6 billion for a Type 1 airport (assuming inclusion of a rail connection and incorporating an allowance for risk and contingency) in a suitable site.
- Totalling these key cost elements, the capital investment to develop an airport and supporting infrastructure could total between \$7 billion and \$11 billion for a Type 1 airport and between \$2 billion and \$4 billion for a Type 3 airport.

Part Nine – Future use of the Commonwealth-owned Badgerys Creek site

- The Steering Committee's assessment is that the Badgerys Creek site, acquired by the Commonwealth for an airport, remains the best site for the development of a supplementary airport within the Sydney basin.
 - There is a strong ratio of benefits to costs, and land acquisition and planning controls have already occurred.
 - The site's location adjacent to the residential growth areas of South West Sydney, and to the key transport corridors of the M7 motorway and the future Outer Sydney Orbital corridor, as well as its proximity to the Western Sydney Employment Area (WSEA), means it remains the location best placed to meet Sydney's spatial demand growth for aviation services at a relatively unconstrained site.
 - The Committee notes the site will be some 10 kilometres from the Leppington terminus for the South West Rail Link now being constructed. The site would provide the economic development node and accelerated employment attraction which South West Sydney requires and which, on current planning, will not be provided in the region.
- The site is not currently zoned for urban development and not part of any planned land release strategy of the NSW Government and is not considered by NSW agencies as being

required to meet current planned land supply requirements for residential and employment lands for the next 25 years.

- The Steering Committee notes the views expressed by governments that the site is no longer viable for an airport development. Should governments re-affirm that policy position, then the Committee finds the Australian and NSW governments should now settle an agreement for the land to be part of an orderly land release in the medium term as part of the South West Growth Centre development.
- The single ownership and title to the site means it has significant potential for future development as an economic employment zone. The site has the potential to be brought to the market and significantly increase the supply of employment lands, affordable housing and community amenity facilities in the locality. The strategic planning of the site for future land release will provide an important capacity to control the release of future residential land and employment land into the Sydney market to meet employment and residential growth requirements.

The release of the total available Commonwealth-owned Badgerys Creek site into the market in the short term, such as within the next 10 years, would be expected to have an adverse impact on the current NSW Government land supply and infrastructure investment strategy.

- The urban development of the site will require considerable investment in transport access, both road and public transport, and investment in utilities, including significant extensions for services such as water and sewerage. Timing and cost of the provision of this infrastructure will determine the ability to bring the site into the market within the short to medium term.
- The site could be retained and 'land banked' by the Australian Government to optimise its potential and impact on meeting Sydney's land release needs in the future.
- The Steering Committee considers the best primary use of the site, based on current NSW planning for the South West Growth Centre, would be for economic employment activities, with a majority (for example at least 60 per cent) of the available site being planned for manufacturing and distribution/logistics-based employment uses and non-residential land use (including town centre/retail).
- If the site is not to be used for an airport, planning controls which were implemented on surrounding lands to address the potential impact of aircraft noise could be removed.

Freight and General Aviation

- While the majority of air freight is carried in the cargo hold of RPT aircraft, the number of movements by dedicated freighter aircraft is growing. Because numbers are relatively low and freight operations can usually be scheduled outside of the RPT peak periods, the expected level of demand for dedicated freight aircraft at Sydney (Kingsford-Smith) Airport can be accommodated in the short to medium term. There will be growing pressure in the longer term as slots become less available and there is growing demand to use the limited available space for gates, apron and handling facilities for passenger operations.
- The curfew means that Sydney (Kingsford-Smith) Airport cannot provide for overnight freight hub activities.
- It will be important to preserve adequate airport capacity for GA activities in the region, including flight training, business aviation, charter, aerial work, emergency services and recreational flying.
- Bankstown Airport and Camden aerodrome can continue to be the main GA airport for the next 20 years, if the progressive introduction of RPT services at Bankstown does not exceed a level compatible with the GA operations.

- Over the medium term, Bankstown Airport is likely to become increasingly focused on smaller RPT and IFR business traffic which will increasingly require GA flying training and recreational operations to operate to other airports in the region.
- The preferred sites for development of supplementary airport capacity raise potential airspace conflicts for operations at some existing GA aerodromes, which could put further pressure on GA capacity in the future.
- The future operation of GA airports in Sydney and outside Sydney but within reach, including Wollongong, Cessnock, Maitland and Goulburn, should be protected.
- Should RAAF Base Richmond no longer be required for RAAF purposes at some time in the future, consideration should be given to retaining the aviation infrastructure for civil use, including GA.