

# 6 Aviation Infrastructure

## 6.1 Introduction

**Fundamental to the successful operation of Parafield Airport is the ongoing development of both airfield and terminals activities to meet the forecast demands in the future.**

The number of movements of all aircraft is predicted to increase by approximately 38% in the 20-year planning horizon. PAL has considered these forecast increases and planned for the development of aviation infrastructure to enable the growth in aircraft and passenger movements to occur in a well-planned and efficient manner.

## 6.2 Existing Infrastructure

### 6.2.1 Runways

The aircraft movement area consists of four runways arranged in parallel pairs in two directions (refer Figure 6.1).

The main runway direction consists of:

- Runway 03R/21L, which is 1279 m long and 18 m wide with an aggregate and bitumen spray seal. The graded runway strip width is 90 m.
- Runway 03L/21R, which is 1350 m long and 18 m wide, sealed with an aggregate and bitumen spray seal, and with a runway strip width of 90 m. The runway is equipped with low intensity runway lighting.

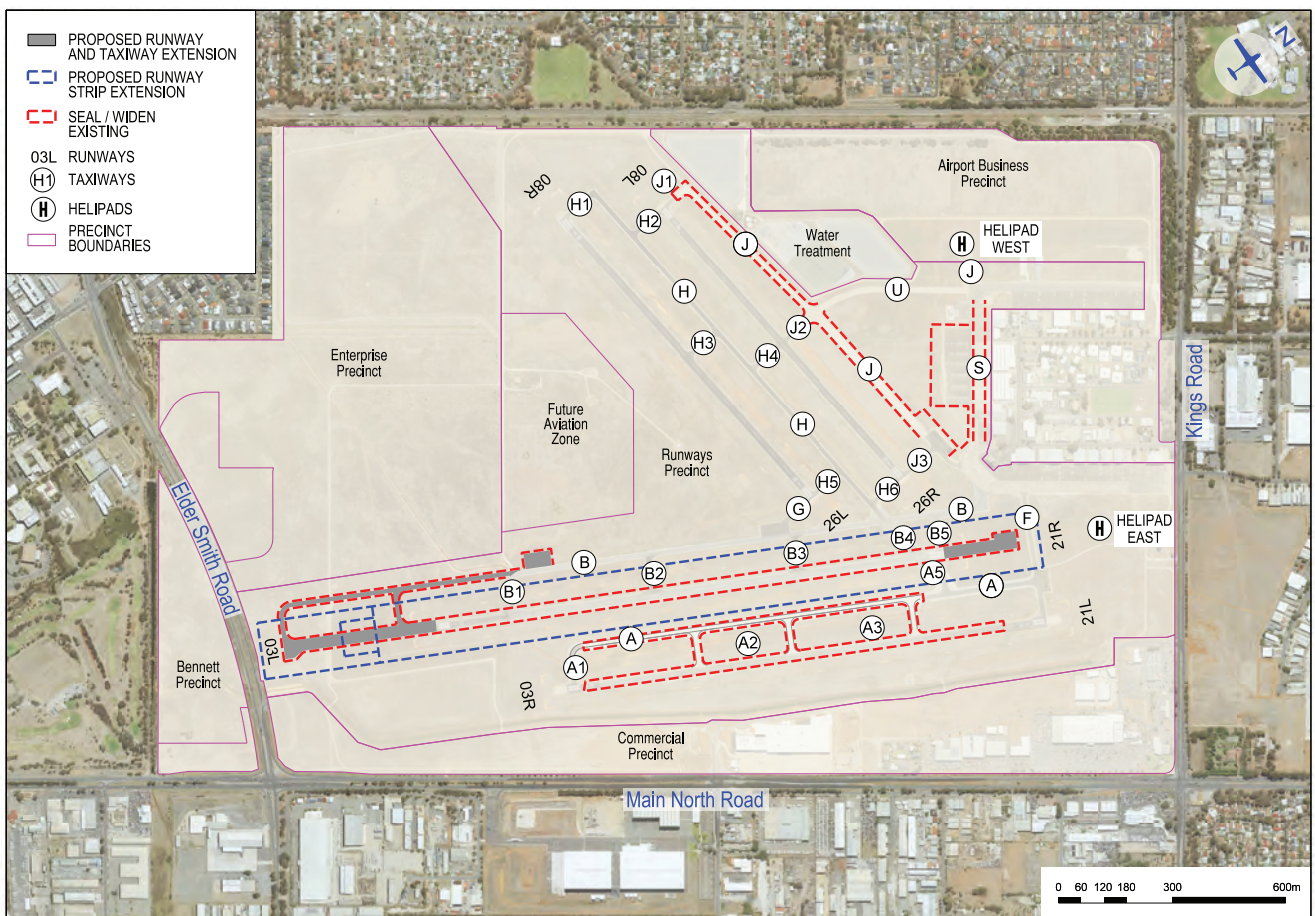
The secondary direction consists of:

- Runway 08L/26R, which is 958 m long and 18 m wide, sealed with an aggregate and bitumen spray seal, and with a runway strip width of 90 m.
- Runway 08R/26L, which is 992 m long and 18 m wide, sealed with an aggregate and bitumen spray seal, and with a runway strip width of 90 m.

All runways at Parafield are Code 1 runways, capable under operational variation to cater for up to Code 3 size aircraft.

The separation distance between the parallel runways (for the main and secondary runways) is 213 m which meets the current CASA Manual of Standards Part 139 requirements for Code 2 and 3 runways and meets Part 172 requirements for runways operating under Class D airspace.

The aircraft pavements are generally unrated and nominally able to accommodate aircraft maximum take-off masses up to 5700 kg. Heavier aircraft may utilise them subject to an approved pavement concession. Runway 03L/21R carries a Pavement Concession Number rating of 6, and Taxiways Bravo, Foxtrot, Alpha 5 and Alpha north of Alpha 5 have been rated to 9000 kg.



**Figure 6.1 Runways Development Plan**

Annual aircraft movement forecasts (Chapter 4) identify that the annual theoretical ultimate capacity of approximately 450,000 movements is unlikely to be realised within the planning horizon of this Master Plan. Therefore, the current runway and taxiway infrastructure system is more than adequate for the current aircraft traffic.

Future demand that could require Code 3C aircraft to be accommodated would require the existing main runway 03L/21R to be extended and widened within existing operational constraints to provide a possible

runway length of 1,650 m with displaced landing thresholds of 305 m at both ends. The proposed runway extensions are shown in blue in Figure 6.1.

The existing Runways 08L/26R and 08R/26L, configuration is to remain to accommodate suitable aircraft as per CASA Regulation 235A.

Design standards for the runways and associated taxiways are provided in Table 6.1.

**Table 6.1 Recommended Movement Area Design Standards**

Item	Runway 03L/21R	Runway 03R/21L	Runway 08L/26R	Runway 08R/26L
Runway Width (m)	30	18	18	18
Taxiway Width (m)	15	10.5	10.5	10.5
Runway Strip Width (m)	150	90	80	80
Runway Length	Max. Code 3C (1,650 m)	Existing	Existing	Existing
Approach Gradient (inner section) (%)	2	3.33	4	4
Take-off Gradient (%)	2	2	4	4

### 6.2.2 Taxiways

Taxiways are provided for the safe and expeditious movement of aircraft between aprons, run-up bays and runways.

The taxiways are identified by an alphabetical reference, for example Taxiway Alpha (A) with alpha-numeric references for related sections/ taxiways.

The existing taxiway system provides sufficient runway and apron access for arriving and departing aircraft to handle the forecast volumes of air traffic.

Taxiway S is compliant for Code A aircraft only. Current Code B aircraft taxiing to and from the Western Apron must use Taxiways U and J and therefore it is proposed to widen Taxiway S to be Code B compliant.

Both parallel runway systems 03/21 and 08/26 configurations are provided with a network of parallel and short stub taxiways (Figure 6.1). The proposed extension and widening of Runway 03L/21R to cater for Code 3C aircraft operations may require the extension and widening of Taxiway B to provide a full-length parallel taxiway and possible widening of some existing stub taxiways.

### 6.2.3 Aprons

Apron parking areas are provided for the safe parking of aircraft, transfer of passengers and freight, and to enable the servicing and maintenance of aircraft. There are sealed and concrete aprons along the front of existing hangars providing apron parking for approximately 120 aircraft up to Code B size.

Designated grassed aircraft parking areas are also available and could be readily extended to provide parking for additional aircraft.

Hardstand parking is at approximately 80% utilisation and there are adequate unsealed aircraft parking areas available to cater for many more than the current approximation of 150 locally-based aircraft. Total current parking capacity is estimated at 120 spaces on hardstand, plus around 100 spaces on prepared grassed areas. More parking on unsealed areas could readily be provided if required.

Operators need to provide their own tie-downs on the unsealed areas. Two large parking bays for itinerant aircraft are provided on the sealed apron at the base of the control tower.

Based on the current number of approximately 150 locally based aircraft and little growth anticipated over the next 5 years, demand for additional parking is expected to be minimal. With a current surplus of parking spaces, and the capacity to provide more if required, capacity currently outstrips demand for the Master Plan horizon.

Any requirement for additional sealed apron parking will be most likely triggered by increases in aircraft traffic from the flying schools.

The Southern Apron will require a small expansion to the south to replace parking spaces lost through the widening of Taxiway S.

Other development of sealed constructed aprons will be required as and when hangar developments occur. This is particularly relevant to the Western Apron and the proposed development within the Airport Business Precinct.

Run-up bays are currently at capacity during peak demand. An expansion of run-up bay J is proposed, along with the construction of a new run-up bay at the end of Taxiway B. It is anticipated that the new run-up bay would be used primarily as a holding bay to allow aircraft to wait and pass, but would also be used for engine run-up testing when needed.

Although the operation of Code C aircraft is not foreseen in the short term, the allowance to expand the runway and taxiway network to accommodate such aircraft is based on the potential future operation of Q400 and ATR-72 aircraft, with the most likely use being for charter operations. It is also noted that any new or possible change to aircraft arrival or departure procedures will require the assessment and endorsement of Airservices Australia and CASA.

### 6.3 Airfield Development

The proposed changes to the Runways Precinct are shown on Figure 6.1. These have been formulated after consultation with flying schools and Airservices Australia to provide capacity for future growth and also improved efficiency in use and ease of management by air traffic control. The proposed changes will be implemented on an as-needed basis defined by future growth and consultation with airport users.

The general strategy for this precinct is to safely and efficiently accommodate both existing and forecast aircraft traffic.

Two sets of parallel runways and associated taxiways will be maintained to facilitate safe and efficient fixed wing training operations. Allowance is made for future compliant operation of Code C aircraft utilizing Runway 03L/21R.

A new aviation site has been nominated, located centrally within the airport adjacent to the southern boundary of the Runways Precinct.

The following developments are proposed within the next five years:

- Upgrade of Taxiway S from Code A to Code B compliance. This involves expanding the Southern Apron to the south to replace the parking bays, which would be removed as a result of the widening upgrade. This would eliminate the need

for Code B aircraft to use unsealed Taxiways U and J when taxiing to and from the Western Apron, improving safety and efficiency.

- Expansion and construction of run-up bays. Run-up bays are currently at capacity, resulting in aircraft having to queue on the apron during peak demand. Expansion of run-up bay J to the west is proposed (shown in Figure 6.1). It would also require a small expansion in depth to meet Code B compliance, and Taxiway J would need sealing up to the expansion. Construction of a new run up bay at the end of Taxiway B is also proposed. It would enable safe passing of aircraft and relieve congestion, increasing safety and efficiency.
- Resealing of Runway 03L/21R to a continuous 30 m surface for Code B aircraft operations. Recent regulatory changes reduced the compliant runway width for 03R/21L to 18 m from the previous 30 m in accordance with CAR 235A.
- Sealing of Taxiway A in order to improve safety and efficiency.
- Construction of a new aviation site towards the southern boundary of the airport and within the Runways Precinct. The proposed location will support potential operations from commercial developments in the Enterprise Precinct and facilitate helicopter operations further away from residential areas to reduce noise impacts. It will ultimately reduce the interaction of fixed wing and rotary aircraft creating a safer operating environment. Lighting for the new helicopter landing site is proposed to permit safe night time operation.

The new proposed aviation site is located in the Runways Precinct to the north east of the boundary of the Enterprise Precinct. The purpose of the new site is to provide a dedicated base for helicopter service, maintenance and training. The relocation of helicopter facilities from the north of the airport to this new location will overcome existing operational difficulties in crossing runways to reach this existing training area, and then back across runways to their base. Relocation will also provide better separation of fixed and rotary wing aircraft for air traffic control purposes. Development of this facility will require the provision of infrastructure and road access which will occur as part of the development of the Enterprise Precinct.



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The following developments are proposed beyond the next five years:

- Upgrade of Runway 03L/21R for Code C operations. Extension of both ends of the runway will allow up to 1,650 m of take-off distance and 1,650 m of landing distance utilising displaced thresholds at both ends, with an overall length of 1,955 m. Turning nodes constructed to facilitate use of the full runway length if stub taxiways are incrementally constructed to future runway ends. Required landing and take-off gradients shall be protected against intrusive development. Compliant movement to and from the runway would initially be accommodated by widening Taxiway B from Taxiway B5 through to the Eastern Apron. The remainder of Taxiway B will also be widened if Code C traffic justifies the requirement.
- Extension of Taxiway B to the end of Runway 03L/21R in order to improve safety and efficiency. Aircraft requiring the full length of the runway on either departure or arrival currently have to backtrack along the runway to get on or off, delaying other operations.
- Sealing of Taxiway J in order to improve safety and efficiency. Although Taxiway J is currently not used frequently, it is anticipated its use would increase significantly if sealed.





