

4 Forecasts

4.1 Introduction

Parafield Airport is one of the busiest general aviation airports in Australia. It has four runways and theoretical ultimate runway capacity for 436,800 fixed wing movements and approximately 13,200 rotary wing movements for a total 450,000 movements annually. It is dominated by pilot training operators that have contracts with many of the major airlines in Australasia.

Pilot training and recreational activities dominate general aviation at Parafield. There is a range of other general aviation activities that occur from time to time such as crop dusting, aerial photography, search and rescue, firefighting and policing. Of recent times, there has been an increase in charter services to service mining activities in South Australia.

PAL has installed a camera system to capture arrivals and departures to/from the airport's runway system in order to verify aircraft movement data provided by Airservices Australia. These data together with detailed data collected during the Airservices Australia short-term noise monitoring study in 2015 and 2016, and data provided by the major flying schools based at Parafield, has led PAL to adopt the aircraft movement data provided by Airservices Australia for the 2015/2016 financial year as being 218,272 movements and 213,990 movements for the calendar year 2016.

Forecasting aircraft movements and airport developments for the next 20 years relies on a detailed understanding of prevailing and future economic conditions as they affect directly the main drivers for airport activity.

4.2 Economic Forecasts

4.2.1 Employment Forecasts

Employment and Gross State Product (GSP) data from the 2016, 2011, and 2008 studies were compared with airport aircraft movements in order to determine a level of correlation between the respective growth rates to enable employment forecasts to be made based on forward estimates of aircraft movements contained in PAL's Master Plan for Parafield Airport.

Table 4.1 shows the results of the correlation between employment estimates and recorded aircraft movements.

The increasing employment to aircraft movement ratio since 2008, and especially between 2011 and 2016, is largely attributable to the developments and new employment in the Commercial Precinct at Parafield Airport against more modest growth in aircraft movements over that time (approximately 6000 between 2011 and 2016).

Table 4.1 Correlation between Employment and Aircraft Movements 2008 - 2016

	2008	2011	2016
Total Employment to Aircraft Movements Ratio	0.75%	0.89%	1.12%

Source: Hudson Howells 2017b

A set of employment and GSP forecasts to 2036 has been constructed based on

- for the Airport Business Precinct - correlation between 2015/16 direct employment/GSP to aircraft movement ratios and forecast aircraft movements as prepared for Parafield Airport by Tourism Futures International (2017) and summarised in Table 4.2;
- for the Enterprise Precinct – direct employment and GSP estimates as per Hudson Howells *Enterprise Precinct Economic Impact Assessment Report (2017b)*; and
- For the Commercial Precincts – estimated space take-up to 2036 and the application of standard industry employment ratios. Estimated space take-up is detailed in Table 4.3.

The 2016 Airport Business Precinct direct employment to aircraft movements ratio (0.26%) is used for future

direct employment forecasts for the precinct. Similarly, the 2016 Airport Business Precinct GSP to aircraft movement ratio (0.04%) is used for future direct GSP forecasts for the precinct.

Forecast aircraft movements to 2036 have been used to construct 'expected case' and 'optimistic case' forecasts of precinct employment and GSP growth associated with the operations of Parafield Airport. These are shown in Tables 4.4 to 4.7.

It is important to note that the above expected and optimistic cases factor in the Tourism Futures International (2017) medium and high aircraft movement forecasts respectively for the Airport Business Precinct, with all other precinct employment and GSP forecasts remaining constant.

Table 4.2 Forecast Aircraft Movements 2016 – 2036 (1000 movements)

	2016	2021	2026	2031	2036
Expected	214	242	273	305	336
Optimistic	214	258	310	368	432

Source: Hudson Howells 2017b

Table 4.3 Estimated Space Take-Up by Precinct 2017 – 2036 (square metres)

Precinct	2017 - 2021	2022 - 2026	2027 - 2031	2032 - 2036
Commercial	30 000	3000	3000	3000
Enterprise	81 000	74 500	17 800	0
Airport Business	5000	5000	0	0

Source: Hudson Howells 2017b

Table 4.4 Forecast Jobs by Precinct – Expected Case - 2016 - 2036 (FTEs)

Precinct	2016	2021	2026	2031	2036
Airport Business	569	643	735	818	900
Commercial	792	867	887	915	950
Enterprise	0	606	963	1082	1082
Total Direct Jobs	1361	2116	2585	2815	2932
Induced Jobs	1084	1685	2060	2241	2335
Total	2445	3801	4645	5056	5266

Note: FTE = Full time equivalent jobs

Source: Hudson Howells 2017b

Table 4.5 Forecast Jobs by Precinct – Optimistic Case - 2016 - 2036 (FTEs)

Precinct	2016	2021	2026	2031	2036
Airport Business	569	643	830	981	1149
Commercial	792	867	887	915	950
Enterprise	0	606	963	1082	1082
Total Direct Jobs	1361	2156	2680	2978	3181
Induced Jobs	1084	1717	2135	2372	2533
Total	2445	3874	4815	5349	5713

Note: FTE = Full time equivalent jobs

Source: Hudson Howells 2017b

Table 4.6 Forecast GSP by Precinct – Expected Case - 2016 - 2036 (\$m)

Precinct	2016	2021	2026	2031	2036
Airport Business	85.10	95.60	109.03	121.38	133.70
Commercial	51.00	94.56	97.56	101.41	106.12
Enterprise	0.00	123.25	155.63	170.96	170.10
Total Direct GSP	136.10	313.41	362.24	393.77	409.96
Induced GSP	126.70	291.76	337.22	366.57	381.65
Total	262.80	605.17	699.46	760.34	791.61

Source: Hudson Howells 2017b

Table 4.7 Forecast GSP by Precinct – Optimistic Case - 2016 - 2036 (\$m)

Precinct	2016	2021	2026	2031	2036
Airport Business	85.10	102.33	124.18	146.78	171.84
Commercial	51.00	94.56	97.57	101.42	106.14
Enterprise	0.00	123.25	155.63	170.96	170.10
Total Direct GSP	136.10	320.14	377.38	419.16	448.08
Induced GSP	126.70	298.03	351.32	390.21	417.13
Total	262.80	618.17	728.70	809.37	865.20

Source: Hudson Howells 2017b

4.2.2 Strategic Considerations

The results of the 2016 Business Survey and Economic Impact Assessment were compared to previous surveys and assessments undertaken in 2011 and 2008. Growth in direct on-site and off-site employment of 277 full time equivalent employees (34%) between 2011 and 2016 is consistent with growth in the airport’s Commercial Precinct over that time and renewed growth in the Airport Business Precinct’s aviation training, which includes six training companies. Two training companies alone accounted for 80 additional on-site jobs reflecting the importance of this activity for the airport’s commercial operations.

Forecast new employment and contribution to GSP growth is dominated by the expected growth at the Enterprise Precinct, which accounts for 69% of expected growth over the next 20 years (1082 of 1571 additional direct jobs).

At the conclusion of the Business Survey, companies were asked if there was anything happening in their businesses that could impact on the aviation and property development activities at Parafield Airport during the next 5 years. Specific responses to this question included:

- “Business has expanded and may be looking for additional premises at Parafield Airport.”
- “Additional premises required.”
- “We aim to expand at our current location over the next 5 years and provide a number of complimentary services. This will increase our employee numbers and increase the number of people frequenting the Parafield Airport City area.”
- “It would be nice to see the weeds and grass cut down on the main north road frontage.”
- “Business expansion; additional storage requirements; additional employees.”
- “Our business is directly related to Parafield based aircraft operators. If they grow, we grow.”
- “We require a larger hangar and need to have this happen urgently, i.e. build new hangar on another block of land or develop the land or block that we are already on.”
- “At the moment, we have our warehouse at Salisbury Plains. It will be good if we can have a warehouse behind or adjacent to our shop.”
- “Might require additional Hangar space.”

These comments reflect expected growth correlated with increased aviation activity and continued but modest growth in the Commercial Precinct.

Finally, the operations of Parafield Airport have an economic impact on the Northern Adelaide Council areas that comprise the following Local Government Areas (LGA):

- Playford;
- Salisbury;
- Port Adelaide Enfield; and
- Tea Tree Gully.

It is noted here that technically in the Input Output Tables the Northern Region of South Australia comprises only the Eastern portion of the Port Adelaide Enfield LGA. The data below have therefore been updated to include the total Port Adelaide Enfield LGA.

As detailed in this report, it is estimated the contribution of Parafield Airport to the State’s GSP in 2016 is \$262.8 million. Gross Regional Product (GRP) for the four Councils as at 2016 has been estimated based on the State’s Input Output Tables for 2011 (the RISE Model) and updating the tables for inflation for each local government area, and is summarised in Table 4.8.

Table 4.8 LGA and Estimated Gross Regional Product - 2016

Council	Estimated Gross Regional Product - \$m
Playford	2523
Salisbury	5335
Port Adelaide Enfield	7696
Tea Tree Gully	2154
Total – 4 Council Regions	17 708
Total – South Australia	170 739

Parafield Airport's contribution to GRP (Northern Region as defined) and GSP as at 2016 is therefore estimated as:

- contribution to GRP (Northern Region)–1.48% (up from 1.19% in 2015);
- contribution to Playford and Salisbury GRP alone–3.34% (up from 2.68% in 2015); and
- contribution to GSP–0.15% (up from 0.12% in 2015).

It can therefore be seen from the above that Parafield Airport is continuing to increase its contribution to, and share of, both Northern Adelaide and State economic development.

4.3 Past Air Traffic Movements

The past traffic performance for Parafield Airport for the period 1969 to 2016 was reviewed by Tourism Futures International in 2017 (TFI 2017). Figure 4.1

charts the traffic levels over that period. Two periods of history have been shown 1969 to 2000 and 2001 to 2016.

A large number of events have impacted on the volume of movements at Australia's general aviation airports, including Parafield. These include:

- major economic events such as Australian recessions, the Asian Financial Crisis of 1997 and the Global Financial Crisis of 2007/08;
- aviation-related events such as the collapse of Ansett;
- terrorist attacks and health events that slow travel growth and impact on airline revenues and profits;
- an increasing use of simulators for pilot training;
- the high Australian dollar over recent years which has increased the costs of education in Australia and has also slowed the growth in international visitor numbers to Australia;

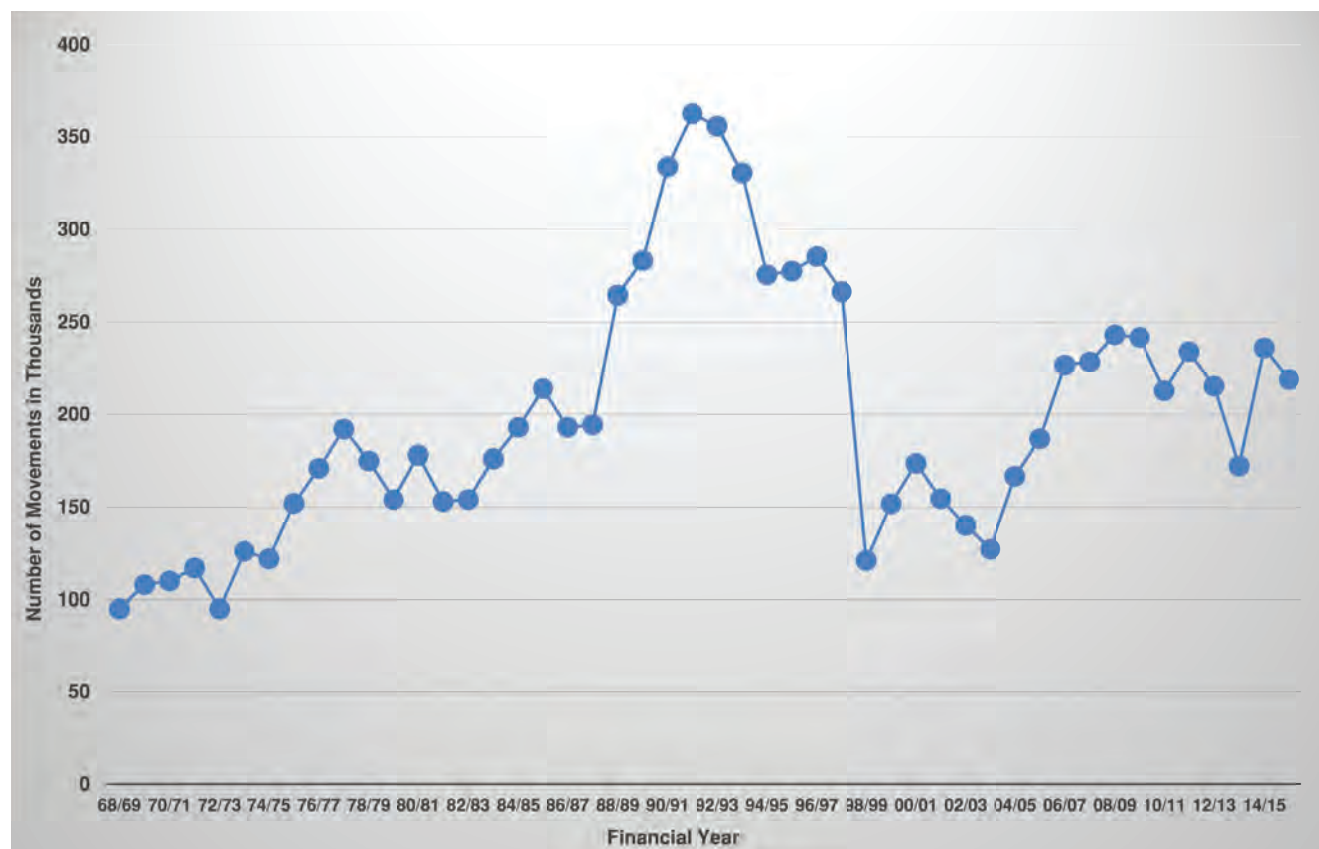


Figure 4.1 Aircraft Movements at Parafield Airport 1969 to 2016

- a strong mining sector which increased charter operations; and
- changes in operating hours for the tower at general aviation airports—Airservices Australia data only counts aircraft movements during operating hours.

Five aviation-training companies operate out of Parafield Airport: Adelaide Flight Training Centre, Bruce Hartwig Flying School, Flight Training Adelaide, Aerostar Aviation and University of South Australia Aviation Academy.

Flight Training Adelaide is the predominant training organisation at Parafield Airport. It has trained students from Qantas, Cathay Pacific Airlines, China Airlines, Chinese Rescue and Salvage, Dragonair, JAL Express and the Hong Kong Government Flying Service. The majority of aircraft movements at Parafield Airport are generated by Flight Training Adelaide. Flight Training Adelaide also commenced helicopter pilot training during 2008, having acquired two new helicopters during that year.

Training of local pilots also continues to grow through the services of The University of South Australia Aviation Academy, Adelaide Flight Training Centre, Aerostar Aviation and the Bruce Hartwig Flying School.

4.4 Future Air Traffic Movements

To establish a forecast for Parafield, the GSP has been used as a proxy for overall activity growth. Several scenarios have been used for GSP based on forecasts published in the 2011 South Australian Supply and Demand Outlook by the Australian Energy Market Operator Ltd.

4.4.1 Forecast Approach and Assumptions

As can be seen from Figure 4.1, the general aviation sector is highly volatile and difficult to forecast. The challenge is to produce forecasts that provide a reasonable growth path for master planning purposes.

Tourism Futures International (2017) sought to establish relationships between movements and economic factors such as:

- South Australian GSP and population.
- Australian Gross Domestic Product (GDP);
- Asian GDP – tested for China and both Northeast and Southeast China recognising the large potential for flying training for Asian airlines; and
- fuel prices.

Tourism Futures International used the South Australia GSP as a main driver following this analysis. For the Low variation, they used a lower GSP growth rate and for the High they used a higher rate (around 0.5 percentage point lower and higher) and also varied the elasticities used.

The assumption underlying the Central and High forecasts is that Asian airline growth and travel will be strong and pilot demand will grow accordingly.

For GSP, Tourism Futures International compiled forecast growth using the South Australian Government Budget and Australia Energy Market Operator Ltd and Deloitte Access Economics forecasts. South Australian GSP growth projections average:

- 1.9% for the period 2017 to 2021;
- 2.0% for the period 2022 to 2026;
- 1.8% for the period 2027 to 2031 and
- 1.6% for the period 2032 to 2037.

4.4.2 Air Traffic Forecasts for Parafield Airport, December 2016

Tourism Futures International has summarised the forecasts in Table 4.9. The forecast Compound Annual Growth Rates from 2015 to 2037 range from 0.7% to 3.1% with a central forecast of 1.8%. This produces a range for total movements in 2037 of 272,000 to 450,000 movements. (Figure 4.2)

Table 4.9 Movement Forecasts at Parafield Airport, 2015 to 2036

Level of Forecast	000s Movements for Years end 31 December			
	Larger Fixed Wing (Above 7,000kgs)	Other Fixed Wing (Under 7000kgs)	Helicopters	Total Movements
Central				
2015	0.7	220.7	14.0	235.4
2021	1.0	238.9	8.7	248.6
2026	1.2	267.9	9.5	278.6
2031	1.3	297.3	10.4	309.0
2036	1.5	326.5	11.2	339.3
CAGR 2015-36	3.8%	1.9%	-1.1%	1.8%
Low				
2015	0.7	220.7	14.0	235.4
2021	0.9	221.6	8.0	230.6
2026	1.0	236.2	8.3	245.6
2031	1.1	249.9	8.6	259.6
2036	1.2	262.2	8.8	272.2
CAGR 2015-36	2.7%	0.8%	-2.2%	0.7%
High				
2015	0.7	220.7	14.0	235.4
2021	1.0	257.0	9.0	267.0
2026	1.2	309.9	10.2	321.3
2031	1.5	369.4	11.5	382.4
2036	1.7	435.6	12.9	450.3
CAGR 2015-36	4.5%	3.3%	-0.4%	3.1%

Notes: CAGR - Compound Annual Growth Rate Data for Calendar Year

Source: TFI 2017

4.5 Runway Capacity

There are many varied components to an aviation system such as Parafield Airport, such that any single value of capacity is misleading. The 1996 Master Plan prepared for the FAC indicated that a figure of 520,000 movements per year would be the notional ultimate runway capacity for Parafield Airport. This assumed some arrival and departure traffic on each runway. However, re-evaluations of that capacity in 2004 and 2011 indicated that a theoretical ultimate runway capacity of 450,000 movements per year would be more realistic.

For this 2017 Master Plan, PAL undertook a review of the ultimate capacity predictions for the airport (Airbiz 2017). Airbiz confirmed that the figure of 450,000 movements was an acceptable long-term prediction of the theoretical ultimate capacity. This ultimate runway capacity of 450,000 movements per year would not be realised within the planning horizon of this Master Plan. More detailed discussion on aircraft movement forecasts is presented in Section 4.3.

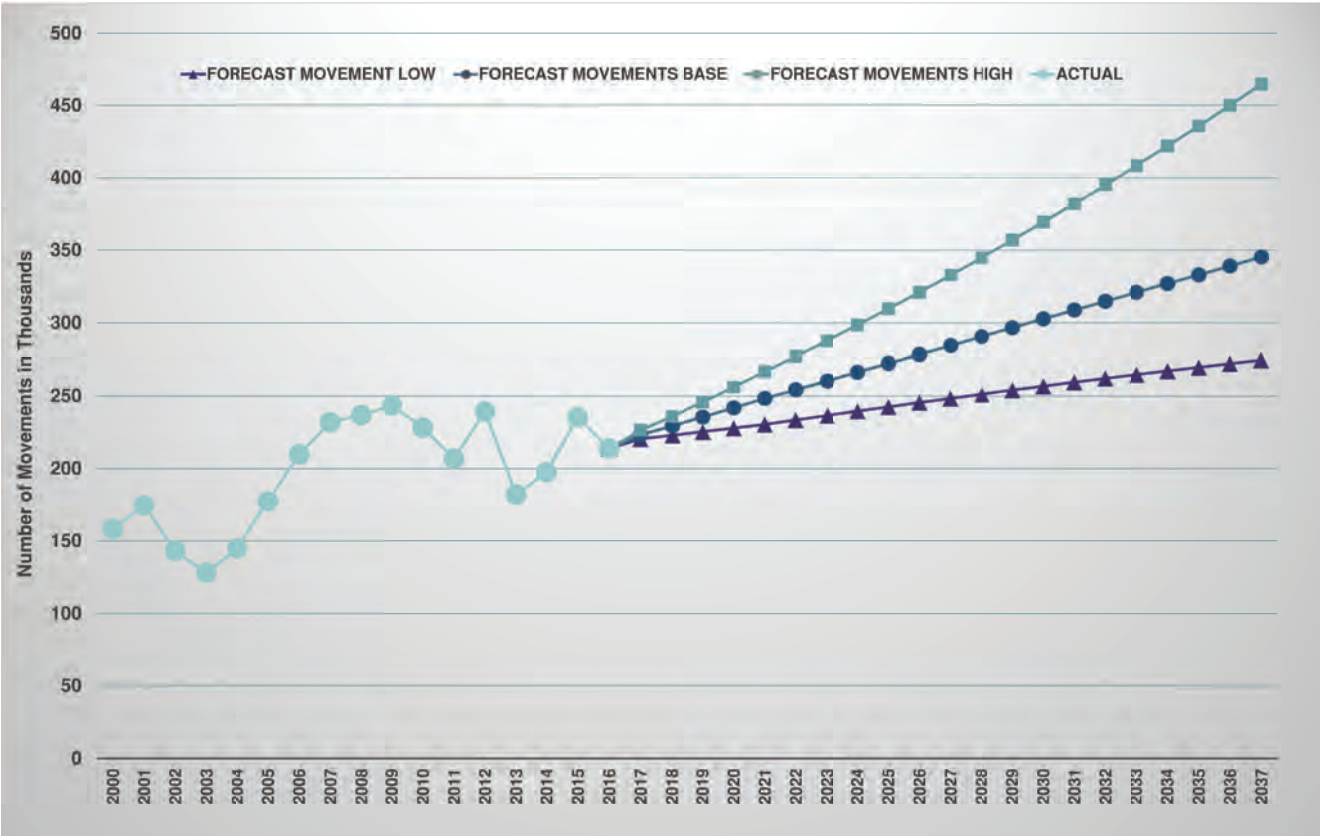


Figure 4.2 Historical and Forecast Movement Numbers

