



Aviation Forecasts

6

6.1 Introduction

Parafield Airport is one of the busiest general aviation airports in Australia. Aircraft movements are dominated by pilot training operators that have contracts with many of the major airlines in Australasia. There is a range of other general aviation activities that occur, such as aerial agriculture, aerial photography, search and rescue, firefighting support aircraft, and charter services. In 2022 there were 219,000 movements, down from almost 270,000 movements in 2019 (pre-covid).

Aircraft movement forecasts influence the development and timing of infrastructure. Forecasting for the next 20 years relies on a detailed understanding of prevailing and future economic conditions as they directly affect the main drivers for airport activity. Modelling is undertaken for high, central and low growth scenarios to ensure planning is adaptable to actual growth.

6.2 Overview

The forecasts considered in this Master Plan reflect the current knowledge of future aircraft technologies and economic predictions. The forecasts will be reviewed and reassessed throughout the Master Plan period, and Parafield Airport Limited (PAL) will provide updates on performance and trends to the Planning Coordination Forum to ensure key stakeholders remain informed.

Tourism Futures International (TFI), which specialises in aviation forecasting, has prepared the long-term aircraft movement forecasts for Parafield Airport. The key forecast periods for this Master Plan are for the eight years through to 2031, and the 20-year planning period through to 2043.

Snapshot of Aviation Forecasts

	2019 (actual pre-COVID)	2022 (actual)	2031 (forecast)	2043 (forecast)
Fixed-wing aircraft movements	256,804	209,038	270,898	329,068
Helicopter movements	12,740	10,074	11,902	13,278
Total aircraft movements	269,544	219,112	282,799	342,346

Figure 6.1 - Snapshot of Parafield Airport movement forecasts 2019 to 2043, Source - Tourism Futures International.

6.3 Forecasting Approach

The general aviation sector is highly volatile and difficult to forecast. A three-part process was adopted for forecasting movements at Parafield Airport:

- Review of the Australian general aviation context, including national, state and individual airport performance, as well as research on national and international general aviation developments and forecasting. Sources of data include aviation and airport statistics published by the Bureau of Infrastructure, Transport and Regional Economics (BITRE) and Airservices Australia, and movement information collected by AvData Australia (PAL's aeronautical data and billing provider).
- Interviews with the main operators at Parafield Airport regarding future plans, including any intention to move towards the use of electric-powered and hybrid electric/avgas-powered aircraft types as they become available.
- Review of factors such as economic growth, population, fuel costs and exchange rates against outcomes for major general aviation airports and for Parafield Airport to establish potential driving factors in future growth.

The results of each of these three steps were integrated to develop the long-term movement forecasts for Parafield Airport. Given that the historical growth path for airport traffic at airports such as Parafield Airport has been erratic with periods of growth and decline, the forecast growth rates adopted for this Master Plan should be seen as reflecting trend growth with variability around this growth resulting from short to medium term events and impacts.

The forecasting approach is outlined in Table 6-1.

Many factors that influence forecasts are unpredictable including diverging views on the future direction and impact of factors such as interest rates, oil prices and population growth rates. Table 6-2 shows the various data sources used for the movement forecasts. The forecast model varies assumptions to produce high, central and low passenger estimates. The central forecast has been used to support the planning throughout this Master Plan 2024.



TASKS	COMPONENTS
Segmentation State/local drivers	<ul style="list-style-type: none"> • Global economic factors • Population growth • Fuel costs • Exchange rates • Oil prices • Australian and state population projections • Regulatory factors • Market growth • Australian and state economic factors • Demographic factors • Flight training company capacity • Training costs • Infrastructure
Market analysis	<ul style="list-style-type: none"> • National and state performance of the general aviation sector • National and international research on general aviation developments and forecasting • Airport performance for major capital city, regional and general aviation airports across Australia • Assumptions about future capacity, as well as identifying qualitative factors that may influence movements • Interviews with general aviation and flight training operators at Parafield Airport regarding potential growth for fixed-wing and helicopter operations
Forecast development	<ul style="list-style-type: none"> • An iterative process integrating reviews of: <ul style="list-style-type: none"> › The Australian general aviation context › Factors such as economic growth, population, fuel costs and exchange rates against outcomes for major general aviation airports and for Parafield Airport › Final model outcomes (iterative process) › Interviews with aircraft operators at Parafield Airport
Review risks/sensitivities	<ul style="list-style-type: none"> • Varied levels for Australian and South Australian economic and population growth, fuel costs, capacity constraints

Table 6-1 Parafield Airport forecasting approach, Source - Tourism Futures International

CATEGORY	DATA SOURCES
Movements and outlooks	<ul style="list-style-type: none"> • Bureau of Infrastructure, Transport and Regional Economics (BITRE) survey of Australian registered aircraft undertaking commercial air transport and general aviation activity • Airservices Australia movement data for Parafield Airport (up to 2014) and annual reporting on movements at Australian airports • AvData Australia (Parafield Airport movement data from 2015 onwards) • World Economic Outlook • Reserve Bank of Australia • US Energy Information Administration • Australian Bureau of Statistics • Australian Government Centre for Population, 2022 Population Statement released January 2023

Table 6-2 Data sources to predict forecast movements, Source - Tourism Futures International

6.4 Recent Performance

Annual aircraft movements for Parafield Airport between 2000 and 2022 are shown in Figure 6.2. A movement can be either a landing or departure. A circuit, which is a touch-down and immediate take-off for training purposes, is counted as two movements.

A large number of events have impacted on the volume of movements at Australia's general aviation airports, including Parafield Airport. 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 in 2001, the high Australian dollar during the mining boom over 2002 to 2013, and more recently the COVID-19 pandemic.

A major source of data on general aviation activity across Australia is the BITRE survey of Australian registered aircraft undertaking commercial air transport and general aviation activity. The survey provides statistics on the number of hours flown and the number of landings of all Australian-registered aircraft. Over the five years to 2019, instructional flying (which is all pilot training, including licence renewals and aircraft type endorsements) experienced a compound annual growth rate of 8.2 per cent for South Australia and 0.8 per cent for Australia. The survey also identified that in 2019:

- South Australia accounted for 13 per cent of all Australian general aviation landings and 8 per cent of flying hours

- South Australia accounted for 23 per cent of instructional flying landings and 14 per cent of instructional flying hours
- Pilot training accounted for 73 per cent of general aviation landings in South Australia, the highest proportion for any Australian state.

The impact of the COVID-19 pandemic on the aviation industry has been significant. Due to the Australian and South Australian border closures and lengthy lockdown periods, many businesses at Parafield Airport reduced their operations. International student pilots were unable to travel to Australia, and aircraft were also not being flown to save on operating costs, such as fuel, maintenance and airfield and navigation charges.

For financial year 2021/2022, when South Australia was experiencing significant lockdown periods and travel restrictions, Parafield Airport recorded 154,796 aircraft movements, which is the lowest volume of aircraft movements since 2003. This is consistent with national and state based general aviation trends over the same period.

Australia's international borders fully reopened on 21 February 2022, and the flying schools at Parafield Airport returned to normal student capacity and training operations in mid-January 2023.

By the end of 2022, aircraft movements Parafield Airport had recovered to just over 81 per cent of 2019 movement numbers.

Annual Aircraft Movements at Parafield Aiport 2000 to 2022

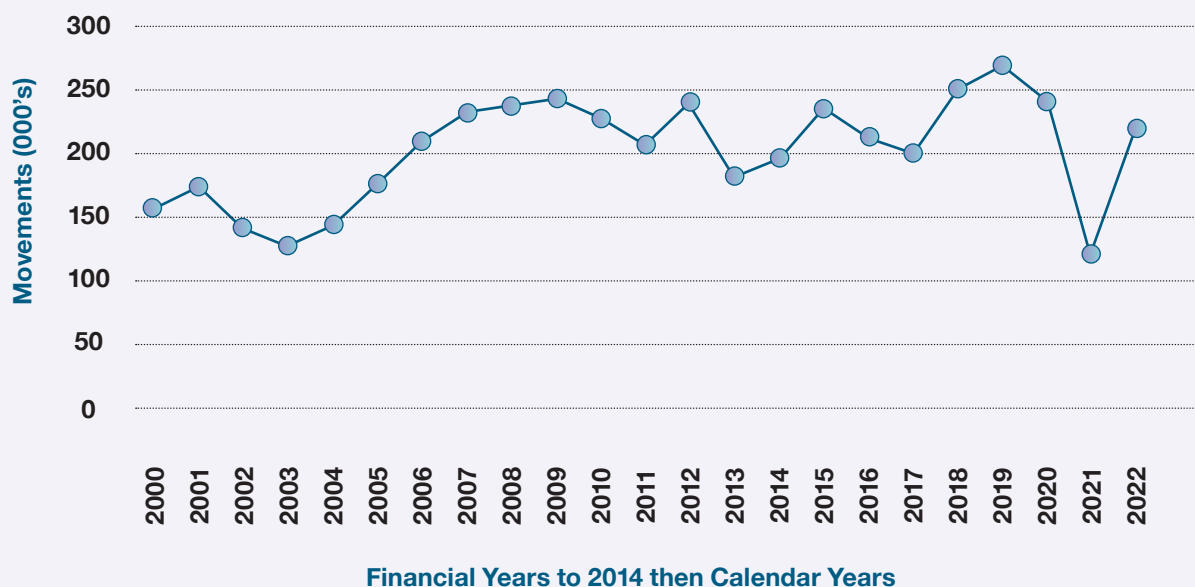


Figure 6.2: Annual aircraft movements at Parafield Airport, 2000 to 2022, Source - Tourism Futures International

Note: Data prior to December 2017 may not reflect all movements outside of Airservices air traffic control tower hours and may marginally underrepresent total movements.

6.5 Parafield Airport Activity Forecasts

6.5.1 Industry Outlook

Factors such as longer-term national or state economic and population growth, along with commercial aviation growth in the Asia and Pacific regions (generating demand for pilots), are considered to be the main influences that will promote steady growth of the general aviation sector in the long-term. Other factors such as economic downturns, Australian exchange rates, oil prices and/or the costs for sustainable fuels, policy and regulatory changes will influence movements around the trend line.

There are many aviation-related factors that could have a positive or negative influence on growth at Parafield Airport over the next 20 years.

Positive factors that could increase the demand for pilot training include the strong growth in commercial aviation in the Asia and Oceania regions as a result of:

- The strong growth in the middle class expected over the next decade
- The growth in low-cost airlines throughout Asian countries
- The introduction of new highly efficient aircraft types into the region.

Recent global market outlooks from Airbus forecast a full recovery of global aviation to 2019 levels between 2023 and 2025 along with growth rates comparable with pre-COVID.

The 2022 Boeing Pilot and Technician Outlook forecasts that between 2022 and 2041, the aviation industry will need to supply 602,000 commercial airline pilots with 41 per cent of these required for countries in Asia and Oceania. Suppliers of pilot training in Australia and South Australia will seek to benefit from this growth over the next decade.

Negative factors that could slow or stall growth in general aviation activity include:

- An increase in the use of drones in aerial work and agriculture

- Substantial increases in the cost of fuel as sustainable aviation fuel replaces traditional avgas (aviation gasoline) as part of the adjustment to reduce carbon emissions
- Increased use of simulators or other significant regulatory changes that reduce the amount of flying hours for pilot training
- Changes in airspace requirements that reduce the number of aircraft permitted to be in the training circuit.
- Regulatory intervention designed to limit general aviation activity.

6.5.2 Base Year

The base year for the aircraft movement forecasts in this Master Plan is 2022. The 2022 movement information is comprised of data from Airservices Australia (movements during air traffic control tower hours) and Avdata Australia. In 2022 there were 209,000 fixed-wing aircraft movements and just over 10,000 helicopter movements, totalling 219,112 movements.

6.5.3 Aircraft Movement Forecasts

Total aircraft movements at Parafield Airport are forecast to increase by 54 per cent over the 20-year planning period, from 221,728 movements in 2023 to 342,346 movements in 2043. When comparing the forecasts to actual annual movements prior to the COVID-19 pandemic, the 2043 forecast is a 27 per cent increase over the 2019 actual movements.

The movement forecasts for Parafield Airport are shown in Table 6-3. The forecast compound annual growth rate (CAGR) for total movements over the base year of 2022 to 2043 is 2.2 per cent for fixed-wing aircraft and 1.3 per cent for helicopters with a CAGR of 2.1 per cent for total movements.



It is forecast that the aviation industry will need to supply 602,000 commercial airline pilots between 2033 and 2041, with 41 per cent of these required for countries in Asia and Oceania

Source: Tourism Futures International.

AIRCRAFT MOVEMENTS	2019 (pre-COVID)	2022 (actual)	2031 (forecast)	2043 (forecast)	CAGR 2022-43 (percent)
Fixed-wing aircraft movements	256,804	209,038	270,898	329,068	2.2
Helicopter movements	12,740	10,074	11,902	13,278	1.3
Total aircraft movements	269,544	219,112	282,799	342,346	2.1

Table 6-3 Movement forecasts for Parafield Airport 2022 to 2043, Source - Tourism Futures International

Figure 6.3 shows the forecast trends for low, central and high growth scenarios over the next 20 years as a relatively smooth path in contrast to the fluctuations evident in the history. The forecasts do not account for the short-term changes due to a myriad of factors that cannot be incorporated in forecasting. It is also difficult to accurately estimate when the general aviation sector at Parafield Airport will recover from the

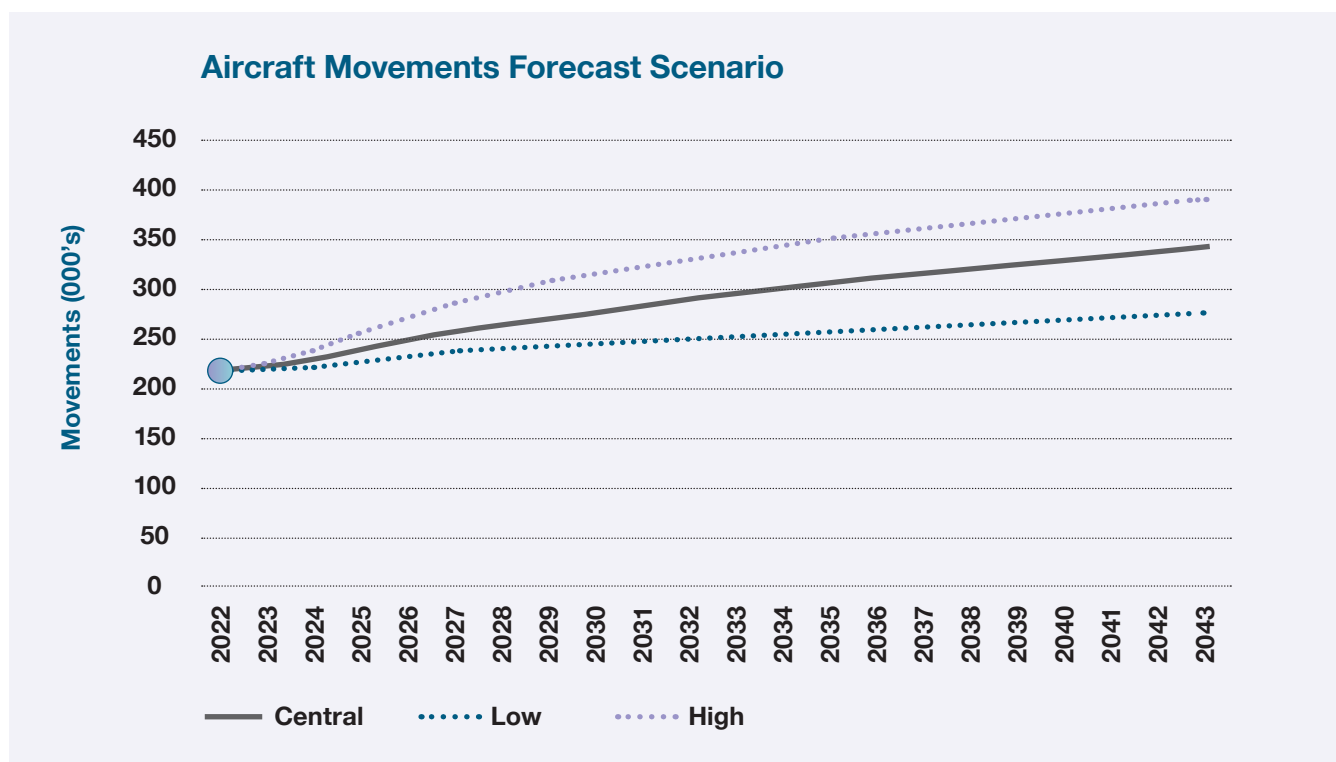


Figure 6.3: Parafield Airport aircraft movement forecast scenarios: Source: Tourism Futures International

COVID-19 pandemic and current global economic uncertainties. With economic recovery and the recent return of international students to flight training, the general aviation sector at Parafield Airport is expected to return to 2019 movement levels by 2026 in the high forecast scenario and by 2029 in the central forecast scenario.

The largest proportion of general aviation activity at Parafield Airport is flight training for commercial pilots. Circuits, which are repetitive touch-down and take-off operations, are a vital part of pilot training activities in both daylight and night-time conditions. Class D airspace procedures were introduced at Parafield Airport in 2010 which reduced the number of aircraft permitted in the circuit path. The training circuit, which is shown in Section 13, is currently restricted to a maximum of five aircraft in each circuit at any one time. PAL continues to work with Airservices Australia to investigate capacity constraints for circuit training activity during peak periods. The forecasts adopted for Master Plan 2024 assume that the current circuit capacity limits will continue for the foreseeable future.

The Master Plan 2017 forecasts were based on 235,400 actual movements in 2015 and assumed a central forecast of 248,600 movements by 2021 and 339,300 movements by 2036. The 269,544 actual movements in 2019 (pre-COVID) exceeded the 2021 forecast. Due to the impact of the COVID-19 pandemic, the revised 20-year central forecast for this Master Plan 2024 (of 342,346 movements by 2043) is similar to the 20-year central forecast in Master Plan 2017 (339,300 movements by 2036).

6.5.3.1 Helicopter Movement Forecasts

Helicopter operations at Parafield Airport are evenly split between pilot training flights and other activities. Flight Training Adelaide and Helistar are the main helicopter pilot training providers. Other common helicopter activities include aerial surveying, such as inspection of the Network power lines, maintenance of firefighting helicopters and heavy lift activities.

In 2022, there were approximately 10,000 helicopter movements at Parafield Airport. The central forecast for helicopter movements in 2043 is anticipated to be just over 13,000. This is based on an annual growth of 1.3 per cent per annum.

Helicopter movements accounted for 4.7 per cent of total movements in 2019 and 4.6 per cent of total movements in 2022. They are expected to account for a marginally declining share of total movements over the next 20 years, with 3.9 per cent of total movements in 2043 forecast to be for helicopters.



6.5.4 Electric Aircraft

The aviation industry has made exciting advancements in electric/hybrid aircraft technology in recent years, but it does come with challenges that must be overcome for electric aircraft to become a viable option for the general aviation industry.

Aircraft operators at Parafield Airport have expressed a strong intention to take up electric or hybrid aircraft types when they become available due to the potential to reduce carbon-related emissions, aircraft noise and operating costs (relative to the current avgas fueled aircraft).

The limitations that will need to be overcome for electric aircraft to become viable include the current battery technology which limits the distance and duration of flights, the requirement for large, specialised charging facilities at airports, aviation regulations and standards that do not take into account the specific characteristics of electric aircraft, and the higher costs associated with manufacturing and therefore purchasing electric aircraft.

Electric aircraft are already being trialled at a number of airports around Australia. In June 2021, the flying school Eyre to There Aviation achieved a world endurance record for electric aircraft when it completed a 1,350km, 18 stop, flight that departed from Parafield Airport.

South Australia may be home to Australia’s first commercially produced electric aircraft. The E22 Spark is a two-seater aircraft with a flight time of upto 90 minutes, which could make it ideal for training purposes.

The forecast take-up of electric aircraft into pilot training and other general aviation at Parafield Airport is shown in Table 6-4. It is assumed that the take-up of electric aircraft will be at a faster rate for the pilot training sector, relative to the other general aviation sectors. Based on these assumptions, the proportion of total movements by electric/hybrid aircraft types increases from an estimated 17 per cent in 2031 to 69 per cent in 2043. However, there are still many challenges to overcome in the transition to electric aircraft.

South Australia may be home to Australia's first commercially produced electric aircraft. The E22 Spark is a two-seater aircraft with a flight time of upto 90 minutes, which could make it ideal for training purposes.



YEAR	ESTIMATED PROPORTION OF ELECTRIC AIRCRAFT		PROPORTION OF ELECTRIC AIRCRAFT MOVEMENTS
	Training	Other general aviation	
2031	20%	10%	17%
2043	75%	50%	69%

Table 6-4: Potential use of electric aircraft for Parafield Airport Source: Tourism Futures International.

