This Minor Variation is an addendum to, and should be read in conjunction with, the approved Master Plan 2014.

The Master Plan 2014 Minor Variation was prepared as a result of changes to design standards that allow the new runway to be increased in length from 2,700 metres to 3,000 metres within the same project footprint.

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One of the key projects identified in the Perth Airport Master Plan 2014 was for the construction of the proposed new runway, 03R/21L, located parallel to the existing main runway. Since 2013, Perth Airport has been progressing the detailed design and technical studies for the new runway in preparation for the required Major Development Plan (MDP).

The Master Plan 2014 states that the new runway will initially be 2,700 metres long by 45 metres wide. Perth Airport is now proposing to construct a longer runway to accommodate airlines future fleet mix, including the recently announced Boeing 787 long-haul international operations.

Recent changes to runway lighting design regulations allow a shorter High Intensity Approach Lighting (HIAL) to be installed and a 3,000 metre runway is now achievable within the same project footprint.

The extended runway length would provide greater operational flexibility and provides redundancy for aircraft operations in the event of the existing main runway becoming unavailable for use due to maintenance or an operational incident/emergency situation and thereby providing a much wider benefit.

Perth Airport believes that providing for a 3,000 metre new runway is generally consistent with the Master Plan 2014, for the reasons outlined below, and therefore sought a minor variation to the Master Plan 2014.

This Minor Variation is provided as an addendum to, and should be read in conjunction with, the approved Master Plan 2014. Only those impacts that will change due to the extended length of the new runway are covered in this document. This Minor Variation was approved by the Hon. Darren Chester MP, Minister for Infrastructure and Transport, on 15 June 2017. It fulfills the requirements under the Airports Act 1996 (Airports Act).

Section 70(2) of the Airports Act defines the purposes of the final master plan to be:

(a) to establish the strategic direction for efficient and economic development at the airport over the planning period of the plan.

To safeguard for future demand, the proposed new parallel runway was planned in the 1970s by the then Department of Aviation, and its location has not changed from the original proposal.

The Master Plan 2014 details how the concept of operations for the parallel runway system achieves both airfield and airspace capacity and efficiency through terminal arrivals, where arriving aircraft use the runway closest to their terminal/bay location, and compass departures, where departing aircraft use the runway most appropriate to the departure route. This requires the majority of aircraft types to be able to use both runways however fuel requirements for long-haul international flights and large domestic aircraft means that in some cases operations may be limited to the existing runway.

In the event of an operational incident or maintenance works restricting use of the existing main runway, there are significant operational and safety benefits of having the new runway available for use by a larger range of aircraft types.

The additional 300 metre extension would allow aircraft departing to the north to be higher over the Munday Swamp heritage area and therefore contribute to reducing the likelihood of a bird strike event. Furthermore, the greater runway length would reduce the risk of runway overruns in the case of an emergency during take-off.

An increased runway length could be achieved with the initial build or through a phased construction process, with the additional extension built at a later date.

Depending on timing the construction of the additional length in an operational environment would be complex and therefore may never be built. Accordingly, Perth Airport considers that a runway length of 3,000 metres is necessary to meet airline needs by providing maximum operational flexibility and efficiency.
(b) to provide for the development of additional uses of the airport site

Due to Perth’s isolation, the viability of many of Perth’s international air services depend on linking with connecting networks through hub airports, such as Dubai and Singapore. A direct Perth to London long-haul flight is proposed to commence operations in 2018 and this service has been described by the WA Premier as a “game changer for the WA economy”. Combined with the planned future terminal consolidation, provision of suitable airfield capacity and flexibility for long-haul international aircraft has the potential for Perth to develop as an international stop-over hub.

Although the new runway, and its proposed extension, does not directly impact any additional uses of the airport site, it is likely to encourage future additional uses of the airport estate as support industries and businesses who seek to benefit from the opportunities available through non-stop international connections.

(c) to indicate to the public the intended uses of the airport site

While the Master Plan 2014 identifies a possible extension of the new runway to the north, recent changes to High Intensity Approach Light standards has allowed Perth Airport to now consider an extension to the south. This additional area is shown in yellow highlight on Figure 1. The runway extension to the south minimises the impact on the Munday Swamp heritage area that would result from an extension to the north.

The new runway is wholly located within the Airfield Zone allocated for aviation purposes and does not change or impact on any land use planning identified in the Master Plan 2014. The airside boundary fence shown in Figure 4.7 of the approved Master Plan will be extended to accommodate and protect the additional runway infrastructure. Therefore Figure 1 replaces Figure 4.7 of the Master Plan 2014. The new Figure 4.7 also reflects the latest indicative concept plans for future terminals in Airport Central.

(d) to reduce potential conflicts between uses of the airport site, and to ensure that uses of the airport site are compatible with the areas surrounding the airport

**Australian Noise Exposure Forecast (ANEF) Assessment**

A comparison against the Ultimate ANEF, developed for the Master Plan in 2014, was undertaken to assess the impact of the 300 metre extension.

A direct comparison could result in slightly changed ANEF contours. However, since the development of the Ultimate ANEF in 2014, aircraft noise profile data for the next generation of Boeing 737 and Airbus A320 aircraft has become available, including a document developed by the UK Civil Aviation Authority that provides guidance on adjusting aircraft noise profiles to reflect these new generation aircraft types (Boeing 737 MAX and Airbus A320 NEO) in noise modelling. These medium sized narrow body aircraft are generally considered the backbone of the Australian and greater worldwide aircraft fleet and comprise a significant proportion of Perth Airport operations. Both Virgin Australia and Qantas have substantial numbers of these new aircraft models on order (40 and 99 respectively), with deliveries expected to begin in 2017.

As a result, the assessment also considered the new data available for the next generation models of these aircraft types for the long term scenario. This methodology has been used recently in the development of ANEF contours for other airports, such as Brisbane, and approved by Airservices Australia.

The Ultimate ANEF comprises a composite of three Australian Noise Exposure Concepts (ANECs) that are based on operations at capacity for the existing and potential runway operating models, with the 2059 ANEC reflecting the new runway operating at capacity. As shown in Figures 2-6, the net impact of the additional runway length and new generation aircraft profiles (ANEC 3) is a reduction against the 2059 ANEC contours.

Based on this assessment, Perth Airport considers that the proposed changed length of the new runway is consistent with Ultimate ANEF endorsed for technical accuracy by Airservices 4 June 2014.

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1 Environment Research and Consultancy Department, Civil Aviation Authority – ERCD Report 0705 Revised Future Aircraft Noise Exposure Estimates for Heathrow Airport
Noise Levels

In addition to the ANEF comparison, Perth Airport has considered the potential change in maximum noise levels (LAmax) at select locations in residential areas as a result of the runway threshold shifting 300 metres further south. The review assessed arrivals and departures on runway 03R as these are the operations that would be affected by a shift of the runway 03R threshold. As shown on Figure 7, the review showed that noise levels would be slightly higher with runway 03R arrivals and slightly lower for runway 03R departures compared to those associated with a 2,700 metre runway. However, the change in noise level would not be greater than 1.3 decibels [1.3 dB(A)]. It is unlikely that such a change would be noticeable as three decibels [3 dB(A)] is widely accepted as the minimum sound level change perceivable to the human ear.

Land Planning Schemes

Under the Metropolitan Region Scheme (MRS), prepared and administered by the WA Planning Commission as the principal planning scheme for the Perth metropolitan region, the land to the south and south-east of the airport (adjacent to the new runway) is zoned ‘Industrial’ under the MRS and ‘General Industrial’ under both the City of Belmont and Shire of Kalamunda Local Planning Schemes. The proposal to provide an additional 300 metres of runway length within the airport estate does not change the intent of the zoning under the relevant Local Planning Schemes or the MRS and therefore continues to be consistent with surrounding landuses.

(e) to ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards

The area required for the extra 300 metres of runway does not comprise any State listed Aboriginal heritage site in accordance with Register of Aboriginal Sites. Perth Airport notes that the new runway development will require consideration under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), particularly with regard to

- the recent inclusion of Banksia Woodlands of the Swan Coastal Plain as a listed Threatened Ecological Community under Section 184 of EPBC Act,
- Macathuria keigheryi,
- Conospermum undulatum, and
- Black Cockatoo habitat.

Given the comprehensive process involved, Perth Airport will undertake an EPBC Act assessment for the full runway length of 3,000 metres.

Technical studies are currently being undertaken to assess the environmental impacts of the new runway in preparation for the MDP and EPBC Act referral. These studies include:

- Soil management: a site survey is being completed to identify, and subsequently manage, any increased risk of acid sulfate soils within the development area for the additional 300 metres.
- Groundwater: the additional 300 metres of runway will not materially change the groundwater impacts of the original runway length concept.
- Surface water: the stormwater impacts of the extended 300 metre runway length are alleviated through a concept design that will be implemented as part of the new runway development.
- Biodiversity: the area required for the proposed 300 metre runway extension includes vegetation ranging from ‘degraded’ to ‘excellent’ condition. This area will be assessed in detail for the MDP and environmental approval processes.

(f) to establish a framework for assessing compliance at the airport with relevant environmental legislation and standards

Section 9 of the Master Plan 2014 outlines Perth Airport’s environment management framework. The area required for the additional runway length will be managed according to this framework.

(g) to promote the continual improvement of environmental management at the airport

Perth Airport’s commitment to continuous improvement of environmental management is detailed in Sections 9.2.1 and 9.2.4 of the Master Plan 2014. There is no change as a result of the additional 300 metre runway length.
The following key stakeholders have been engaged on the extension of the new runway:

- Qantas
- Virgin Australia
- Board of Airline Representatives of Australia (BARA)
- Aircraft Noise Ombudsman
- Airservices Australia
- Perth Airport Aircraft Noise Technical Working Group, including
  - Airservices Australia
  - Virgin Australia
  - Qantas
  - Alliance Airlines
  - Network Aviation
- Perth Airport Planning Coordination Forum, including
  - Airservices Australia
  - WA Department of Planning
  - WA Department of Transport
  - Main Roads WA
  - Public Transport Authority
  - City of Belmont
  - City of Swan
  - Shire of Kalamunda
  - Chamber of Minerals and Energy WA
  - Commonwealth Department of Infrastructure and Regional Development
- WA Department of Transport
- WA Department of Planning
- WA Department of Aboriginal Affairs
- South West Aboriginal Land and Sea Council
- Perth Airports Municipalities Group
  - City of Armadale
  - Town of Bassendean
  - City of Bayswater
  - City of Belmont
  - City of Canning
  - City of Cockburn
  - City of Gosnells
  - Shire of Kalamunda
  - City of Melville
  - Shire of Mundaring
  - City of South Perth
  - City of Swan, and
- the community, via advertising in the West Australian newspaper and published on the Perth Airport website.

In accordance with the Airports Act, the Preliminary Draft Master Plan Minor Variation was publicly advertised for a period of 15 business days from 23 March 2017 to 13 April 2017. Comments received during the public comment period were used to develop the Draft Minor Variation.

Perth Airport undertook comprehensive consultation during the preparation of this Minor Variation document and subsequent public comment period and provided advice as per Section 84A (1A) of the Airports Act.
Based on the reasons outlined, Perth Airport believes that providing for a 3,000 metre new runway is generally consistent with the Master Plan 2014.

In particular, Perth Airport notes:

- Due to recent changes in runway lighting design regulations that allow a shorter High Intensity Approach Lighting (HIAL) to be installed for the new runway, the additional 300 meters of runway length is achieved within the original project footprint.

- A runway length of 3,000 metres is necessary to meet airline needs by providing maximum operational flexibility and efficiency.

- The additional runway length combined with new generation aircraft profiles sees noise contours that are consistent with the ANEF. The existing Ultimate ANEF is therefore appropriate to guide land planning in the vicinity of the airport and a formally endorsed ANEF revision is not required for the changed length of the new runway.

- The potential change in maximum noise levels (LAmax) at select locations in residential areas as a result of the runway threshold shifting 300 metres further south is not greater than 1.3 decibels (1.3d B(A)) and as such, change is unlikely to be noticeable.

- The proposal to provide an additional 300 metres of runway length within the airport estate does not change the intent of the zoning under the relevant State and Local Planning Schemes and therefore continues to be consistent with surrounding land uses.

This Minor Variation was approved by the Hon. Darren Chester MP, Minister for Infrastructure and Transport, on 15 June 2017 and fulfils the requirements under the Airports Act. It is provided as an addendum to, and should be read in conjunction with, the approved Master Plan 2014.
Figure 1: Amended Figure 7.4 2034 Aviation Development Plan
Replacing the current large narrowbody jets (A321s, A320s and B738s) in the 2059 ANEC fleet with the newest aircraft types on order (NEOs and MAX) plus extending the runway 300 metres to the south brings the Scenario 1 contour within the existing 2059 ANEC for contours 25 and 20.
Comparison of the noise contours has been completed to assess consistency and does not represent a review of the Perth Airport Ultimate Capacity ANEF endorsed for technical accuracy by Airservices which remains valid.

This is an ANEC comparison and is not to be used for planning purposes. The endorsed ANEF remains as per Figure 7.2 (page 202) of the approved Master Plan 2014.

**Figure 3: ANEC Comparison - Aerial overlay**

- **2,700m ANEC (2059) - Master Plan 2014**
- **3,000m ANEC (2059) and change of aircraft type assumptions**
Comparison of noise contours has been completed to assess consistency and does not represent a review of the Perth Airport Ultimate Capacity ANEF endorsed for technical accuracy by Airservices which remains valid.

This is an ANEC comparison and is not to be used for planning purposes. The endorsed ANEF remains as per Figure 7.2 (page 202) of the approved Master Plan 2014.

Figure 4: ANEC Comparison - South East

2,700m ANEC (2059) - Master Plan 2014
3,000m ANEC (2059) and change of aircraft type assumptions
Figure 5: ANEC Comparison - South

Comparison of the noise contours has been completed to assess consistency and does not represent a review of the Perth Airport Ultimate Capacity ANEF endorsed for technical accuracy by Airservices which remains valid.

This is an ANEC comparison and is not to be used for planning purposes. The endorsed ANEF remains as per Figure 7.2 (page 202) of the approved Master Plan 2014.

- 2,700m ANEC (2059) - Master Plan 2014
- 3,000m ANEC (2059) and change of aircraft type assumptions
This is an ANEC comparison and is not to be used for planning purposes. The endorsed ANEF remains as per Figure 7.2 (page 202) of the approved Master Plan 2014.

2,700m ANEC (2059) - Master Plan 2014

3,000m ANEC (2059) and change of aircraft type assumptions

Comparison of the noise contours has been completed to assess consistency and does not represent a review of the Perth Airport Ultimate Capacity ANEF endorsed for technical accuracy by Airservices which remains valid.
Figure 7: Noise level impacts of changing runway threshold dB(A)
This Minor Variation forms part of the Final Master Plan 2014 which has been prepared by Perth Airport Pty Ltd (Perth Airport) (ABN 24 077 153 130) to satisfy the requirements of the Airports Act 1996 (Cth).

While all care has been taken in the preparation of the Master Plan 2014 Minor Variation:

· it is based on certain forecasts and assumptions, and Perth Airport makes no claim as to the accuracy or completeness of any of the information or the likelihood of any future matter,
· it should not be relied upon by any other party for any purpose,
· it does not commit Perth Airport to any particular development, and
· Perth Airport accepts no liability whatsoever to any person who in any way relies on any information in the Draft Master Plan 2014 (including making any decision about development or any other activity on or off Perth Airport).

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