

FORECASTS

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4.1 Introduction

Adelaide Airport is the major gateway for South Australia's aviation market. This aviation market comprises three key sectors:

- domestic aviation;
- regional aviation; and
- International aviation.

Domestic and regional aviation comprises the largest component (91%) of passenger traffic generated at Adelaide Airport. Six key destinations amount for over 93% of all domestic passenger journeys and aircraft movements. The destinations are: Melbourne, Sydney, Brisbane, Perth, Gold Coast and Canberra. In 2013, approximately 6.1 million passengers travelled on interstate flights from Adelaide.

In the past, Adelaide served as a 'point-to-point' role between the six key domestic cities and fed passenger traffic into Sydney and Melbourne Airports so that they could transfer onto other flights with destinations not served directly from Adelaide. However, in recent years this has changed markedly with successful marketing, and international carriers commencing or increasing the frequency of direct international flights to a range of Asian and Middle Eastern destinations.

Adelaide Airport has experienced a steady increase in growth and is currently ranked first of all Australian capital city international airports in terms of overall passenger movement growth trends. In 2013, some 807,000 international passengers departed or arrived from Adelaide Airport; a 21% increase on the previous year.

While this growth is not expected to be maintained at the same rate in both capacity and flight frequencies for future years, it will continue to address the latent demand for direct international flights.

The main carriers responsible for the growth in Adelaide are:

- Emirates Airlines, which provides direct flights to Dubai;
- Singapore Airlines, which has increased flights to Singapore;
- Virgin Australia, which has increased flights to Singapore, Auckland and Bali;
- Jetstar which commenced regular services to New Zealand and Bali; and
- AirAsiaX which commenced regular services to Malaysia.

International flights have increased substantially since the last Adelaide Airport Master Plan was approved in 2009. In 2008/2009, there were 3,100 international flights carrying some 542,000 passengers. In 2012/2013, this increased to 4,000 flights carrying some 736,000 international passengers. This represents a 29% increase in flights and a 36% increase in international passengers.

In addition to the 4,000 international movements, Adelaide Airport had 47,000 domestic movements in 2013, 26,000 regional movements and 24,000 general aviation movements. Helicopters also operate out of Adelaide Airport and in 2013 there were 2,879 helicopter movements.

4.2 Historical Data

An assessment of historical data for passenger and aircraft movements for Adelaide Airport has been compiled based on a number of sources.

For international, domestic and regional data, the Bureau of Infrastructure, Transport and Regional Economics (BITRE) compiles aviation statistics. Direct AAL research and records and information supplied by Airservices Australia were also sourced for such movement data.

Table 4.1 provides aircraft movements supplied by Airservices Australia recorded for the previous eleven years.

Table 4.2 provides international, domestic and regional commuter passenger movements recorded for the previous eleven years.

Table 4.1 Historical Aircraft Movements 2003-2013 (000s)

Movements (000s)	Calendar year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
International	1.7	1.9	2.2	2.7	2.9	3.2	3.5	3.3	3.5	4.0	4.6
Domestic	35.5	37.6	41.2	42.4	43.6	47.5	47.1	48.6	46.0	46.6	47.8
Regional	29.2	27.7	27.2	25.3	28.6	24.6	24.3	25.3	25.1	26.2	24.6
General Aviation	27.7	28.9	28.4	28.9	29.5	26.3	22.6	22.2	24.7	23.6	23.1
Total	94.1	96.1	99.0	99.3	104.5	101.6	97.4	99.4	99.3	100.4	100.1

Table 4.2 Historical Passenger Movements 2003-2013 (000s)

Passengers	Calendar year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
International AD*	233	302	345	409	470	492	516	541	595	675	807
DOC**	35	32	37	25	16	17	14	7	5	16	5
Transit	36	26	25	38	47	57	52	41	34	32	41
Domestic	4,062	4,470	4,852	5,155	5,457	5,790	5,903	6,254	5,931	5,921	6,118
Regional	319	369	379	452	508	564	501	564	590	620	584
Total (excluding Transit)	4,648	5,174	5,614	6,042	6,452	6,863	6,934	7,366	7,120	7,232	7,514

Notes:

* Arriving and Departing Passengers included

** Domestic-On-Carriage

Figure 4.1 plots the growth trend for International passengers since 1991, and shows the impacts of various global and regional issues influencing passenger growth. This figure shows the 12-month moving sum of international passenger movements at Adelaide Airport over the period from 1990/91 and into 2013/14. The decline over 2002 and into 2003 is explained by a series of events including the September 11, 2001 terrorist attacks in the USA, the collapse of Ansett in Australia, the Bali bombings and the SARS outbreak.

From 2004 onwards Adelaide has experienced strong international growth. This coincides with the strong Australian dollar and strong growth in Australian outbound travel, and has resulted in the increase in Australian resident share of international passengers. In turn, this growth in resident travel has attracted additional airline capacity. Announcements have included the entry of Emirates and increased capacity by Singapore Airlines.

Figure 4.2 plots the growth trend for Domestic passengers since 1991, and shows the impacts of various global and regional issues influencing passenger growth.

This figure shows the 12-month moving sum of domestic and regional passenger movements over the period June 1991 to January 2014. The significant domestic events are also shown. The decline in traffic over 2002 was due to the Ansett collapse. Growth since that time has been strong with the entry of Jetstar and Tiger Airways into the Adelaide domestic market. The most recent decline is due to the cessation of flights by Tiger Airways over the period from July 2011 through to November 2012.

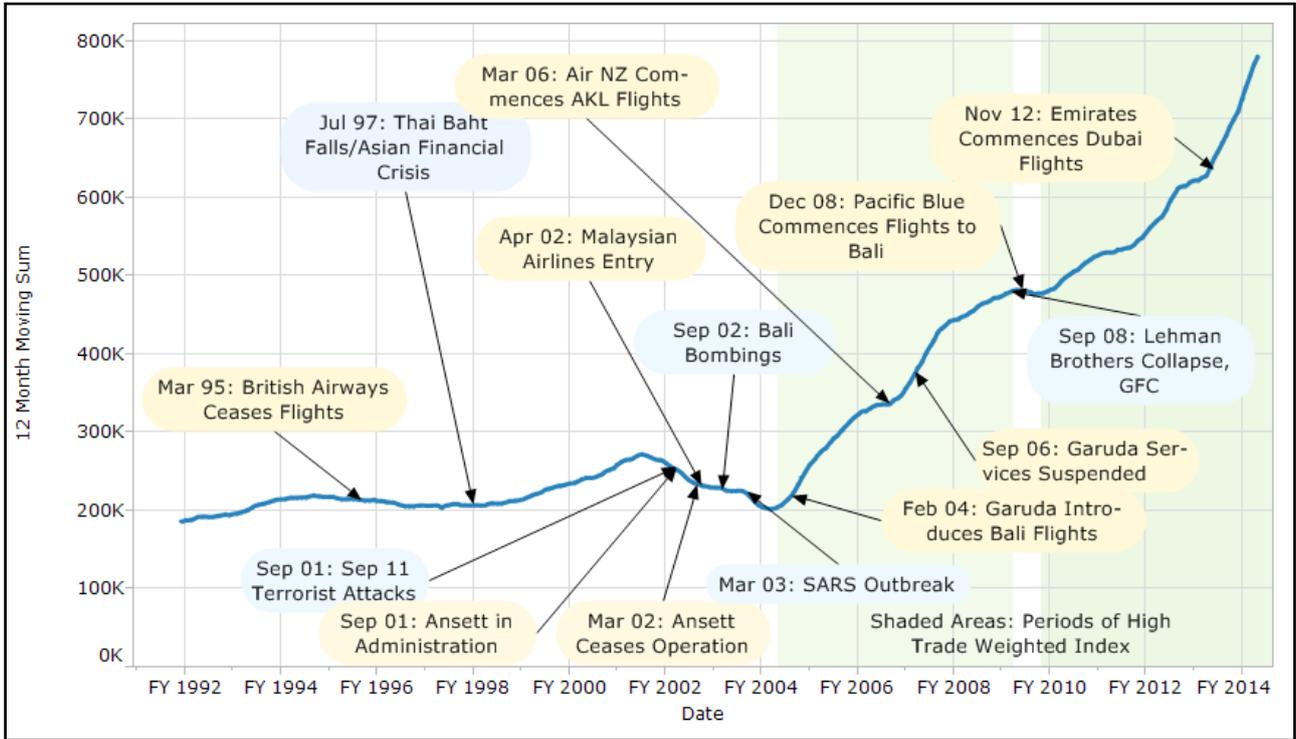
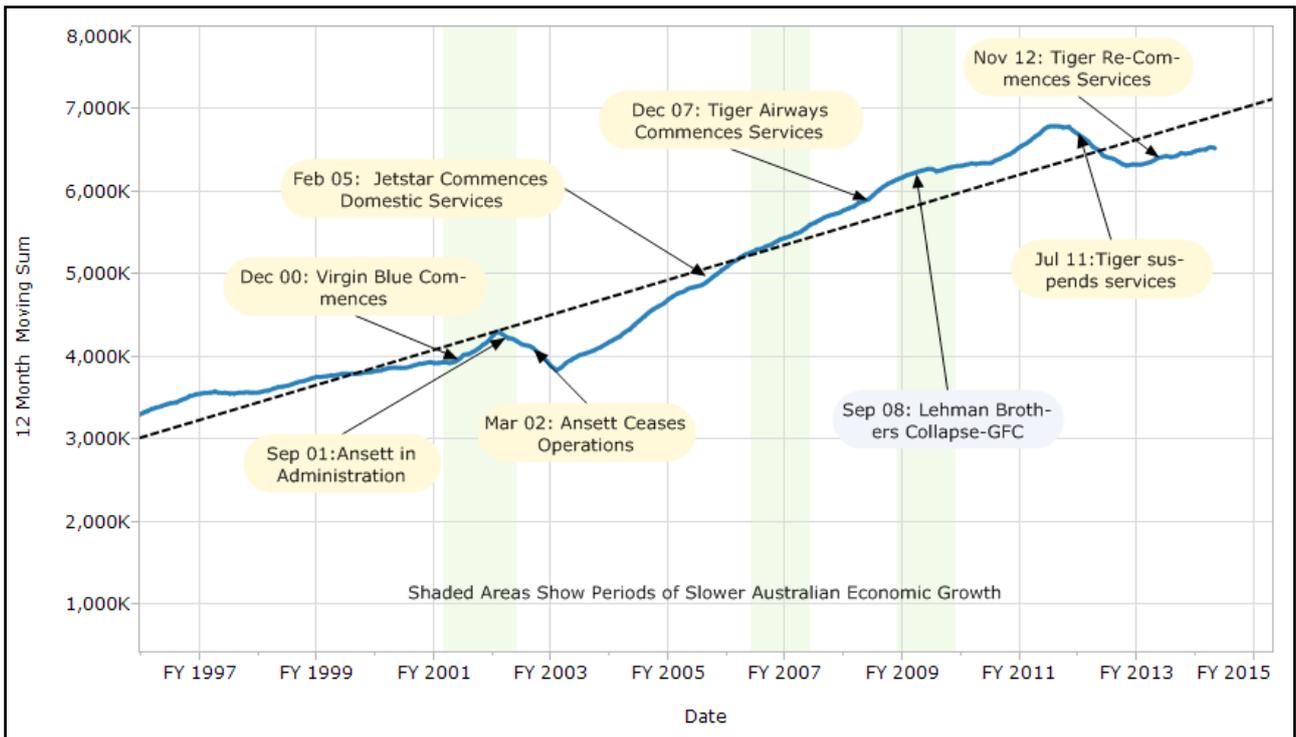


Figure 4.1 Growth trend for International passengers since 1991



46 Figure 4.2 Growth trend for Domestic passengers since 1991

4.3 Passenger and Aircraft Movement Forecasts

In 2014, Tourism Futures International (TFI) in conjunction with Airbiz was commissioned to prepare long-term passenger and aircraft movement forecasts for Adelaide Airport.

TFI provided forecasts for both passengers and fixed-wing aircraft movements over the forecast period of 20 years to 2034. The forecasts are formulated from a review of past data, economic predictors and a starting point of the latest available data.

4.3.1 Forecasting Methods

A large number of factors influence the growth of passenger movements at an airport. These include:

- the incomes of travellers or potential travellers – both the level of income and confidence that these levels will be maintained and grow, are important;
- the prices of air transport and the ground component of travel;
- the competitiveness (quality, product attributes and price) of a destination compared to alternative destinations;
- the supply of airline services – frequency, reliability and quality of service;
- tourism promotion by Governments, airlines and industry bodies;
- consumer tastes and available time for travel; and
- one-off factors and shocks - these include the travel impacts of events such as the Olympics, September 11, the collapse of an airline such as Ansett and health concerns such as those generated by the SARS virus.

Whilst all types of factors have an influence on demand, only some can be measured and factored into the type of modelling generally undertaken in forecasting.

Key drivers for international traffic include international economic and population growth, exchange rate movements, movements in travel costs and airline capacity developments.

For the domestic market, drivers include Australian and South Australian economic and population growth, mining developments (for regional traffic), movements in domestic travel costs and airline capacity developments.

The approach adopted by TFI in preparing the Adelaide Airport forecasts was based on a number of elements:

- segmentation of Adelaide's international and domestic markets to assess the significance of traffic drivers;
- a review of the traffic history available for Adelaide Airport and an assessment of statistical trends;
- a review and analysis of the general aviation and business environment and current airline schedules. This assists in the development of capacity assumptions and identification of qualitative factors that might influence traffic outcomes;
- the development and updating of models linking drivers and traffic;
 - macro models linking drivers and traffic are developed at the aggregate airport level;
 - micro models have been developed by TFI based on extensive statistical analysis and published studies and based on a market and/or market group analysis;
 - final model outcomes are based on an iterative process between the modelling approaches listed above and are constantly being tested and updated; and
- a review of 'official' tourism forecasts in Australia and elsewhere.

Veracity of Forecasts

To establish the veracity of the forecasts used in this document, a number of assumptions are adjusted either up or down to determine their impact.

The main assumptions that are varied are those related to estimates of Gross Domestic Product (GDP). The assumed GDP estimates for Australia and the Gross State Product (GSP) estimates are provided in Table 4.3.

The assumptions are then varied as follows:

- 1) an increase of one percentage point on GDP growth to 2015/16 and one-half of a percentage point on GDP growth per year from 2016/17 onwards, in conjunction with modest fare reductions of one-half a percentage point per year, throughout the forecast period; and
- 2) a decrease of one percentage point on GDP growth to 2018/19 and a decrease of one-quarter of a percentage point from 2019/20 onwards, in conjunction with fare increases of one-half a percentage point per year, throughout the forecast period.

These assumptions were used to confirm the veracity of the adopted forecasts.

Table 4.3 Economic Driver Assumptions to 2034

	Financial Year							
	2012/13 (est.)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/34
	Percent Change on Previous Year							
Australia	2.7%	2.5%	3.0%	3.1%	3.1%	3.1%	2.9%	2.7%
SA Gross State Product (GSP)	1.3%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	2.0%

Movement Forecasts

Based on the economic driver assumptions in Table 4.3 for passenger growth, modelling was undertaken to estimate the average number of passengers per movement in the forecast period. This was based on developments with respect to passenger seat factors and the average number of seats per movement. Table 4.4 summarises the assumptions for the average number of passengers per movement. These average number of seats per movement have been used to forecast calendar year aircraft movement numbers and aircraft noise metrics.

Table 4.4 Average Number of Passengers per Movement, Actuals for Financial Years 2006/07 and 2011/12, and Forecasts to 2032/33

Segment	Year				
	2006/07	2011/12	2017/18	2022/23	2032/ 2033
International	192	191	206	212	216 - 220
Domestic	125	125	133	139	148 - 155
Regional	16	24	26	27	31

4.3.2 Data Sources

International Passenger and Movement Data

A number of sources exist for international data. AAL data is used as the base information for the forecasts of international passenger movements presented in this document.

Three other data sources have been consulted. The first is the Australian Bureau of Statistics (ABS) collection on overseas arrivals and departures. This information is available by purpose of travel for each Australian gateway. ABS data was used to examine markets for visitor arrivals and destinations for Australian residents travelling overseas.

A second source of data used in international forecasting is the BITRE data issued in the publication *International Scheduled Air Transport*. This publication is based on data provided by international airlines. Data published includes aggregate airport passenger movements and city pair information.

A third source is the *International Visitor Survey (IVS)* compiled by Tourism Research Australia (TRA). This is a survey of international visitors to Australia and is used to identify characteristics of the markets visiting including those that visit Adelaide by port of arrival and departure.

Domestic and Regional Passenger and Movement Data

Domestic data (for passengers, aircraft movements and freight) is regularly published for the top routes in the BITRE publication *Australian Domestic Airline Activity*. This data is published as traffic on-board by stages and includes all traffic on each flight stage between two directly connected airports; and thus includes domestic transit passengers.

Data was collected from the BITRE publication *Air Transport Statistics: Airport Traffic Data* that contains a time series of annual airport traffic data for Australian airports receiving more than 7,000 revenue passenger movements annually. This includes international, domestic and regional airline data.

Another source is the *National Visitor Survey (NVS)* compiled by TRA. This is a survey of Australians travelling within Australia and to overseas destinations. It details the demographic and other characteristics of Australian travellers.

4.3.3 Risks and Uncertainty in Forecasting

The following assumptions are key to the achievement of forecasts for Adelaide Airport:

- It is assumed that the global economies will recover from current uncertainties and that the European crisis will be contained.
- Aviation industry supply side issues such as air services, pilots and airport capacity will not impede growth, i.e. airline capacity will grow in line with demand in the longer term.
- The trend for low cost carriers to increase market penetration resulted in downwards pressure on fares and stimulation of leisure traffic over recent years, however these impacts may moderate over the next few years; in the longer term TFI considers it likely that Governments' policy responses to Global Warming will lead to an increase in fares (in inflation-adjusted terms).
- Mining growth will continue in South Australia, supported by continued demand from China.

There are a number sources of forecasting uncertainty, including:

- considerable uncertainty at this time as to the direction of some of the major drivers such as economic growth; and
- many unpredictable factors that can influence outcomes; these factors can lower average growth rates in the short-to-medium-term.

The impact of unexpected shocks (such as the Bali bombings) is to reduce travel, often significantly, for varying time periods. Recovery generally follows, although lost patronage is seldom fully restored in the short-term.

It is also assumed that the numbers of movements of helicopters will increase at approximately 1% per annum in the forecast 20-year period.

4.3.4 The Forecasts

International

The approach to forecasting international passengers is to link the main economic and aviation drivers to traffic via elasticities derived from an analysis of Adelaide traffic behaviour and a review of many Australian and overseas studies.

Relationships were developed for each of the main international markets and included in the forecasting models. Model drivers include country GDP, exchange rates and movements in airfares.

Aggregated models were also developed linking international visitors to OECD GDP and the Australian Trade Weighted Index (TWI). The volume of overseas travel via Adelaide by Australian residents is linked to Australian GDP and the TWI.

In the short-term (12 months to 2 years), airline capacity factors often dominate other factors. TFI has examined airline capacity announcements and made judgements about likely capacity increases.

Adelaide’s airline developments and history were also reviewed for the trend growth for the international markets visiting Adelaide. Based on these reviews the trend growth rate for international passengers at Adelaide Airport is assessed at around 5.0% to 6.0% per annum.

The forecasts for 2013 and beyond have been constructed based on the analyses and assumptions outlined earlier, including:

- GDP growth rates as per Table 4.3;
- the annual projections of exchange rates underlying TFI’s forecasts assume the TWI trends towards 66 by 2017/18 – a weighted average of the longer- and shorter-term trends; and
- fare decreases are assumed for 2013/14 and 2014/15 following from increases in capacity announced or introduced in the past year. From 2015/16 it has been assumed that airfares will increase in real terms by 0.5% per annum.

International arriving/departing passenger movements are forecast to grow from 807,000 in 2013 to 1.4 million passengers in 2019. This represents a Compound Annual Growth Rate (CAGR) of 6% over the period from 2013 to 2019.

Forecast International Passenger Movements from 2014 to 2034 are depicted in Figure 4.3 below.

Forecasts of International Passenger Movements are derived from the numbers of forecast passengers divided by the average forecast passengers per movement depicted in Table 4.4. The numbers of proposed movements associated with predictions of international passengers are depicted in Table 4.5.

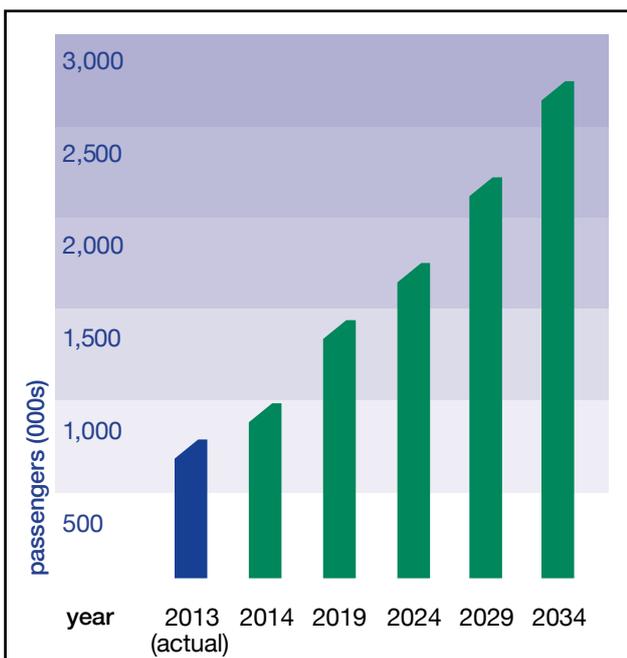


Figure 4.3 Forecast International Passenger Movements 2014 to 2034

Table 4.5 Forecast International Movements

Calendar year	International Movements (000s)
2013 (Actual)	4.68
2014	5.06
2019	6.51
2024	8.24
2029	10.34
2034	12.77

Domestic and Regional Forecasts

The key drivers for domestic growth at Adelaide Airport are the economic factors (Australian GDP and South Australian GSP) and airline servicing factors. These factors were

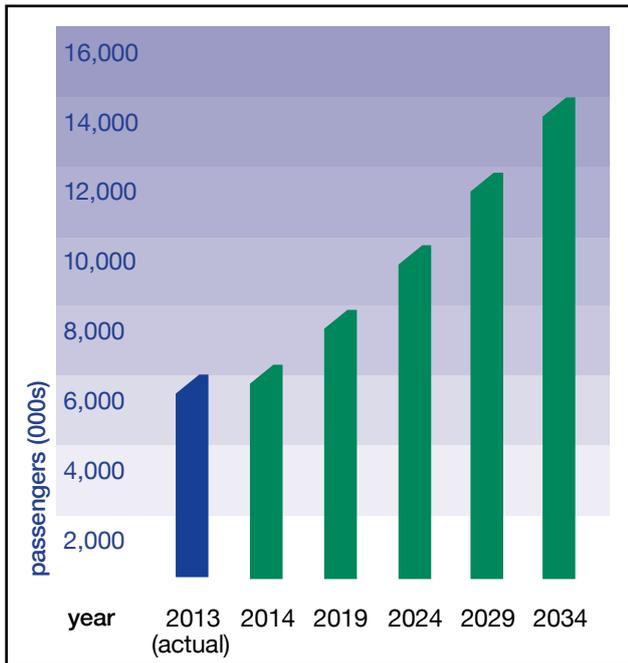


Figure 4.4 Forecast Domestic Passenger Movements 2014 to 2034

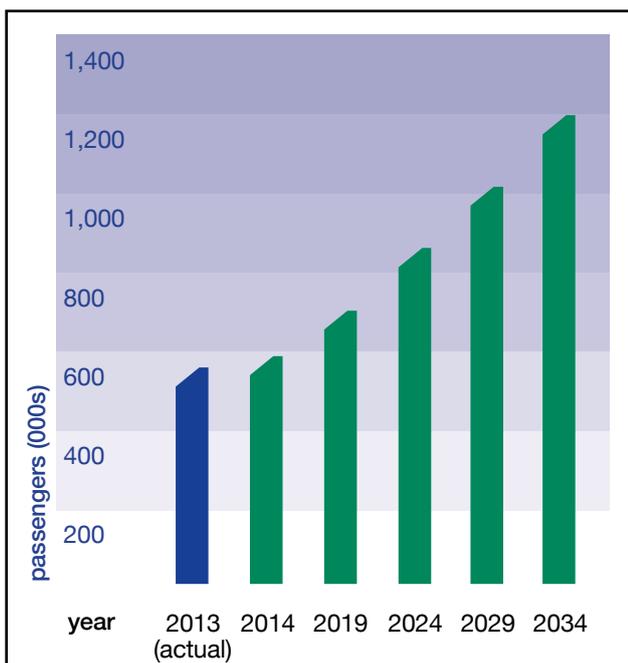


Figure 4.5 Forecast Regional Passenger Movements 2014 to 2034

addressed and relationships were developed for each of the main domestic routes and included in the forecasting models. Aggregated models were also developed linking domestic passengers to Australian GDP.

Adelaide’s domestic and regional airline developments and history were reviewed, including the trend growth for the main domestic routes for Adelaide. Based on these reviews, it was assessed that the trend growth rate for domestic passengers at Adelaide Airport is around 4.5% to 5.3% per annum.

The forecasts for 2014 and beyond have been constructed based on the analyses and assumptions outlined earlier in this report:

- GDP and SA GSP grow as per Table 4.3; and
- fares fall in financial years 2013/14 and 2014/15 resulting from the re-entry of Tiger Airways and the introduction of new aircraft to airline fleets. From financial year 2015/16 it has been assumed that airfares will increase in real terms by 0.5% per annum.

Domestic arriving/departing passenger movements (see Figure 4.4) are expected to increase from 6.1 million in 2013 to 7.8 million in 2019; a CAGR of 3.5% over the period, whilst regional airline passenger movements (see Figure 4.5) are expected to grow from 584,000 in 2013 to 718,000 by 2019; a CAGR of 3.6%.

Table 4.6 Forecast Domestic and Regional Movements 2014 to 2034

Calendar year	Domestic and Regional Movements (000s)
2013	72.45
2014	72.20
2019	84.59
2024	98.99
2029	113.51
2034	130.78

Forecasts of domestic and regional movements are derived from the numbers of forecast passengers divided by the average forecast passengers per movement depicted in Table 4.4. The numbers of proposed movements associated with predictions of domestic passengers are depicted in Table 4.6 and for general aviation movements in Table 4.7.

Table 4.7 Forecast General Aviation Movements 2014 to 2034

Calendar year	General Aviation Movements (000s)
2013	23.09
2014	23.33
2019	25.60
2024	27.29
2029	28.29
2034	29.08

4.4 Summary Of Forecasts

A summary of the forecasts for Adelaide Airport is presented below.

International

The numbers of international arriving/departing passenger movements are forecast to grow from approximately 807,000 in 2013 to 2.81 million in 2034. This represents an average growth of 5.5% per annum over the next 20 years.

Domestic

Domestic arriving/departing passenger movements are forecast to grow from 6.1 million in 2014 to 14.1 million by 2034; an average growth of 4.0% per annum over the next 20 years.

Regional

The trend growth rate for regional passengers at Adelaide Airport is forecast at around 3.7% per annum, although mining developments may lead to a change in trend for some time.

General Aviation

Nationally, there has been growth in just one area of General Aviation (GA) activity over the past decade – charter activity. Charter activity has accelerated over the past five years associated with the substantial increase in mining activity.

GA activity has been declining in recent years in Adelaide. For the purpose of forecasting GA movements at Adelaide Airport however, the approach has been to assume growth in line with South Australian GSP. This allows for growth to accommodate an expected increase in charter activity associated with mining activity.

The consolidated aircraft movement forecasts for the planning period 2014 to 2034 are depicted in Figure 4.6.

Helicopters

The current operations of helicopters at Adelaide Airport are largely associated with medical operations and police operations. Airservices Australia has advised that in 2013 there were 2,879 movements of helicopters. The forecast number of helicopter movements is based on a 1.0% per annum increase until 2034. This may vary depending on State Government contracts of helicopter use and the locations of various private helicopter operations. These helicopter forecasts are in addition to the fixed-wing aircraft forecasts described in the previous sections.

Air Freight Forecasts

Air freight projections for Adelaide Airport to 2034 were provided by TFI based on data and economic forecasts.

Only a short period of international freighter data is available for Adelaide Airport. The forecasts have been predicted based on OECD growth rates over the 20-year forecast period.

The approach adopted by TFI in preparing the freight projections for Adelaide Airport was based on a number of elements:

- a review of the traffic history available for Adelaide Airport and an assessment of statistical trends;
- a review and analysis of the general aviation and business environment and current airline schedules;
- the development of models linking drivers and freight traffic; and
- a review of 'official' freight forecasts in Australia and elsewhere.

Models were developed for inbound and outbound freight volumes.

On the basis of the analysis conducted, it was concluded:

- International inbound freight volumes will grow by between 42% and 62% (average annual growth of between 7.3% and 10.9%) over the next 5 years. This compares with the Adelaide Airport freight survey, which suggests growth of around 10% to 22% over the next 5 years. Over the 20 years from 2013/14 to 2033/34, TFI has projected that growth would increase at an average of between 6.8% and 9.7% per annum.
- International outbound freight volumes will grow by between 18% and 34% (average annual growth of between 3.3% and 6.0%) over the next 5 years. This compares with the Adelaide Airport freight survey conducted by Hudson Howells in 2013, which suggests growth of around 5% to 10% over the next 5 years. Over the 20 years from 2013/14 to 2033/34 TFI has projected growth at an average of between 3.4% and 5.7% per annum.

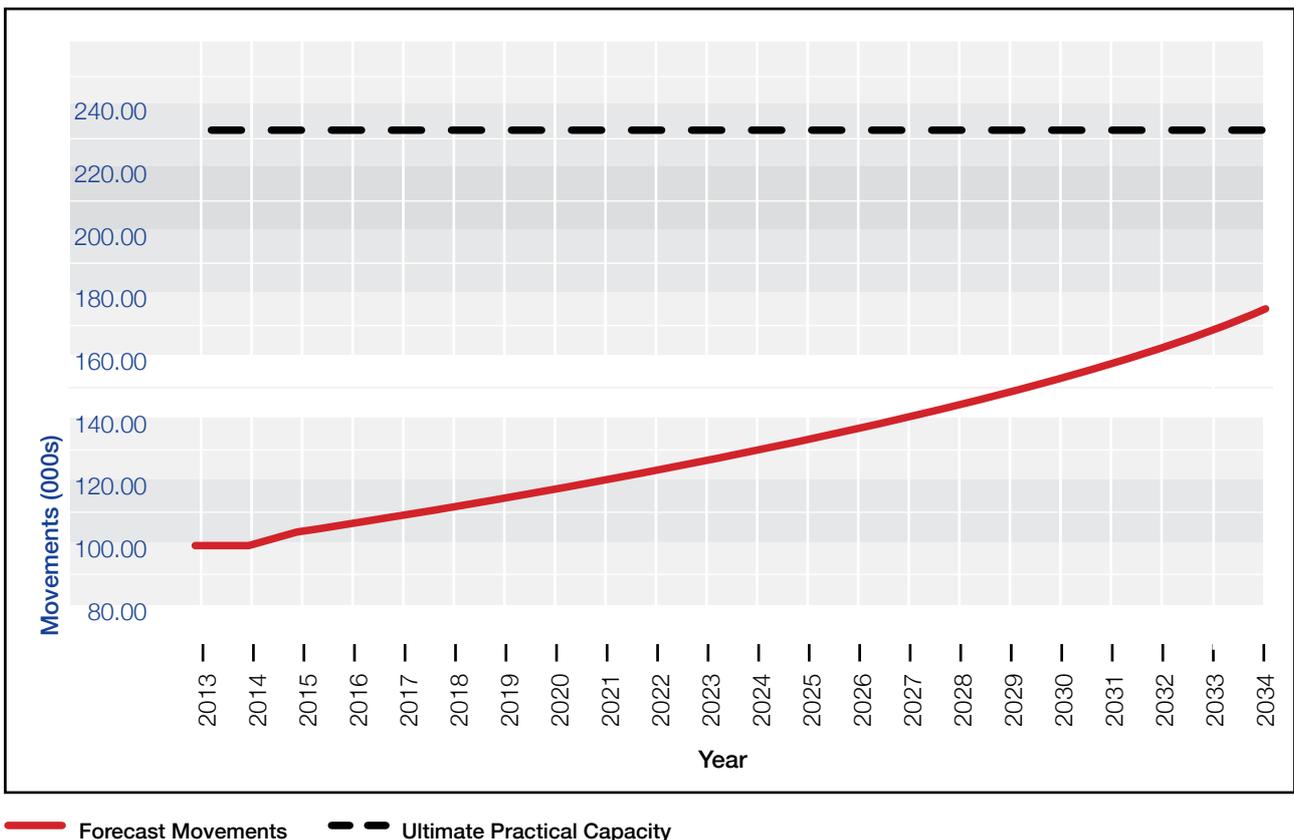


Figure 4.6 Adelaide Airport Aircraft Movement Forecasts

From the analysis above, it appears that the belly-space capacity on passenger aircraft is potentially adequate to cover Adelaide's needs for international freight.

With respect to domestic freight, TFI has concluded:

- Inbound freight volumes will grow by between 10% and 21% (average annual growth of between 1.9% and 3.9%) over the next 5 years. Over the 20 years from 2013/14 to 2033/34 TFI has projected growth at an average of between 1.9% and 4.8% per annum.
- Outbound freight volumes will grow by between 14% and 24% (average annual growth of between 2.6% and 4.3%) over the next 5 years. Over the 20 years from 2013/14 to 2033/34 TFI has projected growth at an average of between 2.5% and 4.9% per annum.

Allowing for the domestic freight projections, use of both specific air freight and domestic regular passenger services is expected to increase consistent with forecasts.

4.5 Airport Metrics

4.5.1 Airport Capacity

AAL commissioned Airbiz to undertake a review of the runway capacity estimates contained in the *Adelaide Airport Master Plan 2009*, with assessment of the likely ultimate practical capacity for the following scenarios:

- existing runway layout with additional taxiways to minimise runway exit delays for arrivals; and
- existing runway layout with additional runway entry taxiways.

A previous study for the 2009 Master Plan found the Annual Service Volume of the airport to be 207,740 movements per annum using the existing layout but with provision of all necessary taxiway connections to avoid exit delays. In the 2009 study, the use of Land and Hold Short Operations (LAHSO), as currently employed at Adelaide, could potentially increase the Annual Service Volume to 217,730 movements per annum. Further, adding a parallel runway for commuter turbo prop and general aviation aircraft could increase the Annual Service Volume to 280,700 movements per annum.

The most recent study undertaken by Airbiz in 2014 used a different methodology and concurred with this order of magnitude (220,000 fixed wing movements) as an annual practical capacity assessment.

Using annual aircraft movement forecasts extended beyond 2034, demand approaches the nominal runway capacity for the existing layout plus additional taxiway improvements and LAHSO, around the year 2046.

Airbiz included an extended assessment by considering the potential additional incremental annual runway capacity with:

- infrastructure enhancements (taxiway improvements); and
- the effect of peak spreading.

To assess the additional annual capacity from peak spreading at Adelaide Airport, Airbiz analysed busy hour profiles and weekday demand on the current runway system.

The analyses showed that with future growth in aircraft movements, delays would increase in peak periods. Spreading the movements to before and after the peak hours could accommodate additional runway demand. Other airports in Australia that are nearing their runway capacity and are experiencing significant delays in peak periods are already using runway demand management schemes to reduce delays.

To achieve this runway capacity, the following airfield infrastructure enhancements are required:

- Rapid Exit Taxiways (RETs) on Runway 23; and
- additional runway entry taxiways.

If these enhancements were introduced, Airbiz estimates that the practical ultimate capacity could approach 233,000 fixed wing movements; noting that at this level of traffic there would be significant delays to arrivals and departures at peak times of the day.

This estimate is comparable to other single runway systems at capital city airports in Australia when they begin to reach capacity and require additional major aviation infrastructure.

By adopting the estimate for ultimate practical capacity at 233,000 movements in the year 2052 (based on an assumption that there is no material change to the current traffic mix), the current forecast to derive ultimate capacity extends some 15 years beyond the 20-year horizon of this Master Plan. During this period, infrastructure and operational enhancements will need to be introduced to meet projected demand.

The concept for an additional runway and associated infrastructure, if needed, will be progressively considered in future master plans including close liaison with AsA upon existing air traffic control and other air traffic service arrangements. However, consistent with Ministerial approval to the *Adelaide Airport Master Plan 2009*, AAL continues to reserve land area and allow for suitable land use planning toward a parallel third runway should this be required in the future.

The number and nature of the infrastructure improvements and the timing for implementation of these is presented in Chapter 11 – Development Program.

4.5.2 Movement Area

The movement area of an airport is defined in the *CASA Manual of Standards Part 139 – Aerodromes* as that part of the airport used for the take-off, landing, taxiing and parking of aircraft. As a signatory to the ICAO Conventions, Australia, and therefore AAL, has adopted that definition.

The basic principles of the long-term plan for the movement area are based on:

- airspace and aircraft operational requirements;
- the economic and financial feasibility of proposed developments; and
- the impacts on the environment of airport construction and operation.

To maximise the operational aviation use of the existing site, the approach has been based on capacity evaluation of the appropriate runway system for the airport and facility planning to support such a runway system. This is then balanced against the forecast requirements of the individual facilities and other planning parameters critical for the airport.

As demand increases, AAL will review the efficiencies of the airport taxiway system and, if appropriate, will consider the introduction of additional exit taxiways.

4.5.3 Runway Operations

This Master Plan specifies the runway facilities required within a 20-year planning horizon and it also examines the possible ultimate long-term movement area development required for Adelaide. Determination of the runway system for the 20-year planning horizon is based on the following key technical data:

- runway useability during crosswind;
- runway capacity; and
- design aircraft.

4.5.4 Runway Useability

Design of the runway system provides sufficient runway orientation to meet the wind useability criteria described in the *CASA Manual of Standards*. This states a planning goal for useability of 99.8% for capital city airports. In order to match this criterion for a 20-knot crosswind on the main runway, the existing cross runway must be retained and is therefore included in all development plans for the 2034 planning horizon.

4.5.5 Design Aircraft

The geometric layout of the proposed movement area will accommodate the critical design aircraft expected to operate into Adelaide up to the year 2034 (the A380).

Aircraft are grouped according to different characteristics, such as wing span and outer main gear wheel span. Each grouping of aircraft is allocated a reference code rotation for example B737 and A320 aircraft are Code C, B767s are Code D, B747 is a Code E, while the new large aircraft such as the Airbus A380 is Code F. It has been forecast that this aircraft could operate on a regular scheduled service into Adelaide in future, and therefore has been included at 10 flights per week in 2034.

Larger Code G aircraft with wingspans up to 95 metres are unlikely to enter service at Adelaide within the 2034 planning horizon, if at all. Notwithstanding this, restricted operations of Code G aircraft can be accommodated in ultimate planning considerations.

Beyond this horizon it is difficult to predict with any surety the dimensions of new generation aircraft likely to operate into Adelaide. Various studies of long-range aircraft design trends have included predictions of aircraft with wingspans up to 95 metres (Code G).

4.5.6 Domestic Fleet

There has been a noticeable trend for domestic airlines to fly larger, more fuel-efficient aircraft with higher passenger capacities, at higher load factors into Adelaide Airport. This is evidenced by the recent trends for slow growth in aircraft movements, but a much higher increase in passenger numbers.

That trend is likely to continue into the foreseeable future, driven by fuel costs and carbon reduction schemes in Australia. Therefore, AAL expect that the domestic carriers will continue to renew their fleets to larger capacity aircraft such as the B787, and more efficient aircraft such as the A320 neo-type aircraft and B737-800 NG type aircraft.

The current regional fleet in South Australia is based heavily on the SAAB 340 and Dash 8 type aircraft. It is forecast that this fleet type will continue in the future with those aircraft types being predominant in the medium and small turbo prop categories. There will continue to be some limited small jet operations, and possibly some of the larger Q400 aircraft on the more heavily used routes. The Pilatus PC12 type aircraft is anticipated to continue in the medium term as the major aircraft type used by the Royal Flying Doctor Service.

4.5.7 International Fleet

The recent trends for implementing A380 size aircraft are assumed to continue with A330, A350 and B787 and B777-300 versions also to be more prevalent in the fleets of airlines servicing Adelaide Airport. It is also expected that these aircraft will allow for more direct services between Adelaide and closer international destinations and also to more Asian and Middle Eastern hubs, providing improved access to European and American ports.