

# Melbourne Airport Master Plan 2018

## Preliminary Draft

**MELBOURNE**  
**AIRPORT**

# Melbourne Airport Master Plan 2018

## Preliminary Draft

### *Please note*

- Melbourne Airport is managed by Australia Pacific Airports (Melbourne) Pty Ltd (APAM), which is a subsidiary of Australia Pacific Airports Corporation Limited (APAC). In this document, the term 'Melbourne Airport' is used to refer to both the airport site and to APAM as manager of the site (as the case may be). 'Melbourne Airport' is a trademark of APAM.
- This Master Plan was prepared by APAM as part of its internal strategic planning processes and in accordance with the provisions of Part 5 of the *Airports Act 1996* (the Airports Act), and the Regulations made under that Act, and should be read in that context only.
- This Master Plan is a revision of the previous Master Plan that was approved by the Commonwealth Minister in December 2013. The fundamental philosophies of the previous Master Plan are maintained in this version.
- This Master Plan incorporates the 2018 Melbourne Airport Environment Strategy and the Melbourne Airport Ground Transport Plan in accordance with Part 5, Section 71 of the Airports Act.
- Development strategies and scenarios in this Master Plan are based on certain assumptions and forecasts that have been prepared by APAM to assist in the strategic planning process, and to discharge its obligations under the Act. Therefore, the assumptions and forecasts should not be used or relied upon by any person for any other purpose.
- This Master Plan is APAM's statement of intent based on current data and insights and is subject to change. Accordingly, the development strategies and scenarios detailed in it are indicative only, and their inclusion is not to be read as an assurance that any, or all of them, will occur.
- Significant changes to the Master Plan can only be approved by processing a replacement Master Plan or a minor variation. In addition, in accordance with Section 83A or the Airports Act, the airport-lessee company must take all reasonable steps to ensure that the Environment Strategy in the final Master Plan is complied with.



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Melbourne Airport acknowledges the traditional custodians of the land on which the airport is located and where business is conducted. Respect is paid to the Woiwurrung people of the Kulin nation and their elders, past and present.

Melbourne Airport is committed to honouring Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to the land, water and seas and their rich contribution to society.

# Foreword

I am pleased to present to you Melbourne Airport's 2018 Draft Master Plan. The Master Plan outlines our vision, objectives and strategic intent for Melbourne Airport for the next 20 years.

We are fortunate to serve a magnificent global city and a state blessed with natural beauty, rich history and wonderful, culturally diverse people. Melbourne and Victoria have international appeal as a destination for business, education, and sporting and cultural events. Melbourne is renowned as the world's most liveable city and is predicted to overtake Sydney as Australia's largest city by population during the 2030s. This presents Melbourne Airport with an enviable challenge, to cater for an estimated near doubling of passengers to more than 67 million per year by 2038, while at the same time delivering a high quality traveller experience and continuing to generate economic and employment benefits for Melbourne and Victoria.

Since our last Master Plan in 2013 our investment in the T4 domestic terminal, supported by a multi-level ground transport hub, became the biggest infrastructure project undertaken since the airport opened in 1970. Improvements on our taxiways and aprons have enabled us to handle more aircraft and we have continued to deliver complementary and appropriate commercial development across the rest of the estate, most notably in Melbourne Airport Business Park.

This Master Plan builds on Melbourne Airport's strengths, including 24-hour operations and established transport connections, and outlines the opportunity to grow with the support of our local community, government, business and industry, and the Victorian public.

Initiatives in this Master Plan will deliver improvements to efficiency and safety while maximising the capacity of the airport and improving the traveller experience.

Over the next five years Melbourne Airport plans to develop a new parallel east-west runway and extend the existing east-west runway. This project is critical to meeting forecast passenger growth while maintaining on time performance for interstate and international travel, by allowing us to increase aircraft movements from around 55 movements per hour to almost 100 per hour. It will also support the Victorian economy by injecting an estimated \$15.9 billion additional economic activity into the state. A separate, very detailed proposal for the new runway will be the subject of a community engagement program and public exhibition process.

We will also deliver a suite of projects to further improve and expand our terminal facilities and commercial precincts, and make improvements to our on-airport road network to ease congestion. Melbourne Airport is also working closely with the Commonwealth and Victorian governments in the planning and business case investigations for the Melbourne Airport Rail Link.

Melbourne Airport is Australia's second largest airport, a major gateway between Australia and the rest of the world. It is imperative that we manage positive relationships with our neighbours and nearby communities to operate and grow the airport responsibly.

Melbourne Airport's Master Plan vision is to strengthen its position as a global aviation gateway, continuing to develop a world-class airport that generates economic, social and employment benefits for Victoria.

I commend this Draft Master Plan to you.



Lyell Strambi

Chief Executive Officer and Managing Director

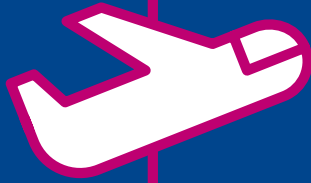




# Executive Summary

Melbourne Airport operates 24 hours a day, seven days a week. It is a vital piece of public transport infrastructure for Victoria and Australia.

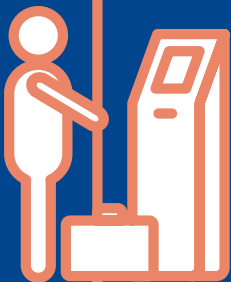




## Airfield

The proposed three-runway system can support growth beyond 2038.

Melbourne Airport's Long Term Plan includes additional runway capacity to support more than 80 million passengers per annum.



## Terminal

A fully developed eastern Terminals Precinct can accommodate more than 65 million passengers.

By 2038 the Terminals Precinct will be expected to accommodate more than 20 million international passengers.

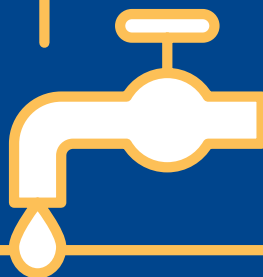


## Freight

Dedicated freight facilities will be developed in the south-eastern precinct of the airfield, adding to existing capacity.

## Utilities

Utility infrastructure will be developed to ensure security, efficiency and reliability of supply for expected growth of the airport.



## Ground Transport

To respond to forecast growth, infrastructure and non-infrastructure solutions will be required on the airport road network.

Further freeway widening and public transport improvements will be required to accommodate 20-year growth forecasts (and off-airport growth).

# Melbourne Airport Master Plan 2018 at a glance



## Non-Aviation Development

Land use planning in the Master Plan supports a range of commercial developments.

These commercial developments support the airport's growth, diversify business risk and enhance the contribution to the broader community.



## Safeguarding

The airport's capacity to grow is dependent on what occurs on the land surrounding it.

Effective stakeholder relations with all levels of government is required to restrict incompatible development from impeding airport operations.

## Environment

The Environment Strategy highlights the environmental values of the airport and how operations will be managed to ensure there are positive environmental outcomes.





## Executive summary

Melbourne Airport has been operating at its current location for almost 50 years. The choice of this site provided Victoria with a great legacy of a large site predominantly surrounded by non-urban uses able to accommodate the growing aviation industry through multiple runways and 24-hour operations.

Under the provisions of the *Commonwealth Airports Act 1996*, Australia Pacific Airports (Melbourne) (APAM) is the 'airport-lessee company' for Melbourne Airport. APAM operates Melbourne Airport under a 50-year lease (to 2047), with an option to extend by a further 49 years to 2096. APAM manages the entire airport site, including the airside, terminal and landside precincts, and the on-airport road network and associated service infrastructure.

Melbourne Airport is Australia's second busiest airport and the main aviation hub for the southern part of the country. In 2016–17 more than 35 million passengers and 275,000 tonnes of international freight passed through the airport.



# Melbourne Airport today – a snapshot



2,663  
HECTARE SITE



24/7  
OPERATION



2 RUNWAYS  
4 TERMINALS



650+  
FLIGHTS DAILY



96K  
PASSENGERS DAILY



70+  
DESTINATIONS



38+  
AIRLINES



20K +  
EMPLOYEES\*



\$17.6 BILLION TO  
VIC ECONOMY\*

2016–17 baseline figures

\*Employees and economic contribution from 2015–16

# Melbourne Airport Master Plan 2018

The Melbourne Airport Master Plan 2018 is a visionary and strategic document detailing planning initiatives for the airport. Its publication is a requirement of the Airports Act, building on the Melbourne Airport Master Plan 2013 and previous Master Plans.

The Master Plan provides detailed plans for the continued development of the airport over the next five years. These plans align to a 20-year strategic direction for the airport that considers the changes needed to aviation facilities, ground transport, utilities infrastructure, non aviation development and environmental measures to ensure the airport is best positioned for future growth and as an airport of choice for travellers, airlines and logistics companies.

## Forecast growth

This 20-year Master Plan period to 2038 forecasts annual passenger numbers to almost double to more than 67 million. Aircraft movements (arriving and departing flights) during this period are also predicted to increase to more than 384,000 movements.

Total domestic and international air freight is predicted to almost double to 900,000 tonnes. The number of vehicles arriving at or departing from Melbourne Airport will reach 240,000 on a typical, busy day.

## Development concept plans

Forecasts for passenger numbers, aircraft movements and air freight volumes provide the fundamental basis for planning for future airport facilities. The Master Plan includes three development concept plans, outlining key development projects and initiatives for:

- 2023 Development Concept Plan (five-year plan)
- 2038 Development Concept Plan (20-year plan)
- Long Term Development Concept Plan.

### *2023 Development Concept Plan*

The 2023 Development Concept Plan assumes the full completion of the proposed Runway Development Program involving the construction and operation of a new parallel east–west runway, along with extensions to the existing east–west runway. Other key improvements to the airport in the first five years include:

- constructing new taxiways to facilitate aircraft traffic movements
- developing efficient common-use domestic and international terminal capacity
- extensions and improvements to apron areas with increased shared use between international and domestic operations
- development of additional remote stands in the Northern Apron Precinct
- extensions and improvements to the internal road network and main forecourt to increase capacity and continuously improve safety and security.

### ***2038 Development Concept Plan***

The 2038 Development Concept Plan for Melbourne Airport involves an expansion of the existing Terminals Precinct, with aircraft parking positions approaching full capacity.

Key infrastructure initiatives to be delivered by 2038 include:

- expanding terminal facilities south of the existing Terminal 4 Precinct
- further expanding the internal road network and main forecourt
- creating new and expanded pier facilities to the existing terminals
- relocating freight activity to the Southern Freight Apron
- developing wide-body aircraft parking positions in the midfield
- completing stages 3 and 4 of the elevated road network.

### ***Long Term Development Concept Plan***

The Master Plan communicates the continued development of Melbourne Airport beyond the third runway and towards a long-term capacity of four runways – a configuration anticipated for the airport since its establishment.

By 2038 the capacity limitations of the existing Terminals Precinct will require increasing aircraft activity within the midfield development area, requiring the development of a midfield terminal and concourse development.

Landside access to serve a new terminals precinct will continue to be safeguarded for ground-based transport access, including future rail connections.

## **Airport Land Use Plan and non-aviation development**

Land-use planning at Melbourne Airport is administered under Commonwealth legislation.

The Land Use Plan for Melbourne Airport is used to guide all on-airport development and to assess non-aviation development proposals, ensuring:

- consistency and integration with the Victorian planning system
- planning for long-term aviation growth
- Melbourne Airport is recognised as one of the state's key activity centres.

The Land Use Plan for Melbourne Airport divides the airport into five land-use precincts.

The airport's status as a Transport Gateway, consistent with the Victorian Government's planning regime, supports the development of economic and employment-generating activities.

Non-aviation development plays a vital role in Melbourne Airport's economic vitality and complements its key function as a transport hub. It supports the airport's growth and diversifies business risk, enhancing the contribution it makes to the broader community.

# Melbourne Airport Master Plan 2018 cont.

## Ground Transport Plan and Utilities Infrastructure

The Master Plan continues the development of the long-term solutions identified in the 2013 Master Plan to address traffic congestion in peak periods. This includes a new elevated connection into the T123 ground transport hub and reconfiguration of freeway entry and exit arrangements.

A number of significant improvements to the off-airport road network are proposed, which include the Bulla Bypass, Melbourne Airport Link and Outer Metropolitan Ring Road. Melbourne Airport will continue to work with the Victorian Government and private operators to improve the road networks and access to Melbourne Airport.

Melbourne Airport will also continue to work closely with the Commonwealth and Victorian governments in the planning and business case investigations for the proposed Melbourne Airport Rail Link. The Master Plan makes on-site provision for future rail access into the airport.

## Environment Strategy

The Melbourne Airport Environment Strategy 2018 provides a platform to review past management actions and to foster new initiatives to continually improve environmental outcomes at Melbourne Airport.

The Environment Strategy describes key aspects including:

- Environmental Management
- Sustainability in planning and design
- Energy and Carbon
- Hazardous Materials
- Cultural Heritage
- Land and water management
- Biodiversity and conservation
- Air quality and ground-based noise
- Waste management.

Melbourne Airport will work with stakeholders to identify, evaluate and implement the use of sustainability standards and frameworks for new developments, responding to the global challenge of climate change, and continuing its commitment to the Airport Carbon Accreditation scheme.

## Aircraft noise and flight paths

Aircraft noise is an unavoidable by-product of an airport's operation. While modern aircraft are relatively quiet compared with their predecessors, aircraft frequency and noise requires considerable attention. The Master Plan outlines the impact of aircraft noise on areas surrounding Melbourne Airport and illustrates the approved Australian Noise Exposure Forecast and approved flight paths.

Melbourne Airport recognises the need to assist in managing aircraft noise for surrounding communities and is working with Airservices Australia, all levels of government, aircraft manufacturers and airlines to manage aircraft noise.

## Safeguarding Melbourne Airport

The capacity of an airport to operate unencumbered is fundamentally dependent on what occurs on the land surrounding it. Safeguarding the operations of Melbourne Airport is an ongoing and shared responsibility between all levels of government and the airport.

The Master Plan describes the objectives of the airport's safeguarding strategy. It builds on the National Airport Safeguarding Framework, which aims to:

- improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms
- improve safety outcomes by ensuring aviation safety requirements are recognised in land-use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The long-term and effective safeguarding of Melbourne Airport is critical to maintaining the airport's 24-hour curfew-free status.

## Stakeholder and community engagement

Melbourne Airport is a major source of jobs for surrounding communities. The airport has a strong commitment to consultation and engagement to balance the needs of stakeholders, passengers, customers and the community. It recognises the integral role the community and key stakeholders play in its success and ongoing operations.

Robust and transparent engagement and communication with the community and key stakeholders is a critical component of the Master Planning process.

## Conclusion

The Melbourne Airport Master Plan 2018 has been prepared to support the continued growth of Melbourne Airport as the gateway to Victoria. As Australia's second largest airport, Melbourne Airport contributes to economic activity across Australia. The airport plays a key role for Australian tourism and export industries, and is a major hub for employment in Melbourne.

The Master Plan responds to forecast aviation growth, maintaining and improving a safe and secure airport environment. By acting now, in a responsible and sustainable manner, the airport will continue to deliver significant, long-lasting economic, employment and social benefits to Victoria, and across Australia.







Part A:

# Introduction

The Melbourne Airport Master Plan 2018 has been prepared in accordance with the requirements of the Airports Act. This document is the Preliminary Draft Master Plan, prepared for consultation with key stakeholders.

# 1.0

## Introduction

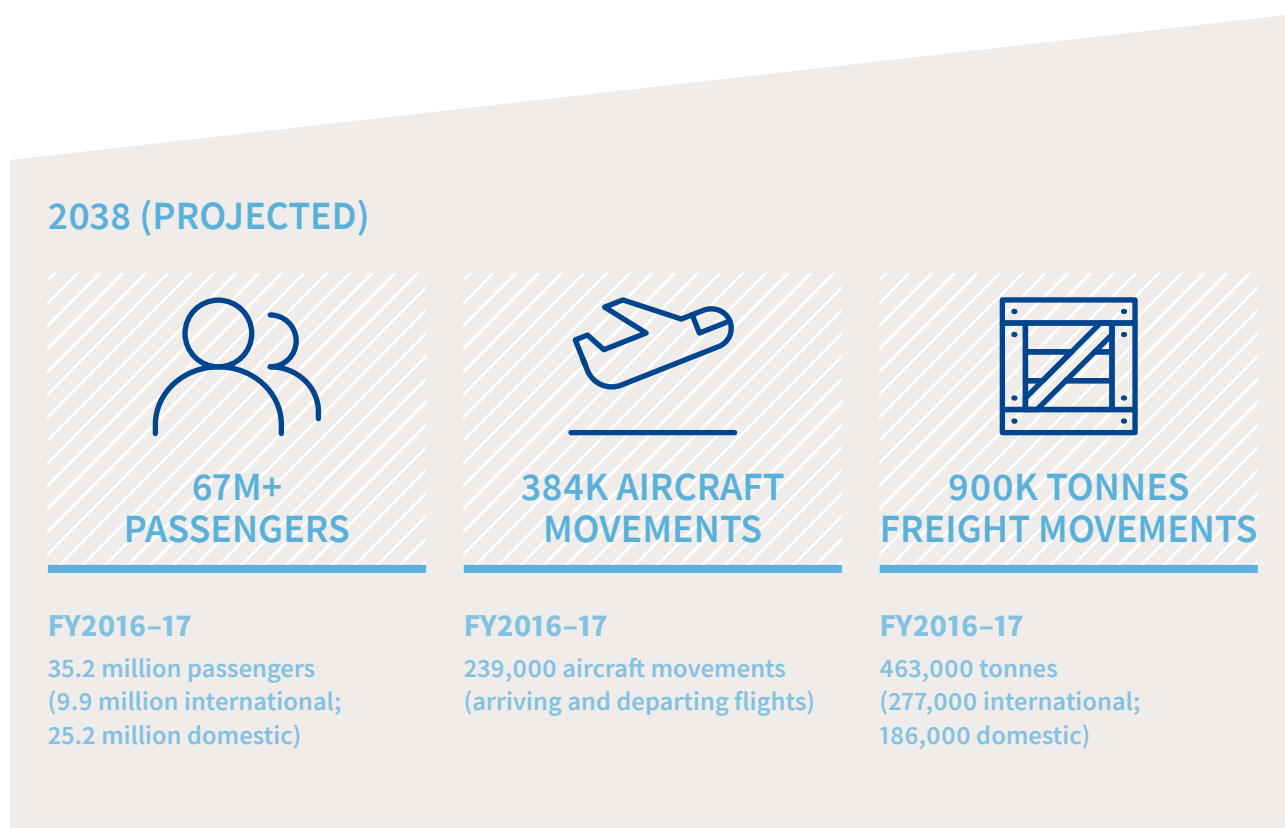
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*This section introduces the Master Plan, describing its purpose and structure to help with navigating the document.*



# 1.0 Introduction



## 1.1 Welcome to the Melbourne Airport Master Plan 2018

Melbourne Airport is Australia's second busiest passenger airport and the main aviation hub for the southern part of the country.

In the next 20 years Melbourne is set to become Australia's largest city, with the population increasing to close to seven million people. Melbourne is one of the world's most liveable cities and is a drawcard for domestic and international visitors.

The Melbourne Airport Master Plan 2013 positioned the airport for growth in response to increased demand for air travel. A rapid increase in visitors from Asia, increased competitiveness between airlines and greater accessibility of air travel are behind this increased demand.

Melbourne Airport has already begun planning for a third runway and other aviation improvements to accommodate significant growth.

This Master Plan communicates the continued development of the airport beyond the third runway and towards a long-term capacity of four runways, a configuration anticipated by the airport since its establishment. It outlines the APAC's vision for the airport for the next 20 years (to 2038) and considers the changes needed to aviation facilities, ground transport, utilities infrastructure and environmental measures to ensure the airport is best positioned for future growth, and as an airport of choice for travellers, airlines and business.

## 1.2 Purpose of the Master Plan

The Master Plan is a visionary and strategic document detailing planning initiatives for the airport site, and is a statutory document under the *Airports Act 1996* (Cwlth). As lessee of Melbourne Airport, Australia Pacific Airports (Melbourne) (APAM) is required to prepare a Master Plan every five years, providing detailed plans for the continued development of the airport over the next five years, and a 20-year strategic direction for the airport.

It is also intended to be a key document for the community, the Victorian Government, local governments and the business sector. It provides clear direction for developing airport facilities and acts as an important link to other planning strategies for Melbourne and Victoria.

In the Master Plan, the term ‘Melbourne Airport’ is used to refer to both the airport site and to APAM as manager of the site. ‘Melbourne Airport’ is a trademark of APAM.

## 1.3 Structure of the Master Plan

This Master Plan has been prepared in accordance with the requirements of the Airports Act. It is divided into five parts:

### ***Part A: Introduction***

Part A introduces the Master Plan, details the Master Plan’s vision and development objectives, outlines process and legislative requirements, describes stakeholder and community engagement undertaken to date, and provides a summary of how the community will be consulted on the preliminary draft Master Plan.

### ***Part B: Planning Context***

Part B provides the contextual framework for developing the Master Plan. It outlines the background to the airport, the global, Australasian and Victorian context, the facilities and infrastructure at the airport today, and the achievements of the past five years.

### ***Part C: The Plan***

Part C outlines the projected growth in passengers, aircraft movements and freight volumes, and the employment impact that this will have at Melbourne Airport. It describes how the airport will respond to this growth in the next five years, the next 20 years and the long-term capacity of the airport.

### ***Part D: Planning Response***

Part D details the specific planning response needed to achieve the vision of the Master Plan in the 20-year planning period, with a focus on aviation and terminal developments, future land uses and non-aviation property development, and ground transport and infrastructure improvements. It provides a strategy for addressing the environmental challenges that exist at the airport today and may arise from increased growth.

A number of measures of how the airport will be safeguarded are outlined. An implementation plan for the first five years and the 20-year planning period describe what Melbourne Airport will do to achieve its vision.

### ***Part E: Supporting Information***

Part E provides supporting information as appendices, including a detailed outline of how the Master Plan meets the requirements of the Airports Act, a glossary of key terms and a list of abbreviations used throughout the document.





# 2.0

## Vision and development objectives

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*This section outlines the Master Plan's vision for the future of Melbourne Airport and the associated development objectives to support this vision.*



## 2.0 Vision and development objectives

### 2.1 Master Plan vision

The Master Plan's vision for the next 20 years is:

*To strengthen Melbourne Airport's position as a global aviation gateway by continuing the development of this world-class airport that generates economic, social and employment benefits for Victoria and Australia.*

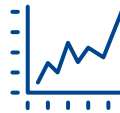
### 2.2 2018 Master Plan development objectives

This Master Plan has been prepared in accordance with the following objectives:



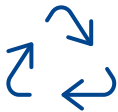
#### Connectivity

- Enhance the airport's place as Victoria's gateway to the world.



#### Growth

- Meet the aviation needs of a growing national economy.
- Facilitate the needs of the airline community.



#### Sustainability

- Provide economic and social benefits to the local community and Victoria through long-term sustainable growth and investment.



#### Employment

- Protect the airport's 24-hour curfew-free status for the benefit of Victoria.
- Maintain the airport as one of Victoria's key activity and employment centres.



#### Safe and secure

- Ensure development maintains a safe and secure operating environment.



#### Efficiency

- Deliver timely and cost-efficient infrastructure for airlines, businesses, passengers and staff.
- Improve every traveller's experience of the airport.

# 3.0

## The Master Planning process

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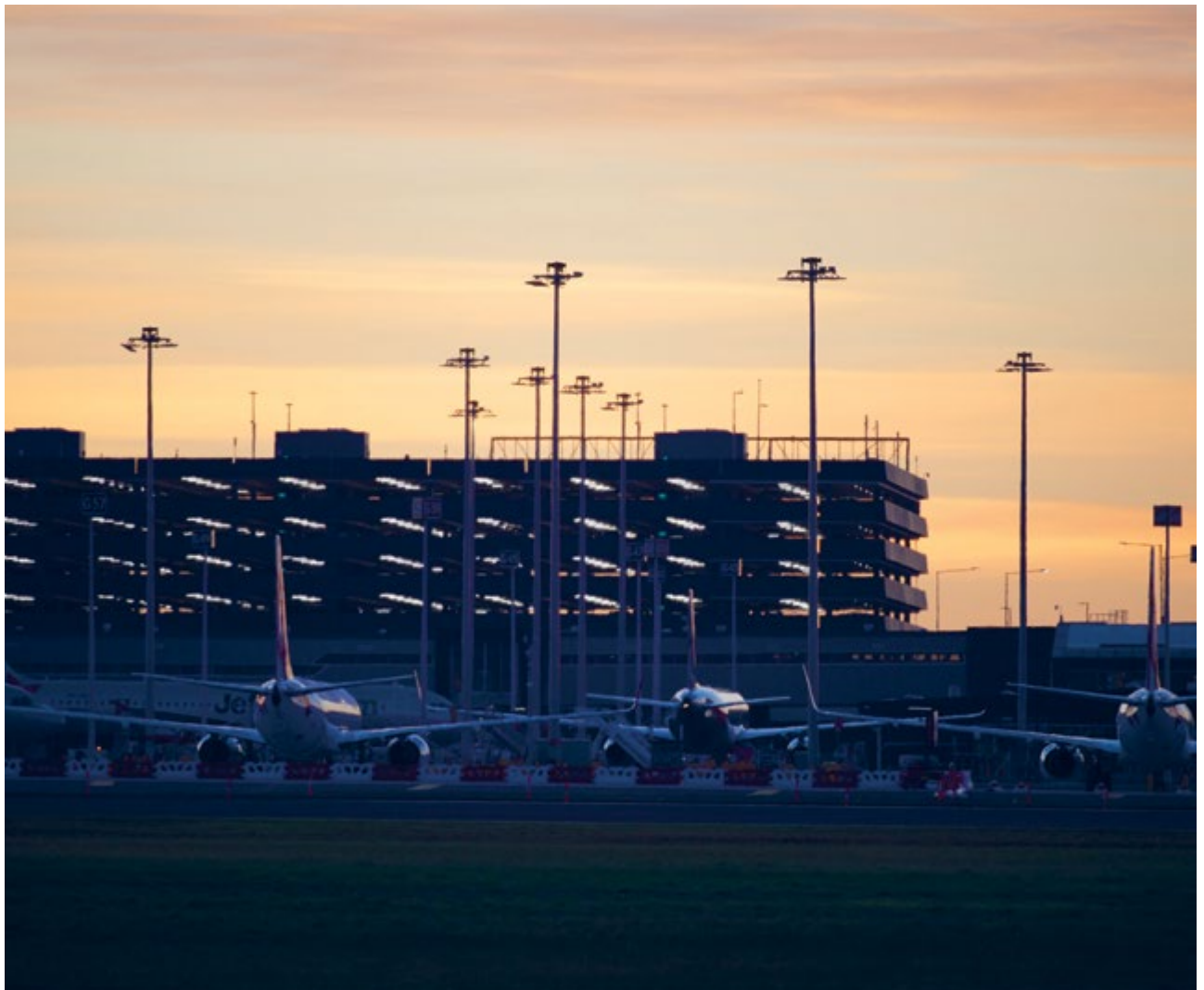
*This section provides an outline of the Master Planning process under the Airports Act, the legislative framework for what must be included, and the engagement that has occurred to prepare this Master Plan Exposure Draft.*

## 3.0 The Master Planning process

### 3.1 Master Plan preparation

The process for preparing a Master Plan is detailed in the Airports Act (Figure 3-1) and includes preparing:

- a Preliminary Draft, subject to public consultation
- a Draft Master Plan for consideration of the transport and infrastructure minister
- a supplementary report on the Preliminary Draft Master Plan
- a Final Master Plan (as approved by the Minister), which must be published.



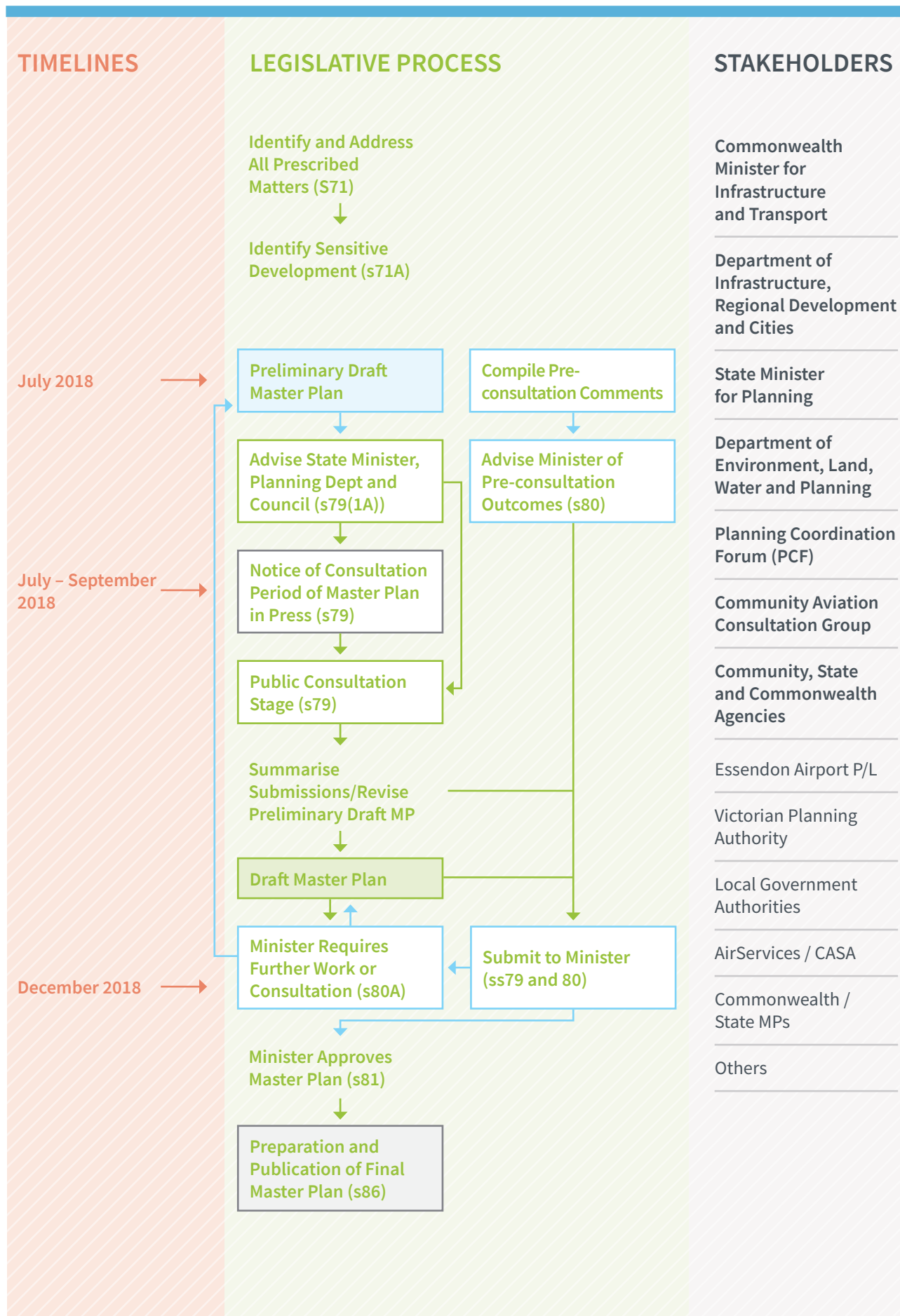


Figure 3-1: Master Plan development process



## 3.2 Legislative framework

### 3.2.1 Airports Act 1996

Melbourne Airport land is owned by the Commonwealth Government. The Airports Act establishes the regulatory framework for Commonwealth-leased airports.

Under the provisions of the Airports Act, APAM, a subsidiary of Australia Pacific Airports Corporation Limited (APAC), is the 'airport-lessee company' for Melbourne Airport. It is responsible for managing the airport for 50 years (from 1997 to 2047), with an option to extend this lease by a further 49 years to 2096. APAM manages the entire airport site including the airside, terminal and landside precincts, on-airport road network and associated service infrastructure.

APAM is also required to develop Melbourne Airport, taking into account anticipated demand, to the quality standards reasonably expected of a major international airport in Australia and consistent with good business practices.

In accordance with section 70 of the Act, there must be a final Master Plan for the airport that has been approved by the Minister for Infrastructure and Transport. A Master Plan is required to:

- a. *establish the strategic direction for efficient and economic development at the airport over the planning period of the plan*
- b. *provide for the development of additional uses of the airport site*
- c. *indicate to the public the intended uses of the airport site*
- d. *reduce potential conflicts between users of the airport site, and to ensure that use of the airport site is compatible with the areas surrounding the airport*
- e. *ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards*
- f. *establish a framework for assessing compliance with relevant environmental legislation and standards*
- g. *promote the continual improvement of environmental management at the airport.*

Section 71 of the Airports Act specifies the matters that must be set out in a Master Plan, including providing details of:

- development objectives
- future aviation needs
- future land-use plans
- proposed developments within the first five years and their effect on employment and the economy
- flight paths and noise impacts, including an Australian Noise Exposure Forecast (ANEF)
- environmental issues and their management
- any proposed sensitive developments
- a ground transport plan
- an environment strategy.

The planning horizon for this Master Plan is 20 years (from 2018 until 2038). In preparing the Master Plan, Melbourne Airport has considered the long-term capacity of the airport.

A detailed breakdown of the Airports Act requirements for an airport Master Plan, and how this Master Plan addresses them, is included in Appendix A.

The specific areas that are subject to the Airports Act and Regulations include:

- environmental management
- land-use planning and development controls
- building construction approvals
- pricing and quality of service monitoring.

The Department of Infrastructure, Regional Development and Cities (DIRDC) is responsible for administering the Airports Act and its Regulations.

### 3.2.2 Environmental legislation

Melbourne Airport has a responsibility to comply with all relevant Commonwealth, Victorian and local legislation as it relates to the environmental aspects addressed in the Melbourne Airport Environment Strategy 2018. In addition to the Airports Act, Melbourne Airport must comply with two overarching pieces of Commonwealth environmental legislation:

- *Airports (Environment Protection) Regulations 1997* (limited aspects)
- *Environment Protection and Biodiversity Conservation Act 1999*.

Melbourne Airport is also required to comply with Victorian legislation where airport activities have the potential to affect specific environmental aspects of off-airport land. Key Victorian legislation applicable to the environmental aspects covered by the Environment Strategy includes:

- *Environment Effects Act 1978*
- *Environment Protection Act 1970* (limited aspects)
- *Planning and Environment Act 1987*.

A comprehensive list of Commonwealth and Victorian environmental legislation, standards and policies applicable to Melbourne Airport is provided in Appendix E.

### 3.2.3 Other Commonwealth legislation

Other Commonwealth agencies control, support or have influence on the airport's activities in the following key areas, governed through a range of legislative mechanisms:

- airspace administration and regulation by the Civil Aviation Safety Authority (CASA) and Airservices Australia (Airservices) in accordance with the *Airspace Act 2007* and the *Civil Aviation Act 1988*
- standard setting and CASA enforcement activities under the *Civil Aviation Act*, the *Civil Aviation Regulations 1988* and the *Civil Aviation Safety Regulations 1998*
- aviation security controls as set out in the *Aviation Transport Security Act 2004* and Regulations administered by the Department of Home Affairs.

### 3.2.4 Victorian and local government regulations

Victorian and local planning provisions under the Planning and Environment Act are not directly applicable to Melbourne Airport. However, the Master Plan must be generally consistent with the Victorian and local planning policies that apply to the airport's location. This is specifically addressed in section 10.8.

## 3.3 Stakeholder and community engagement

Melbourne Airport has a strong commitment to consultation and engagement to balance the needs of stakeholders, passengers, customers and the community. It recognises the integral role the community and key stakeholders play in its success and ongoing operations.

Communications and engagement activities involve four main streams (outlined below). Melbourne Airport measures its stakeholder and communications performance through an annual stakeholder audit.

### 3.3.1 Communications and information

Melbourne Airport will continue to use a range of communication channels, including its website, media releases, community meetings and social media, to provide timely and accurate information about airport operations, projects, consultation periods and future plans.

To support the public consultation for the 2018 Master Plan, a dedicated community engagement website has been established. The My Melbourne Airport website focuses on providing accessible information on our key projects, allowing stakeholders to register for updates and allowing interested parties to ask questions, make comments or provide submissions. The needs of the community and stakeholders are taken into consideration in developing these communication channels.

### 3.3.2 Stakeholder engagement

Melbourne Airport holds regular briefings, meetings and updates to keep stakeholders informed and engaged in airport-related issues. These stakeholders include local, Victorian and Commonwealth governments, agencies and statutory authorities, the local community, airlines, industry, business and tourism agencies, and employees.

### 3.3.3 Forums

Melbourne Airport has a number of established consultation forums to facilitate the exchange of information between the airport and its stakeholders. These forums meet on a regular basis and include the following:

- The **Planning Coordination Forum** focuses on the strategic partnerships between Melbourne Airport, Commonwealth, Victorian and local authorities and industry to shape the airport's current and future growth. The forum works to integrate the airport's long-term planning approach with other relevant urban and regional planning policies to protect its long-term growth and curfew-free status.
- The **Community Aviation Consultation Group** is an advisory group to Melbourne Airport comprising an independent chair, representatives from local government, airlines, unions and the community. The group meets quarterly and focuses on providing Melbourne Airport with advice on community-related airport issues. The group discusses and provides feedback on planning matters, community engagement and major projects.
- The **Noise Abatement Committee** examines the impact of aircraft noise exposure on surrounding communities and reviews aircraft noise issues, systems and mitigation measures. Members include Airservices, local government representatives, airlines and Melbourne Airport.

### 3.3.4 Community investment

Melbourne Airport works with, supports and fosters the development of local communities.

Melbourne Airport has a strong focus on supporting improved educational outcomes for school-aged children within the communities immediately surrounding Melbourne Airport. Favouring multi-year partnerships, Melbourne Airport is proud to work with the following organisations:

- Western Chances
- Banksia Gardens Community Services (Broadmeadows)
- The Salvation Army
- Conservation Volunteers Australia (Eastern-Barred Bandicoot).

### 3.3.5 The Master Planning engagement process

The Master Planning process presents an opportunity for the community and stakeholders to understand and provide feedback on Melbourne Airport's planned activities for the subsequent five years, and on its longer term vision.

Robust and transparent engagement and communication with the community and key stakeholders is a critical component of the Master Planning process. Melbourne Airport will inform and consult the community in the Master Planning process and build their capacity to make informed submissions.

The Airports Act requires the Preliminary Draft Master Plan to be publicly exhibited for 60 business days. During this time Melbourne Airport will engage the community with a program including the following activities:

- an online platform that will enable the community to engage with the project team, seek information and provide feedback
- community drop-in events, information sessions, listening posts and facilitated focus group discussions
- digital engagement, media, editorial and social media.

The aim of the engagement program is to maximise understanding and awareness about the Master Planning process and encourage participation from community members in the future vision and planning of the airport.

Melbourne Airport will engage with airlines, industry representatives, representatives from all levels of government, Victorian business and tourism bodies, statutory authorities, passengers and local organisations and communities through a program of regular meetings, briefings and forums. Melbourne Airport will engage with its established consultation forums including the Planning Coordination Forum and Community Aviation Consultation Group, and deliver targeted engagement with culturally and linguistically diverse (CALD) groups, Aboriginal community groups, and people with a disability.

Melbourne Airport will maintain its commitment to meaningful engagement and build on its relationships and partnerships with stakeholders and communities throughout the lifetime of the Master Plan.







Part B:

# Planning Context

Understanding the current planning context for the airport allows the Master Plan to be resilient to the significant changes that are occurring in the economy, aviation industry, property development and climate.

This Master Plan is consistent with previous long-term plans for Melbourne Airport. The airport today has been significantly improved since its establishment in 1970, with major investments by Melbourne Airport in the past five years to improve the passenger experience and the capacity and efficiency of the airport's operations.

Melbourne Airport is critically important infrastructure for the fastest growing and most liveable city in Australia. It makes a significant contribution to the Victorian and Australian economy and is one of the largest employment nodes in Melbourne.

# 4.0

## Background

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*This section provides a background to Melbourne Airport to understand the context of this Master Plan. It provides a history of Melbourne Airport, outlines previous Master Plans and describes the changes that have occurred since the 2013 Master Plan.*

## 4.0 Background

### KEY FEATURES



#### 50 YEARS

Melbourne Airport has been operating at its current location for almost 50 years



#### MULTIPLE RUNWAYS & 24-HOUR OPERATIONS

The choice of this site provided Victoria with a great legacy – a large site predominantly surrounded by non-urban uses able to accommodate the growing aviation industry through multiple runways and 24-hour operations

## 4.1 History of Melbourne Airport

### 4.1.1 Early plans

Melbourne Airport has been Victoria's gateway to the world for almost 50 years (Figure 4-1). In 1939 the Commonwealth Minister for Defence identified the need for a new airport site for Melbourne to replace Essendon Airport. The Tullamarine site was chosen because it offered ample opportunity for long-term growth. The site was reasonably accessible to the city but far enough away from established areas to be able to operate without constraint.

Early plans for Melbourne Airport were based on meeting the long-term needs of international and domestic traffic. Initially, two runways were proposed and eventually constructed. Since the 1960s it has been envisaged that the airport would have four runways.

Much of the present core airport infrastructure, including the two existing runways and the main terminal complex, was constructed in the 1960s. The first scheduled international flights took place in 1970, followed a year later by the first domestic flight.

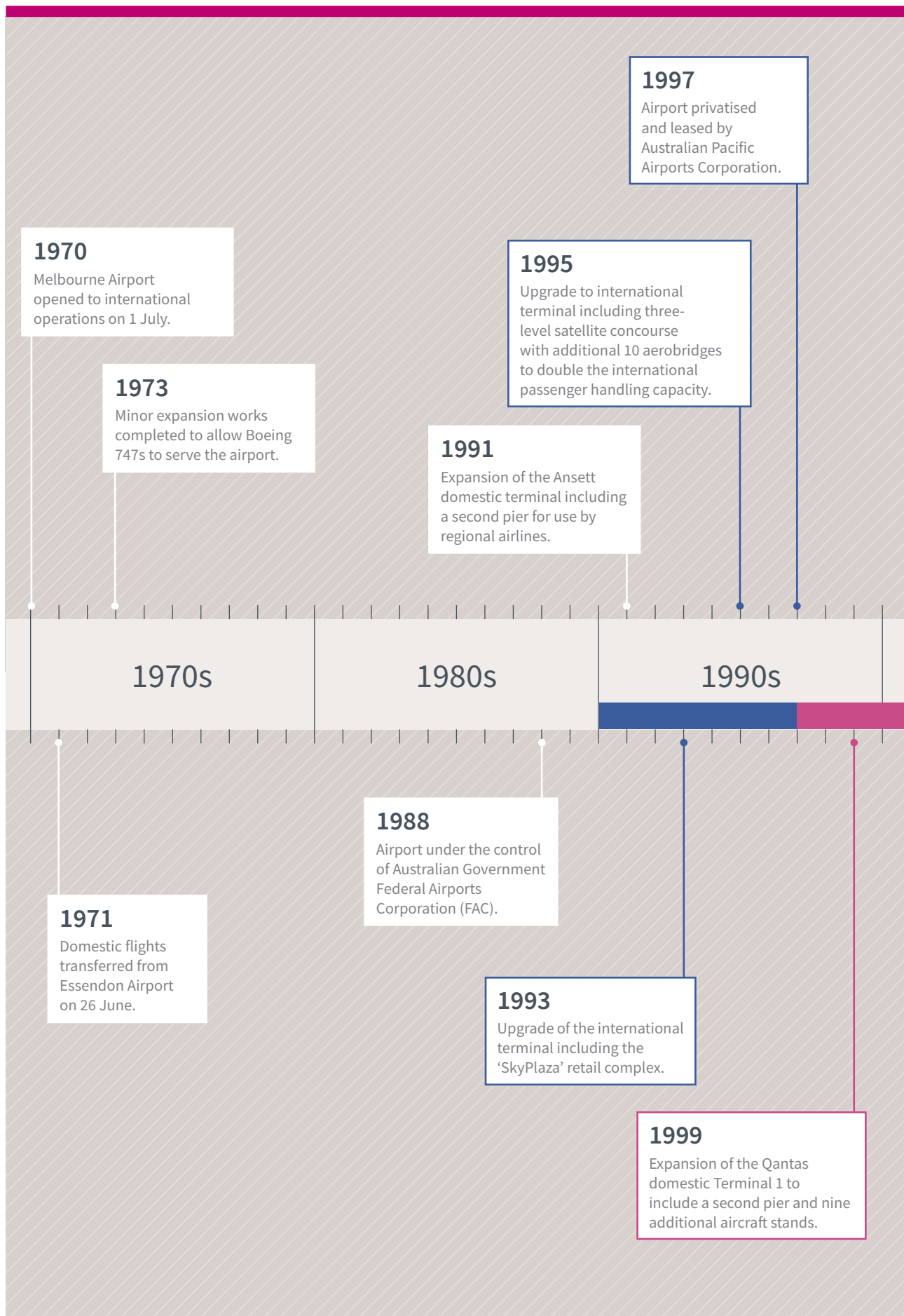
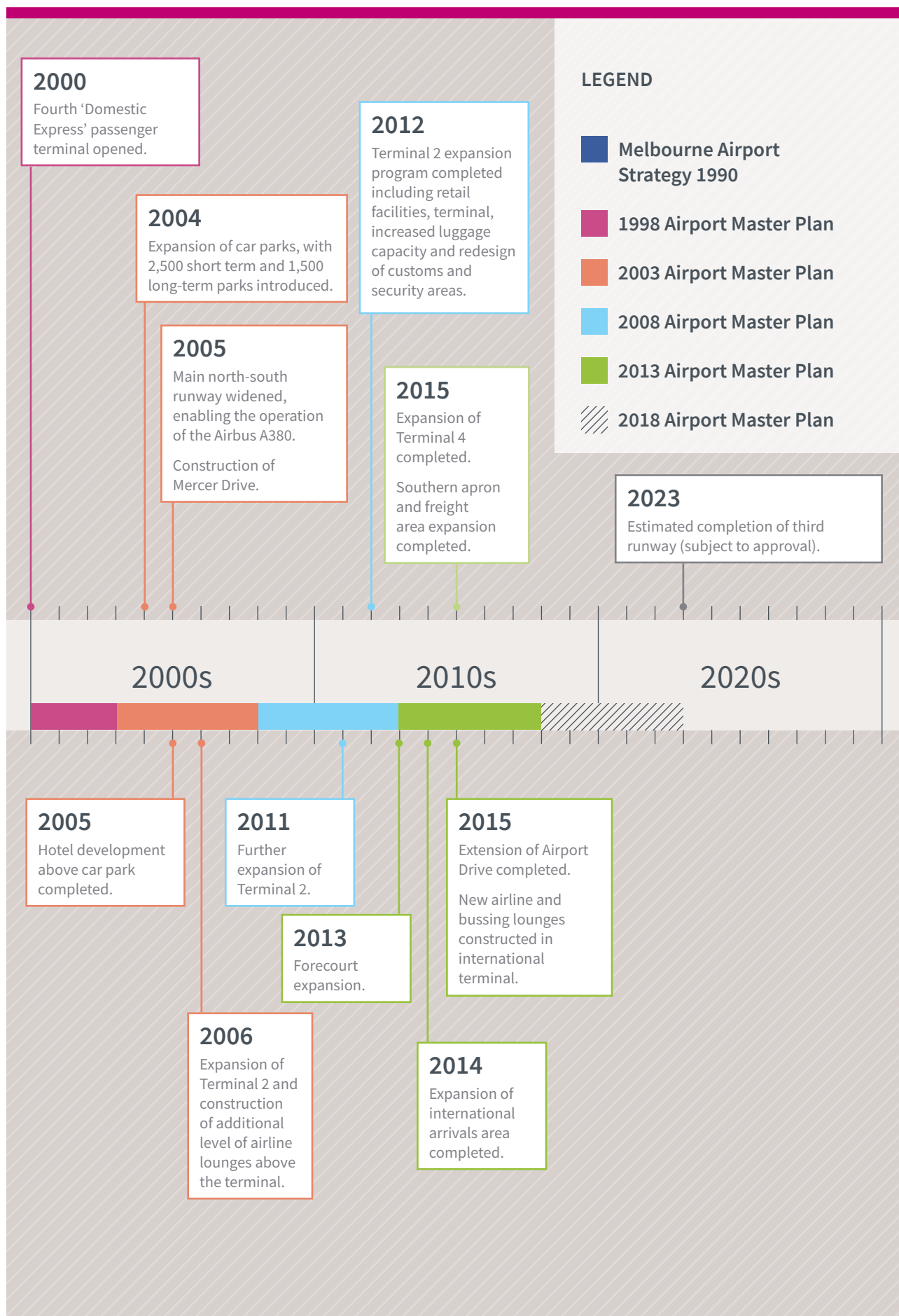


Figure 4-1: Planning Timeline of Melbourne Airport





### 4.1.2 Melbourne Airport Strategy 1990

In response to long-range passenger and aircraft movement forecasts (1990 to 2050), the Federal Airports Corporation and the Victorian Government jointly developed a long-term strategy for the airport's development and management – the Melbourne Airport Strategy 1990. Its objectives were to:

- maximise the use of Melbourne Airport to achieve the greatest economic benefit for the state, the aviation industry and the airport operator
- ensure Melbourne Airport has the capability required of a major Australian international and domestic airport by planning adequately for aviation traffic, passenger flows and ground traffic, within agreed social and environmental constraints
- agree on an airport design that balances airside and landside operations
- enable progressive development of facilities (when economically justified) in terms of passenger capacity and/or aircraft operations, passenger convenience and freight movements
- retain, where practicable, flexibility in the plan to meet changing demands or circumstances within agreed criteria.

The Commonwealth and Victorian governments formally endorsed the Melbourne Airport Strategy in 1990 following a comprehensive Environmental Impact Statement involving extensive community and industry consultation. The Environmental Impact Statement was prepared under the Commonwealth *Environment Protection (Impact of Proposals) Act 1974* and was subsequently approved by the then Minister for the Arts, Sport, the Environment, Tourism and Territories on 12 November 1990.

The Melbourne Airport Strategy provided a broad framework for orderly airport development, road and rail access and external land-use control to protect the airport's 24-hour, curfew-free operation and formed the forerunner to the current Master Planning process. A key feature was provision for the future development of wide-spaced parallel north–south and east–west runways to optimise hourly and annual capacities and operational flexibility (refer to Appendix B).

These features have provided the basis of every long-term plan for Melbourne Airport since 1990.

## 4.2 Airport ownership

Melbourne Airport was owned and operated by the Commonwealth Government for its first 27 years. In 1997, when Commonwealth airports were privatised, Australia Pacific Airports (Melbourne) became the airport-lessee company for Melbourne Airport.

The Commonwealth Government retains ownership of the site and has responsibility for control over land-use planning and development on airport land, including all leased land under the provisions of the Airports Act.

## 4.3 Previous Master Plans

This is the fifth Melbourne Airport Master Plan prepared by Melbourne Airport since privatisation in 1997. Subsequent Master Plans have built on and replaced the previous Master Plans, all building on the framework established in the Melbourne Airport Strategy 1990.

A brief summary of the Melbourne Airport Master Plan history is shown in Figure 4-2.

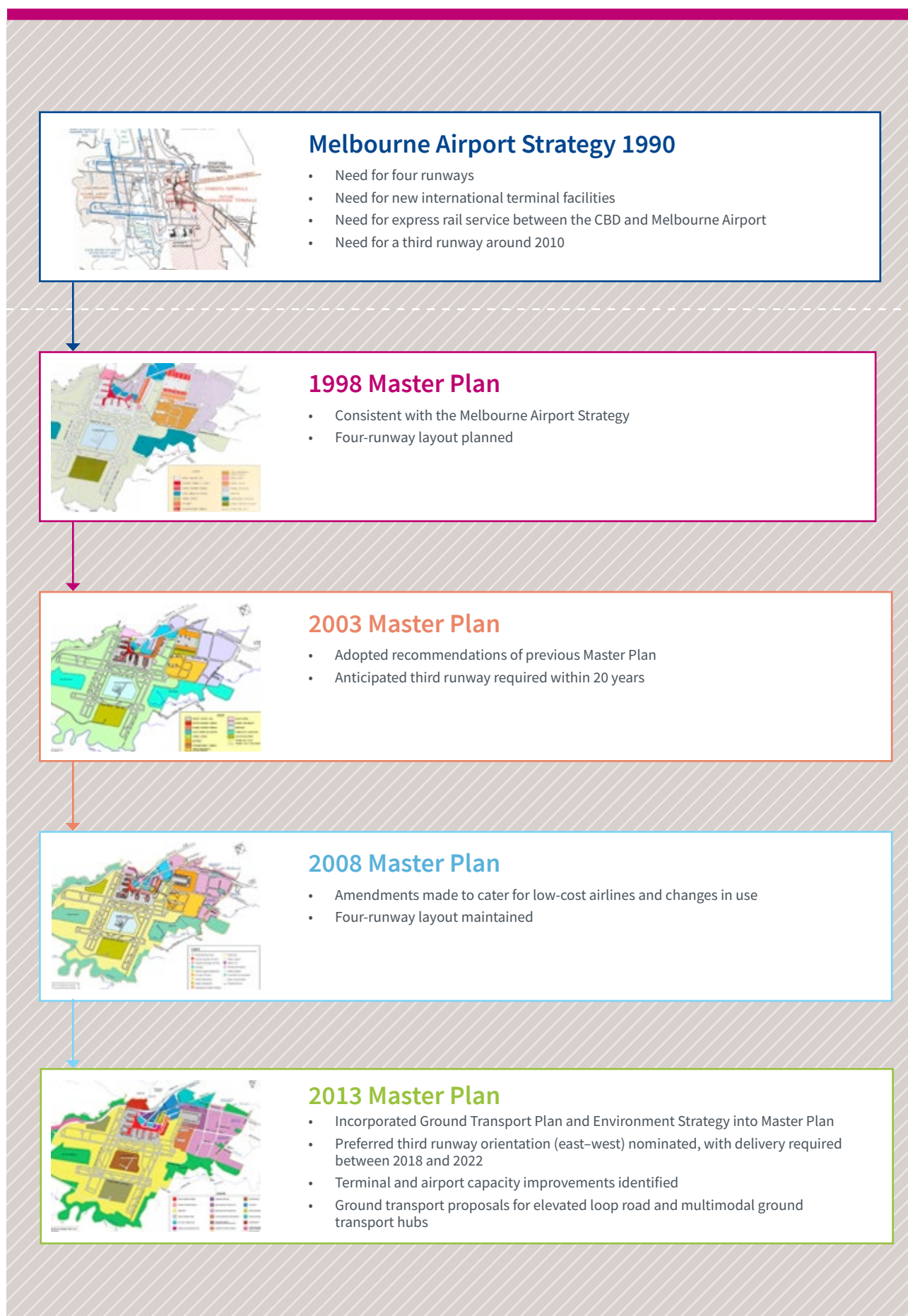


Figure 4-2: Previous Master Plans

## 4.4 Key achievements since the 2013 Master Plan

A number of significant developments and initiatives have occurred at Melbourne Airport since the 2013 Master Plan.

### 4.4.1 Airside development

Melbourne Airport has invested heavily in airside capacity since 2013, with a significant increase in aircraft parking aprons and supporting terminal infrastructure within the Southern Terminal Precinct and Terminal 4.

These achievements are outlined in Table 4-1.

**Table 4-1: Airside development achievements, 2013–2018**

| Aspect                             | Achievement   |
|------------------------------------|---|
| Taxiways                           | Taxiway improvements in the Southern Terminal Precinct                  |
| Aprons                             | Southern apron expansion and apron pavement replacement                 |
| Navigation facilities and services | High-intensity approach lighting system installed for Runways 16 and 27 |

### 4.4.2 Terminals and aviation development

Melbourne Airport has focused on improving terminal facilities and capacity in the past five years. In particular it has invested in a new domestic terminal (Terminal 4) for use by multiple airlines sharing infrastructure and facilities. Key achievements are described in Table 4-2.

**Table 4-2: Terminals and aviation development achievements, 2013–2018**

| Aspect                     | Achievement   |
|----------------------------|---|
| Terminal 2 (international) | Higher capacity automatic bag-drops and self-service kiosks for multiple airline use  |
|                            | Capacity and passenger service improvement at emigration by installing automated biometric smart-gates                              |
|                            | New passenger bussing, transit and airline lounge capacity to improve the customer experience and increase capacity and flexibility |
|                            | New luxury retail stores  |
| Terminal 3                 | New airline lounge facilities   |
| Terminal 4                 | New terminal with complete self-service operation   |

### 4.4.3 Non-aviation development

Melbourne Airport has continued to broaden the range of economic activities undertaken on airport land. Significant commercial and business developments are summarised in Table 4-3.

**Table 4-3: Non-aviation developments, 2013–2018**

| Aspect  | Achievement  |
|---|--|
| Melbourne Airport Business Park (MABP)                            | 39 hectares of further development of the Business Park, including seven additional commercial facilities and an expanded road network |
| Melbourne Airport Cargo Estate (now incorporated within the MABP) | Expansion of the new industrial warehouse precinct, with 30,000 square metres of new facilities  |

### 4.4.4 Ground transport

Melbourne Airport has progressed a number of improvements and additions to the ground transport network in accordance with the 2013 Ground Transport Plan. These achievements are detailed in Table 4-4.

**Table 4-4: Ground transport improvements, 2013–2018**

| Aspect                      | Achievement   |
|-----------------------------|---|
| Internal road network       | Airport Drive extension (including shared-use path) completed, more than doubling entry capacity from the south                 |
| Ground transport facilities | Terminal 4 ground transport hub – new multimodal facility for public transport, passenger pick-up and drop-off, and car parking |

## 4.4.5 Utilities infrastructure

Over the past five years Melbourne Airport has implemented a range of initiatives to improve utilities infrastructure provision and performance. These achievements, in accordance with the 2013 Infrastructure and Development Plan, are summarised in Table 4-5.

**Table 4-5: Utilities infrastructure achievements, 2013–2018**

| Aspect                  | Achievement  |
|-------------------------|--|
| Low-carbon energy       | <p>Delivered an eight megawatt tri-generation plant that generates on-site electricity from natural gas, which provides back-up capacity and diversifies power supply for the airport</p> <p>The tri-generation plant utilises waste heat for heating and cooling of the airport terminals</p> |
| Energy network capacity | <p>Delivered an underground services tunnel as a proactive infrastructure development that enhances resilience and supports future growth and diversification</p>  |
|                         | <p>Expansion of the airport's main substation (MAT), doubling the airport's high-voltage electricity capacity through the delivery of the third transformer project</p>  |
| Water sustainability    | <p>Completed the first phase of the Airport Drive Stormwater Treatment and Reuse System</p> <p>This award-winning project allows the airport to capture, treat and re-use stormwater run-off and improve water quality in Steele Creek North</p>   |
|                         | <p>Constructed and installed new stormwater infrastructure in Sharps and Annandale roads, and improved water quality in the drainage network of the Moonee Ponds Creek catchment</p>   |



## 4.4.6 Environment Strategy

Over the past five years Melbourne Airport has implemented a range of initiatives to improve the environmental performance of the airport. Table 4-6 provides a summary of the major achievements from the 2013 Environment Strategy.

A comprehensive outline of all environmental achievements is provided in Appendix C.

**Table 4-6: Summary of major Environment Strategy achievements, 2013–2018**

| Aspect                                     | Achievement  |
|--|--|
| Objectives and targets                     | 56 of 58 targets have been achieved (or are ongoing by nature) and progress continues to be made against the remaining two (to source 15% of operational energy from renewable sources and to reduce waste to landfill by 30% per passenger, from an FY11 baseline)                |
| Ecologically sustainable development (ESD) | New Terminal 4 development completed in line with the Leadership in Energy and Environmental Design (LEED) Guidelines  |
| Energy and climate change                  | Received Level 1 Airport Carbon Accreditation by Airports Council International, which recognises Melbourne Airport's commitment to reducing its carbon emissions  |
|  | Commissioned an 8MW tri-generation system, which resulted in a 22% reduction in carbon emissions for FY17  |
| Waste and resource management              | A consolidated waste tracking system has been implemented since April 2016. The data captured can be used to target areas for future waste management improvements and initiatives   |
| Biodiversity and cultural heritage         | Melbourne Airport has developed a web application tool that records and identifies all biodiversity and heritage values, reports and risks. As a live application, the tool is updated as activities are undertaken to allow for sensitive and adaptive management of these values |

# 5.0

## Melbourne Airport today

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*This section describes Melbourne Airport in 2016/17 including an outline of its current facilities and infrastructure. It is a snapshot of the airport in 2016/17, providing the base from which future planning for Melbourne Airport has been undertaken for this Master Plan.*

## 5.0 Melbourne Airport today

### KEY FEATURES



**2,663  
HECTARES**



**2 RUNWAYS**



**4 TERMINALS**



**22KM FROM  
MELBOURNE CBD**



**118K VEHICLE  
TRIPS DAILY**



**CULTURAL  
HERITAGE SITES**

### 5.1 Location

Melbourne Airport is the major gateway to Victoria and southeast Australia for passengers and air freight. The airport is located approximately 22 kilometres north-west of Melbourne's central business district and is well connected to Melbourne's freeway and arterial road network (Figure 5-1). It is in close proximity to major industrial areas and three of Melbourne's residential growth corridors. This location and accessibility means the airport is well placed to serve as a hub for the freight and logistics industry, as well as to capitalise on growing labour markets.

The Melbourne Airport site is approximately 2,663 hectares in area (Figure 5-2). It is predominantly surrounded by non-urban uses to the immediate north and west. This helps protect the community and safeguards the airport from encroachment of sensitive and incompatible uses. There is urban development to the east and south of the airport, comprising a mix of residential and industrial uses.

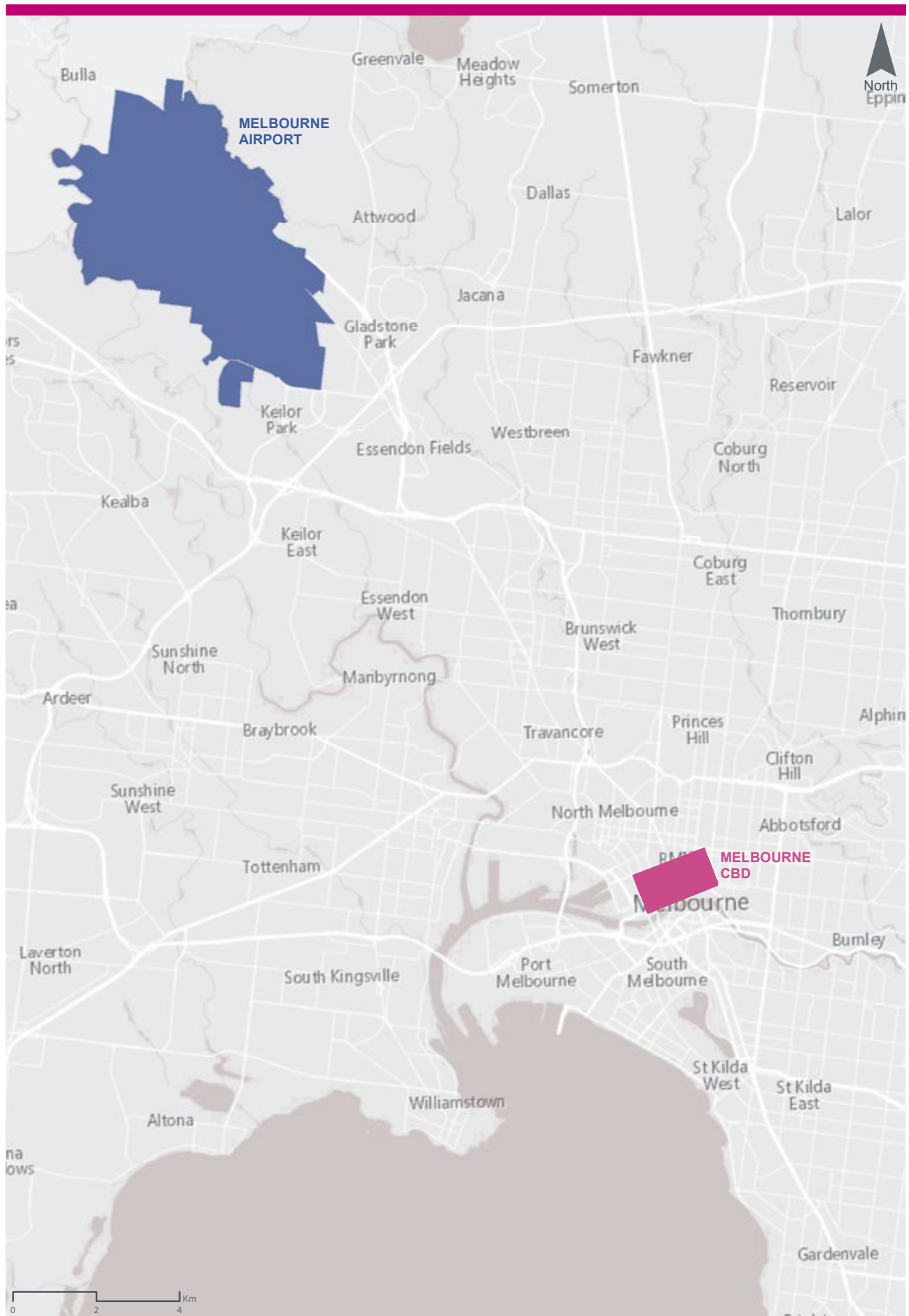


Figure 5-1: Melbourne Airport location



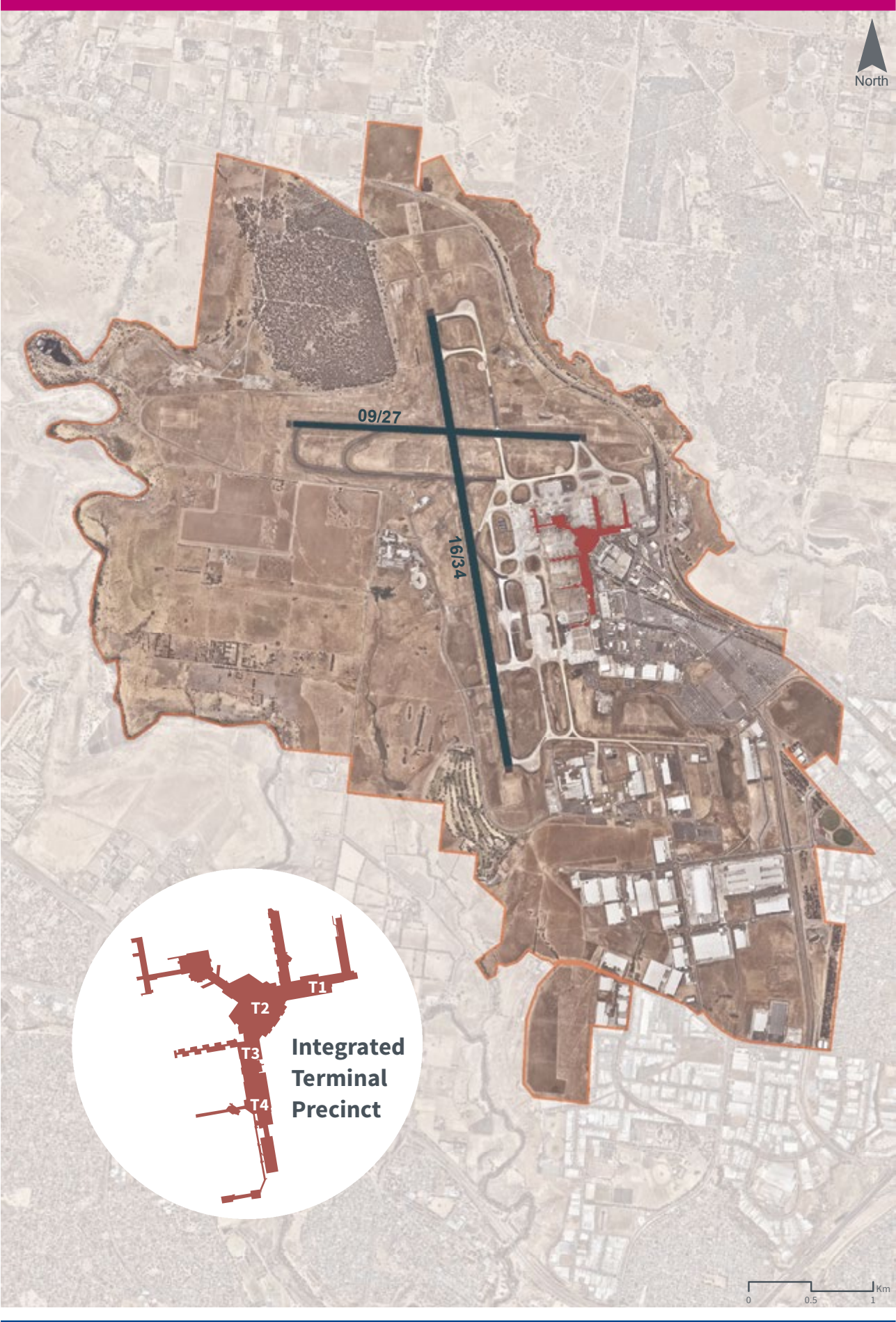


Figure 5-2: Melbourne Airport site – aerial view

## 5.2 Existing airside infrastructure and aviation facilities

Melbourne Airport operates curfew-free 24-hours per day, seven days per week using a two-runway system and integrated terminal complex (Figure 5-3).

### 5.2.1 Runways

#### 5.2.1.1 North-south runway (Runway 16/34)

The north-south runway (16/34) is 3,657 metres long and 60 metres wide. The runway provides sufficient take-off distance, enabling many direct, ultra-long-haul operations to destinations throughout Asia and beyond to global hub airports. This capability has been instrumental in supporting the strong growth in international services that Melbourne Airport has experienced over recent times.

Runway 16/34 is supported by a LED High Intensity Lighting Category II/III system and an Instrument Landing System Category IIIB, which facilitates aircraft landings in poor weather conditions.

Approaches from both directions (Runway 16 and Runway 34) are supported by a Precision Approach Path Indicator system.

#### 5.3.1.2 East-west runway (Runway 09/27)

The east-west runway (09/27) is currently 2,286 metres long and 45 metres wide. The runway is heavily utilised, particularly in Melbourne Airport's morning and evening peak periods due to its proximity to Terminals 1 and 2.

The length of this runway provides for predominantly domestic Code C (e.g. A320 and B737) aircraft operations. It also provides Code E (e.g. A330 and B747) and Code F (e.g. A380) arrival and departure capability for short- to medium-haul destinations, including Asian and Trans-Tasman destinations.

Runway 27 is supported by a LED High Intensity Lighting Category II/III system and an Instrument Landing System Category I, which facilitates aircraft landings in weather conditions with poor visibility. Approaches from Runway 09 and Runway 27 are also supported by a path indicator system.



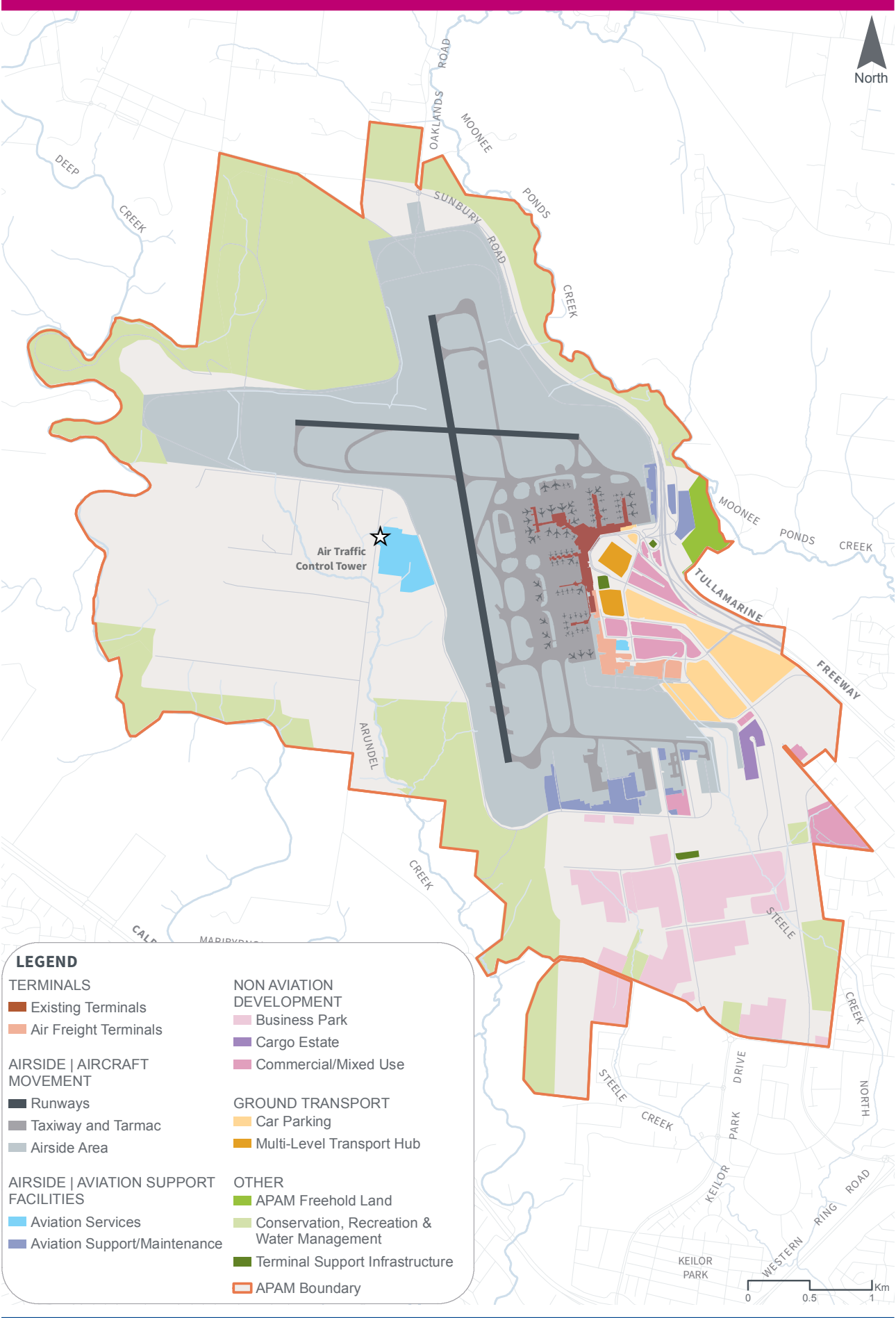


Figure 5-3: Existing Melbourne Airport site plan

## 5.2.2 Supporting apron and taxiway system

Taxiways are critical to the efficient movement of aircraft between the runways and aircraft parking aprons. The key elements of the supporting taxiway system include the following:

- **Rapid Exit Taxiways (RETs)** are taxiways specifically designed with curves to allow aircraft to leave runways at higher speeds while decelerating, improving overall runway capacity.
- **General taxiways** around the airfield enable aircraft to move around the airfield and provide enough capacity to prevent congestion, minimising aircraft ground delays. Dual perimeter taxiways enable efficient aircraft flow between the runways and aircraft parking positions.
- **Apron taxiway and aircraft stand taxiline** provide aircraft access to aircraft parking stands at terminal piers. Aircraft operating on taxiways are often supported by ground-servicing vehicles assisting the aircraft pushing back or towing on/off stands. With terminal infrastructure, aerobridges and airside vehicles nearby, aircraft often operate at slower speeds on taxi lanes to ensure safety margins are maintained.

The taxiway system is set up to allow aircraft traffic to move in different directions simultaneously (facilitated by parallel taxiways) under a range of different operating modes and weather conditions. In this regard, the taxi routes are designed to provide the shortest distance between aircraft parking aprons and the runways.

Aircraft parking aprons are critical assets, providing aircraft parking capacity. Often such infrastructure is allocated to a specific terminal or airline operator. Aprons consist of contact stands that are served by aerobridges connected to terminal piers or remote stands, which can be used for overnight aircraft parking, freight operations or terminal bussing operations with appropriate aircraft-servicing infrastructure such as aircraft fuel.

Remote aprons provide aircraft parking capacity for regional, domestic and international operations. Currently, the majority of dedicated freighter operations are conducted from the Hotel Apron located immediately south of Pier G, adjacent to the freight and logistics facilities.

In total, Melbourne Airport's main terminal apron precinct has 82 aircraft parking stands for commercial passenger or freight operations, with 42 aerobridges (Figure 5-4). Within the limited confines of the existing Terminals Precinct, these aprons are supported with multiple storage areas for ground support equipment (GSE).

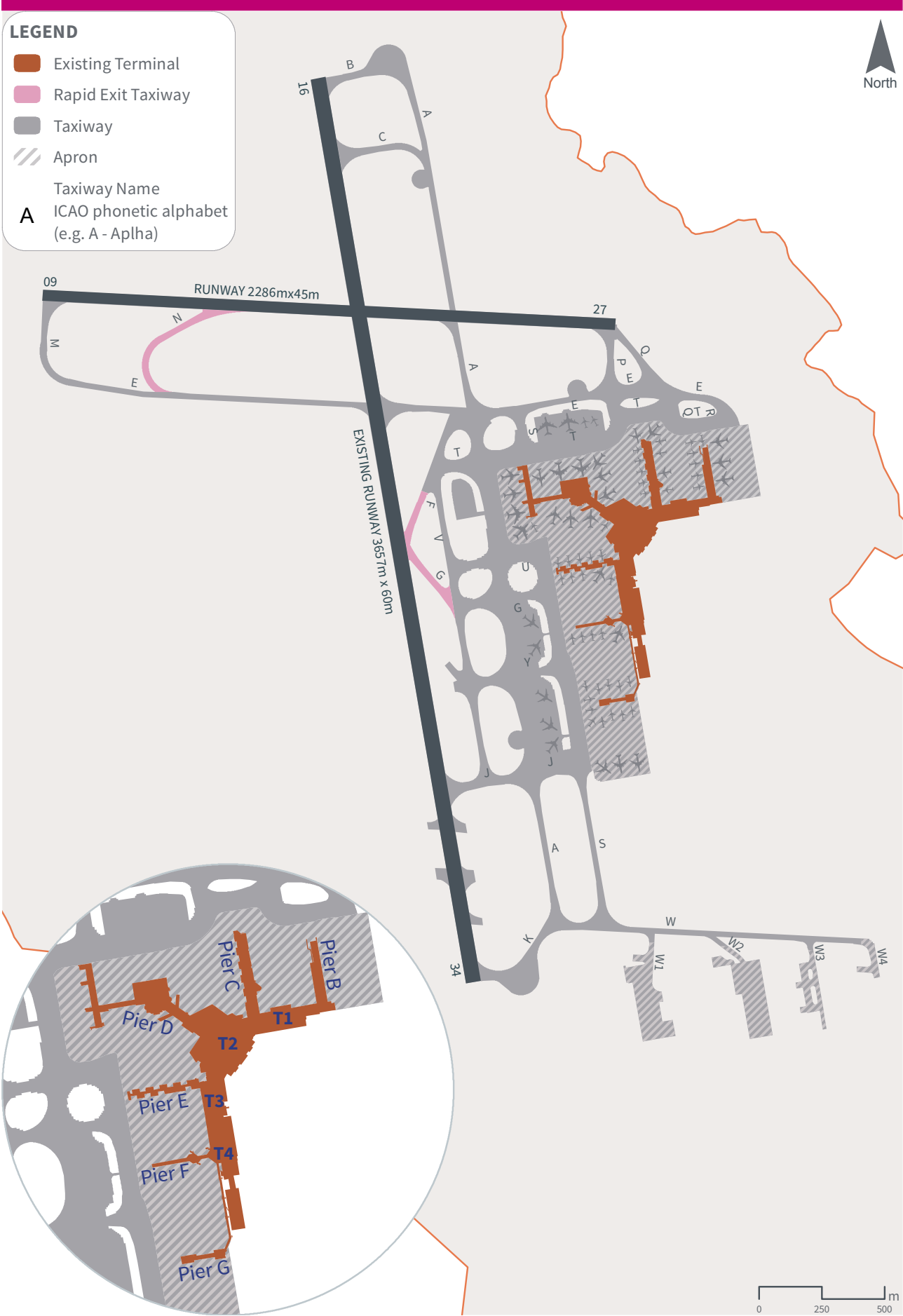


Figure 5-4: Existing airside terminal apron and taxiways

### 5.2.3 Current airside capacity

Currently, the two intersecting runways are operated in different modes, mainly in response to daily wind direction or to reduce aircraft noise impacts.

Single-runway operating modes are sometimes necessary during strong wind conditions. At these times the hourly runway throughput is reduced to 48 aircraft movements, when arrival and departure operations are balanced. However, where possible, Airservices operates the two runways simultaneously (dependent on each other) in either north–west or south–west direction combinations. These operating modes enable up to 60 aircraft movements per hour, allowing the existing two-runway airfield configuration to be used as efficiently as possible during periods of high demand.

The use of particular runways is influenced by the:

- geographic location of origin or destination airport
- size of the aircraft
- proximity of terminals and aircraft parking stands
- weather conditions
- noise abatement procedures to reduce the impact of aircraft noise on surrounding areas.

Based on current forecasts and the estimation of aircraft delays during peak periods, the existing two-runway airfield configuration is expected to reach capacity by 2020–2022. New runway and taxiway infrastructure will be required to accommodate further growth while providing a level of service in line with industry expectations.

Currently, aircraft parking aprons at Melbourne Airport can be used both through shared use and exclusive use. The peak for total aircraft on the ground typically occurs overnight when a significant number of domestic aircraft are not operating. The peak for international aircraft on the ground currently occurs during the mid-morning, when almost 50 percent of aircraft on the ground are international.

### 5.2.4 Terminals

The terminal complex is located on the east side of the north–south runway (16/34) and south of the east–west runway (09/27). The passenger terminal complex combines international facilities (T2) with three domestic terminals (T1, T3 and T4). This integrated Terminals Precinct enables Melbourne Airport to provide the shortest minimum connection time between domestic and international flights of all major Australian airports.

The Terminals Precinct is served by approximately 60 hectares of apron to accommodate aircraft for loading or unloading of passengers, mail or freight, and for fuelling, parking or maintenance. The passenger terminal aprons provide contact stand capacity (aerobridged stands at T1, T2 and T3). Walk-out stand capacity (non-aerobridge stands) is available adjacent to T4, as well as in locations close to T1, T2, T3 and the freight handling facilities, which are located to the south of the passenger terminal complex.

#### 5.2.4.1 International terminal (T2)

All international passengers at Melbourne Airport are served through T2, which catered for 9.9 million international passengers in 2016–17.

T2 is centrally located, presenting fast and easy transfer to and from domestic flights. In addition to streamlined security and immigration processes, T2 provides a world-class retail experience, with duty-free shopping supported by a range of restaurants, cafés and bars inspired by the city of Melbourne.

International aircraft operating at T2 have access to more than 25 aircraft parking stands across the precinct, with exclusive use of 19 parking stands within the T2 apron area. The stands can serve a range of international aircraft from Code F to Code C. There are currently 15 aerobridge parking stands at T2, which are supplemented by a dedicated international bussing and transit lounge catering for peak periods.

#### 5.2.4.2 Domestic terminals (T1, T3 and T4)

Domestic operations at Melbourne Airport are facilitated through T1, T3 and T4. Currently the three domestic terminals accommodate more than 500 domestic aircraft movements and almost 70,000 passengers a day, with a total of 25.2 million domestic passengers using Melbourne Airport in 2016–17.

T1 is currently occupied by Qantas and QantasLink. Twenty-one operational aircraft stands are available at T1, 15 of which are equipped with aerobridges accommodating a range of Code C and Code E aircraft. The terminal has experienced a reduction in passenger throughput since Jetstar moved into T4 in late 2015, releasing some latent capacity for growth.

T1 includes open-space food and beverage offerings and a range of retail shops through both Pier C and Pier B. Qantas currently operates its domestic Qantas Business, Club and Chairman's Lounges within T1.

T3 is currently occupied by Virgin Australia operations, which uses aircraft parking stands on Pier E (on a priority basis) and shares aircraft parking stands on Pier F with other airlines. There are 10 gates on Pier E (nine aerobridges) and 10 gates on Pier F (three aerobridges) serving both Code C and Code E aircraft types. T3 includes facilities such as the Virgin Australia 'Club' lounge and the Virgin Australia Lounge. There is a range of retail and food offerings within T3, with a direct connection to additional retail options within the T4 departure lounge.

T4 is Melbourne Airport's newest terminal, which can facilitate up to 10 million passengers per year. Currently, T4 is home to Jetstar and Tigerair, Regional Express (Rex) and Air North. The terminal is Australia's first self-service terminal development, with state-of-the-art kiosk and bag-drop check-in facilities. It also has an expansive departure lounge with a wide range of retail and food and beverage options for departing and arriving passengers.

T4 directly connects to the existing Piers E and F, which are predominantly used by Tigerair, Air North and Virgin Australia. T4 also includes a new Pier G, with flexible aircraft parking stands predominantly used by Jetstar. Operations from Pier G include 'walk out' to aircraft boarding gates and a 'call to gate' concept for fast-turnaround operations. Rex operations include a dedicated lounge on the ground level of T4 where passengers are bussed to and from remote stands on the Foxtrot apron.

## 5.2.5 Air navigation facilities

Airservices provides air traffic control, aeronautical information services, airport rescue and firefighting and navigation services for Melbourne Airport. These facilities are located in the midfield of the airport, accessed from Operations Road.

The Airservices site at Melbourne Airport incorporates an air traffic services centre adjacent to the control tower. This important facility, one of two in Australia, is responsible for controlling six percent of the world's airspace (known as a Flight Information Region) and is part of the largest area controlled by any air traffic management organisation in the world.

## 5.2.6 Aircraft maintenance facilities

Aircraft maintenance, repair and overhaul facilities are provided to the south of the airport. Qantas, Virgin Australia and Melbourne Aviation Precinct all operate maintenance or fixed-base operations. The facilities are operated under lease arrangements and allow for incremental development.

# 5.3 Existing non-aviation development

Non-aviation development includes commercial, retail and industrial developments that do not have a direct role in the aviation operations of the airport and are developed on landside precincts.

Non-aviation development plays a vital role in Melbourne Airport's economic vitality and complements its key aviation functions. There are two primary locations for commercial development at the airport, namely the Landside Main Precinct and the Landside Business Precinct (Figure 5-5).

## 5.3.1 Landside Main Precinct

The Landside Main Precinct is the gateway to the airport for most people. It provides access to the terminal facilities via the freeway and road networks.

### 5.3.1.1 The Forefront

The Forefront (previously known as Gowrie Park) area of Melbourne Airport is currently the most visible because it is bounded by the main entry and exit points to the Tullamarine Freeway. A number of commercial developments are located within the 8.6 hectare site including:

- Mercedes Benz car showroom and maintenance facility
- Creative Gardens Early Learning Centre (childcare centre)
- Holiday Inn
- BP petrol station
- McDonald's
- Ibis hotel.

### 5.3.1.2 The Hive

The Hive (previously Melbourne Airport Office Park) is located along the western side of Centre Road in the southern half of the Landside Main Precinct. The 2.3-hectare site houses 10,160 square metres of office accommodation in various buildings and formats.

The Hive currently houses organisations such as the Australian Federal Police, the Department of Home Affairs, and the Department of Agriculture and Water Resources, all of which need office facilities to support their operations at Melbourne Airport.

### 5.3.1.3 Car rental back-up area

The car rental back-up area totals some 11.5 hectares and is located north and south of Francis Briggs Road in the southern area of the precinct. The area is currently completely developed, providing 10 hectares of at-grade parking facilities shared by car rental, valet and bussing operators.

## 5.3.2 Landside Business Precinct

The Landside Business Precinct occupies the southern part of the airport and adjoins the southern part of the airfield area. This area includes the Melbourne Airport Business Park (including the area previously known as the Melbourne Airport Cargo Estate (MACE)) and Elite Park (previously known as the Gateway Site).

More than 134 hectares have been developed for non-aviation use in the Landside Business Precinct.

### 5.3.2.1 Melbourne Airport Business Park

The Melbourne Airport Business Park is located in the southern area of the airport. It is an established business park of around 311.8 hectares. More than 122 hectares of land is already developed, providing 30 facilities for 34 tenants including:

- Toll Ipec
- TNT
- Bollore
- Porsche
- World Couriers
- Nippon Express
- Gate Gourmet.

The majority of the facilities are large distribution warehouses supporting logistical operations, although other occupiers include a manufacturer and a self-storage facility. Smaller facilities have been developed in terraced formats to accommodate new entrants to the business park.

A Quest serviced apartment hotel and a small commercial café have been developed to support the businesses and employees, providing a level of amenity needed for such a large estate.

MACE (which has now been incorporated within the Melbourne Airport Business Park) is an industrial warehouse precinct on Airport Drive in the southeast corner of the airport. The long-term planned area of the estate is approximately 40.3 hectares, with 39,000 square metres of warehousing and offices developed for freight and industrial warehouse uses (aviation- and non-aviation-related uses). The location and design of the buildings are such that aviation-related operators can be provided with facilities that have an airside and landside boundary.

### 5.3.2.2 Elite Park (previously known as the Gateway Site)

The 54.3-hectare Elite Park occupies a visible position along both the Tullamarine Freeway and Airport Drive. The site is currently home to three occupiers:

- Qantas Joey Club Childcare Centre (a facility providing childcare facilities for Qantas and Airservices staff)
- Hanrob Pet Hotel (a 1,700 square metre warehouse providing first-class pet hotel facilities)
- Essendon Football Club's training and community facility (providing 10,000 square metres of administration and indoor training areas in addition to the two full-sized football ovals and five hectares of landscaped environment).



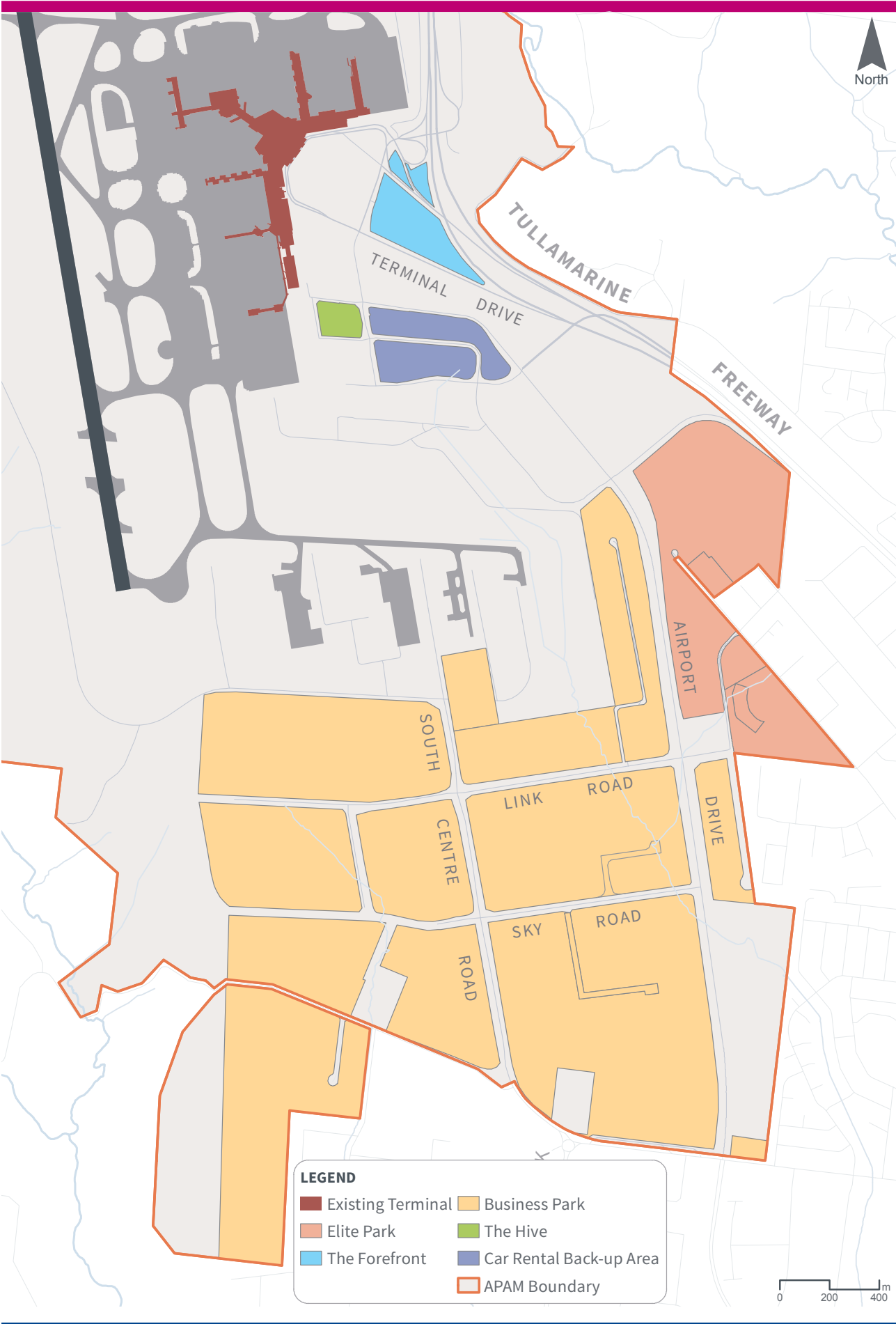
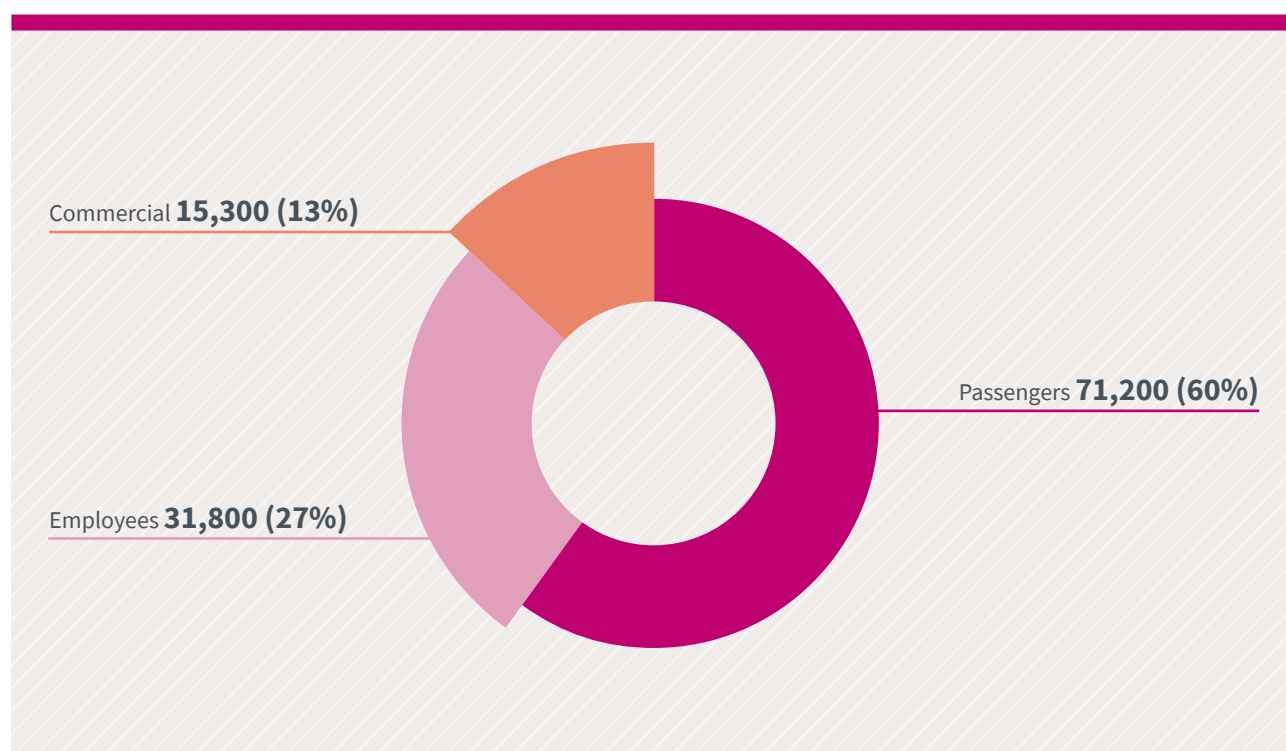


Figure 5-5: Melbourne Airport’s non-aviation development precincts

## 5.4 Existing ground transport

In 2016 Melbourne Airport generated an average weekday volume of 118,300 vehicle trips to and from the airport, providing access for passengers, employees, freight movements and other commercial traffic (Figure 5-6). On a typical busy day in 2016, there were approximately 127,000 vehicle trips to and from the airport. This represents an increase of seven percent on average weekday volumes, most of which is attributable to passengers.

In addition to these external trips, there are internal trips made by aviation support vehicles, emergency services, taxis (circulating from pick-up and drop-off) and rental vehicles.



**Figure 5-6: Average weekday traffic demand to/from the airport by user type**

Source: APAM. Estimate based on employee and air passenger mode shares and 2016 traffic counts.

In 2016 non-transfer passengers generated an estimated 71,200 vehicle trips to and from the airport, or around 60 percent of total airport traffic.

Airport-based employees form a substantial component of the total transport demand. In 2016 employees generated an estimated 31,800 vehicle trips per day, or around 27 percent of the airport traffic activity. According to the 2016 ABS Census data, 87 percent of the total airport workforce travels to the airport for work on a typical weekday, with 88 percent of airport-based employees driving to work.

Commercial trips associated with freight and logistics support the significant number of airport-related and non-airport-related businesses located within the airport boundary but also add demand on the ground transport network. An estimated 15,300 commercial vehicles use the airport each day. On an average weekday this represents approximately 13 percent of total airport traffic. Counts at various locations around the airport suggest commercial vehicles are primarily restricted to the freight terminals and the Business Park.

### 5.4.1 External road network

The Tullamarine Freeway is the primary access point to the airport and is used by 66 percent of all vehicles entering and 70 percent of all vehicles exiting the airport. While the Tullamarine Freeway–Sunbury Road corridor falls within the airport boundary, it is maintained and managed by VicRoads under a licence agreement.

To help address network constraints on the freeway, the CityLink Tullamarine Widening project is currently underway. The widening project involves upgrades to 24 kilometres of freeway between Melbourne Airport and Southbank to construct an additional lane in each direction. This capacity increase is expected to reduce travel times to the airport boundary and improve safety on CityLink and the Tullamarine Freeway.

Other key arterial roads used to access Melbourne Airport include the M80 Ring Road, the Calder Freeway, Sunbury Road, Airport Drive and Keilor Park Drive.

### 5.4.2 Internal road network

Within the airport boundary, Melbourne Airport manages approximately 40 kilometres of roads as part of its internal road network (Figure 5-7).

The performance of the internal road network is regularly monitored to enable improvements in its operation and efficiency. Melbourne Airport has implemented a number of major infrastructure improvements in recent years, which have helped spread the traffic demand more evenly across the existing network. Melbourne Airport recognises that demand for some sections of the airport road network already reaches or exceeds its operating capacity during peak periods. Specific network constraints are observed at Departure Drive (passenger drop-off zone), the Centre Road–Terminal Drive intersection and at the ground-level forecourt.

The taxi feeder system is another area of the internal road network where demand can exceed current capacity. The movement of taxis through the internal road network has improved since 2013 with the construction of Francis Briggs Road. However, the ability to feed taxis through to the taxi ranks in the forecourt is limited by the holding capacity of the secondary taxi holding area and the capacity of the Centre Road intersections.

Melbourne Airport's internal road network also caters for freight and logistics traffic. Freight trips on the internal road network are concentrated at the freight terminals and Melbourne Airport Business Park. Recent extensions of the road networks in these areas (e.g. Airport Drive, Link Road and Sky Road) have been built to accommodate larger freight vehicles (Figure 5-8).

These larger vehicles play a key role in the freight distribution task. Melbourne Airport has worked with VicRoads and the National Heavy Vehicle Regulator to gazette more than half of its road network for use by B-double trucks and class 2 and 3 heavy vehicles operating at higher mass limits (HML). This has improved business efficiency and provides transport operators accessing the airport with certainty to invest in upgrades to their fleet.

### 5.4.3 Ground transport facilities

Almost half of all non-transfer passengers access the airport by private vehicle and either park in one of the Melbourne Airport car parks or are picked up/dropped off.

Melbourne Airport provides a wide range of passenger pick-up/drop-off and on-airport parking options. Passenger pick-up/drop-off points are generally located in close proximity to terminal entrances, enabling convenient passenger and vehicle access. Existing public parking facilities at Melbourne Airport include multi-level and at-grade parking within walking distance to the terminals, at-grade parking with convenient shuttle bus access to the terminals, a free (up to 10 minutes) 'pick-up' zone adjacent to the T123 ground transport hub, and a free 20 minute wait zone adjacent to the long-term car park (Figure 5-7).

The T4 ground transport hub significantly increased forecourt capacity and the amount of parking available at Melbourne Airport, with more than 23,000 car parking bays now available to the public. Public parking bays are also provided by off-airport car parking operators, mostly located within five kilometres of the Terminals Precinct. In addition to Melbourne Airport's public parking facilities, more than 12,000 parking bays are provided within the airport boundary to accommodate employee (at both leased and airport-managed sites), rental car, hire car and taxi demands.



Figure 5-7: Existing Melbourne Airport internal road network

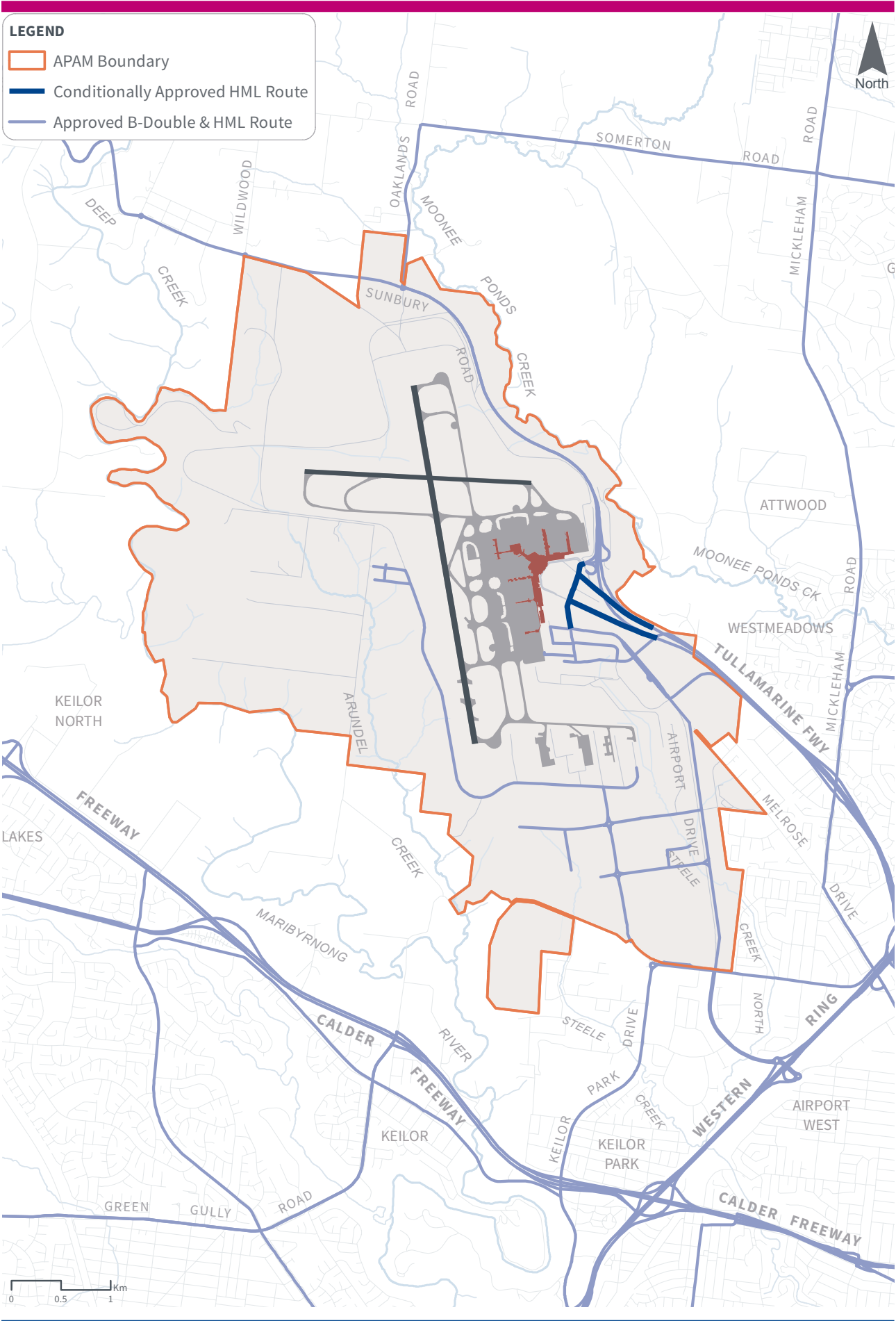


Figure 5-8: Existing heavy vehicle network

## 5.4.4 Public transport

SkyBus, private regional and suburban bus operators and Public Transport Victoria (PTV) provide fixed route, timetabled public transport services to and from the airport (Figure 5-9). An estimated 14 percent of non-transfer passengers use a timetabled public transport service. SkyBus is the dominant public transport service, with its express service between Melbourne Airport and Southern Cross Station carrying 11 percent of all non-transfer passengers.

A summary of the span of hours and frequency for SkyBus and other metropolitan public bus services servicing the airport is provided in Table 5-1.

**Table 5-1: Metropolitan bus services servicing Melbourne Airport**

Sources: PTV, SkyBus and bus operator websites

| Route                                 | Hours of operation | Peak frequency | Weekday services (each direction) |
|---------------------------------------|--------------------|----------------|-----------------------------------|
| <b>SkyBus</b>                         |                    |                |                                   |
| CBD                                   | 24/7               | 10 minutes     | 124                               |
| Docklands & Southbank                 | 6.00am – 7.45pm    | 30 minutes     | 27                                |
| St Kilda Express                      | 6.30am – 7.00pm    | 30 minutes     | 26                                |
| Peninsula Express                     | 4.20am – 7.25pm    | 60 minutes     | 12                                |
| Western Express                       | 6.15am – 7.00pm    | 60 minutes     | 13                                |
| <b>Other privately operated buses</b> |                    |                |                                   |
| Airport Bus Dandenong                 | 5.30am – 6.40pm    | 90 minutes     | 7                                 |
| Airport Bus Eastside                  | 4.45am – 7.00pm    | 90 minutes     | 8                                 |
| <b>PTV services</b>                   |                    |                |                                   |
| Route 478                             | 6.15am – 7.30pm    | 60 minutes     | 14                                |
| Route 479                             | 6.30am – 8.30pm    | 60 minutes     | 14                                |
| Route 482                             | 5.30am – 6.00pm    | 60 minutes     | 8                                 |
| Route 901                             | 6.30am – 9.00pm    | 15 minutes     | 74                                |

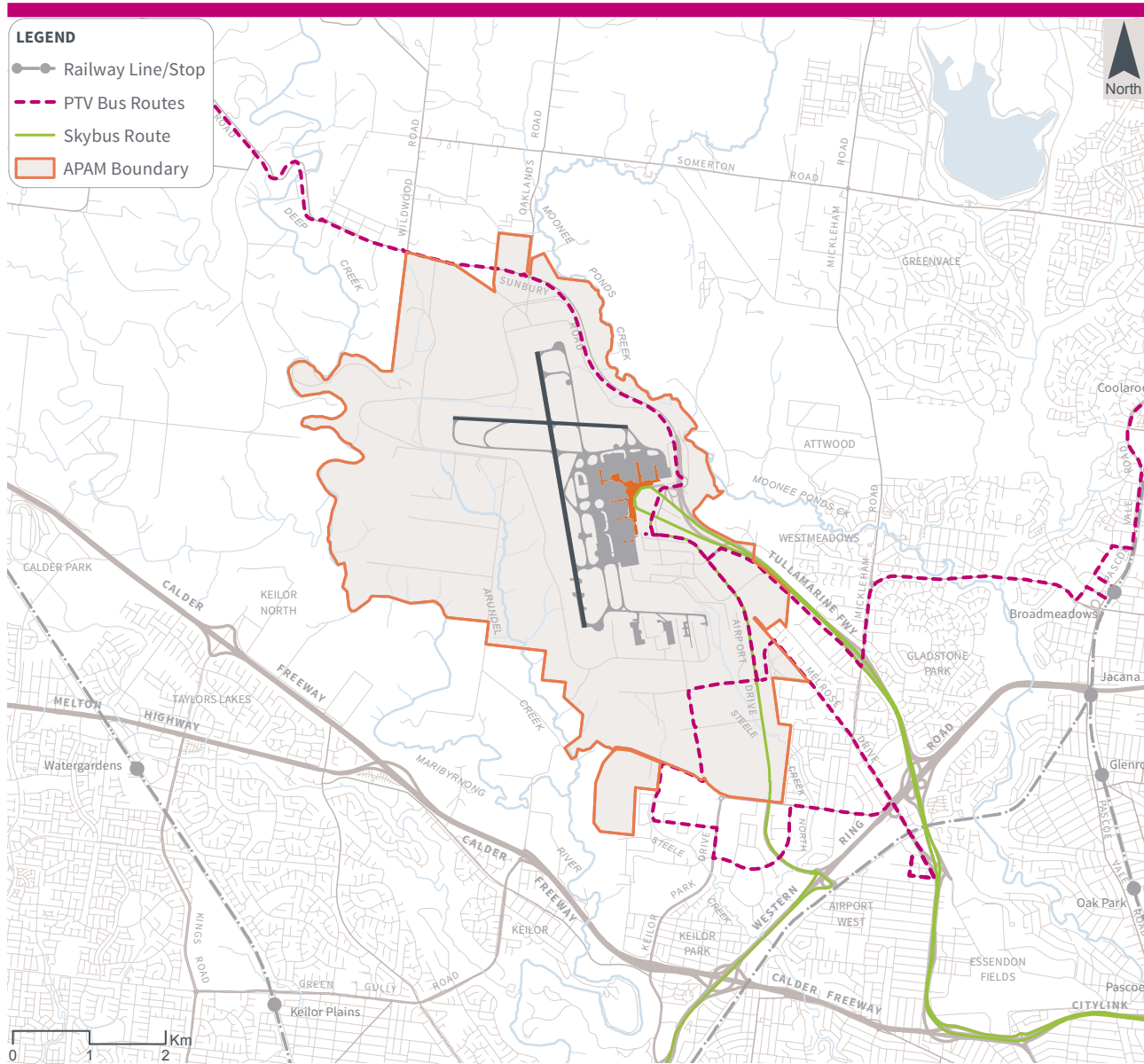


Table 5-2 summarises the regional bus services that provide regular passenger services from the airport.

**Table 5-2: Regional bus services servicing Melbourne Airport**

Sources: PTV and bus operator websites

| Route  | Hours of operation | Peak frequency | Weekday services (each direction) |
|--|--------------------|----------------|-----------------------------------|
| <b>V/Line coach services</b>                       |                    |                |                                   |
| Barnham to Southern Cross via Melbourne Airport    | 7.00am – 11.25pm   | n/a            | 1                                 |
| Deniliquin to Southern Cross via Melbourne Airport | 7.00am – 8.40pm    | n/a            | 2                                 |
| <b>Privately operated buses</b>                    |                    |                |                                   |
| Ballarat Airport Shuttle Bus                       | 4.00am – 9.00pm    | 50 minutes     | 12                                |
| Balfours Airport Direct – Shepparton               | 6.45am – 4.30pm    | n/a            | 2                                 |
| Bendigo Airport Service                            | 4.30am – 7.45pm    | 2 hours        | 7                                 |
| Gull Airport Service – Geelong                     | 3.50am – 11.30pm   | 60 minutes     | 16                                |
| Gippy Shuttle – Gippsland                          | 6.10am – 4.00pm    | n/a            | 2                                 |



**Figure 5-9: Public transport access to Melbourne Airport**

Melbourne Airport is currently not served by rail. The nearest railway station is at Broadmeadows on the Craigieburn line and is located six kilometres to the east of the terminal (eight kilometres by road). Regular bus connections to the airport are available from Broadmeadows Station (on Route 901).

Watergardens Station, located on the Sunbury line, is located more than seven kilometres to the west of the terminal (16 kilometres by road). There are no regular bus connections to Watergardens Station from Melbourne Airport.

### 5.4.5 Active transport

Melbourne Airport is located close to bicycle paths that are part of Melbourne's Principal Bicycle Network (Figure 5-10). There are currently no continuous bicycle routes from surrounding suburbs that directly connect to the airport.

Melbourne Airport delivered a shared-use path between Sharps Road and Mercer Drive as part of the construction of Airport Drive. In future, this path could be extended to connect to the Western Ring Road bicycle path and the Moonee Ponds Creek Trail. There are also opportunities to connect the Moonee Ponds Creek Trail to the terminal from the east.

Footpaths are provided on most roads within the airport to encourage walking within precincts and beyond the airport boundary. The major area of pedestrian circulation occurs in the forecourt of the Terminals Precinct.







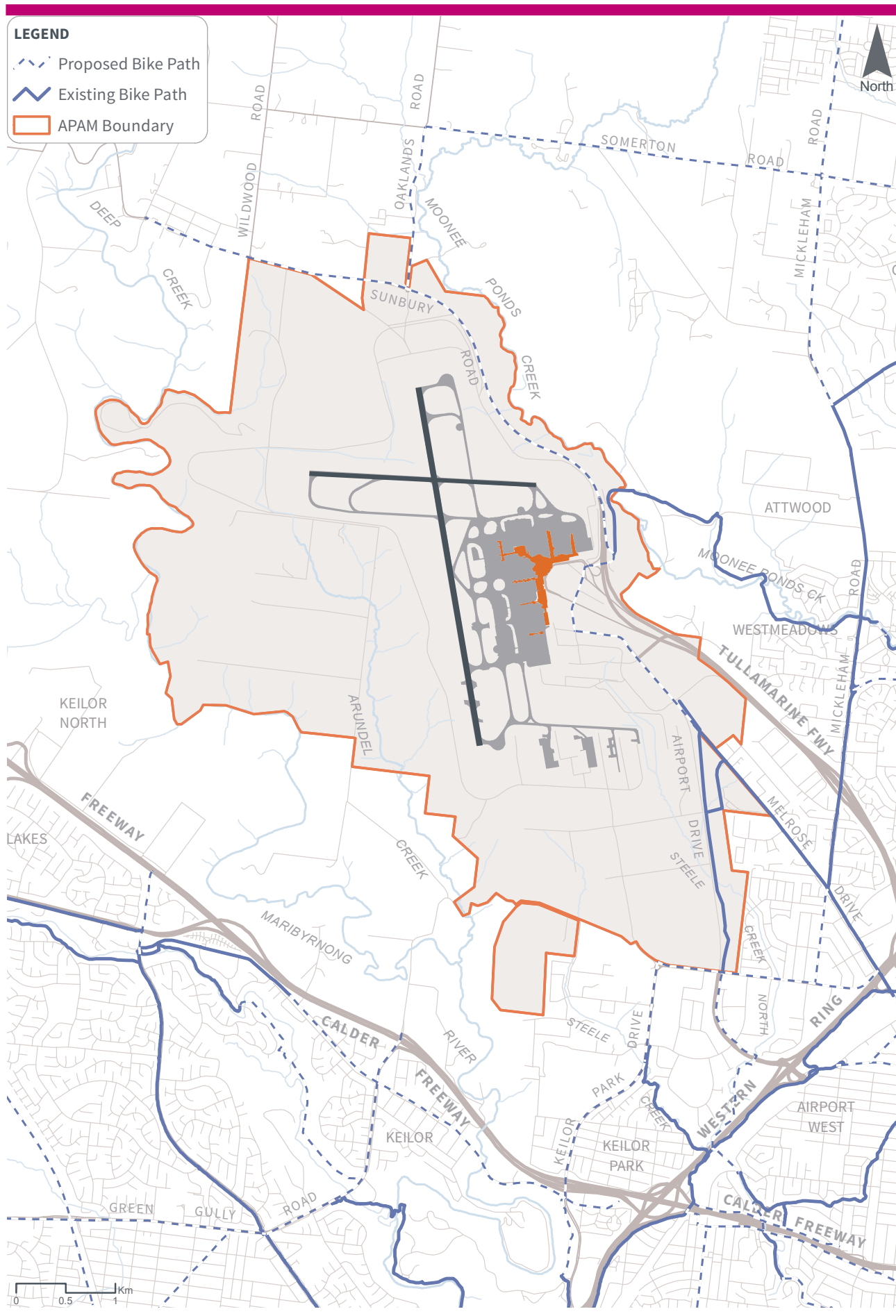


Figure 5-10: Bicycle network in the vicinity of Melbourne Airport

## 5.5 Existing utilities infrastructure portfolio

Utilities are a key part of Melbourne Airport's operations as well as its planned long-term growth. The utilities portfolio delivers the airport's electricity, water supply, gas supply, heating, cooling, sewerage network and stormwater drainage (Figure 5-11).

Melbourne Airport has asset management systems in place for all of its utilities assets. In its management of the utilities portfolio, the airport aims to secure, at all times, a sufficient, reliable supply of high-quality utilities services. In doing so, the airport aspires to optimise the overall positive impact on the region, community and environment in which it operates.

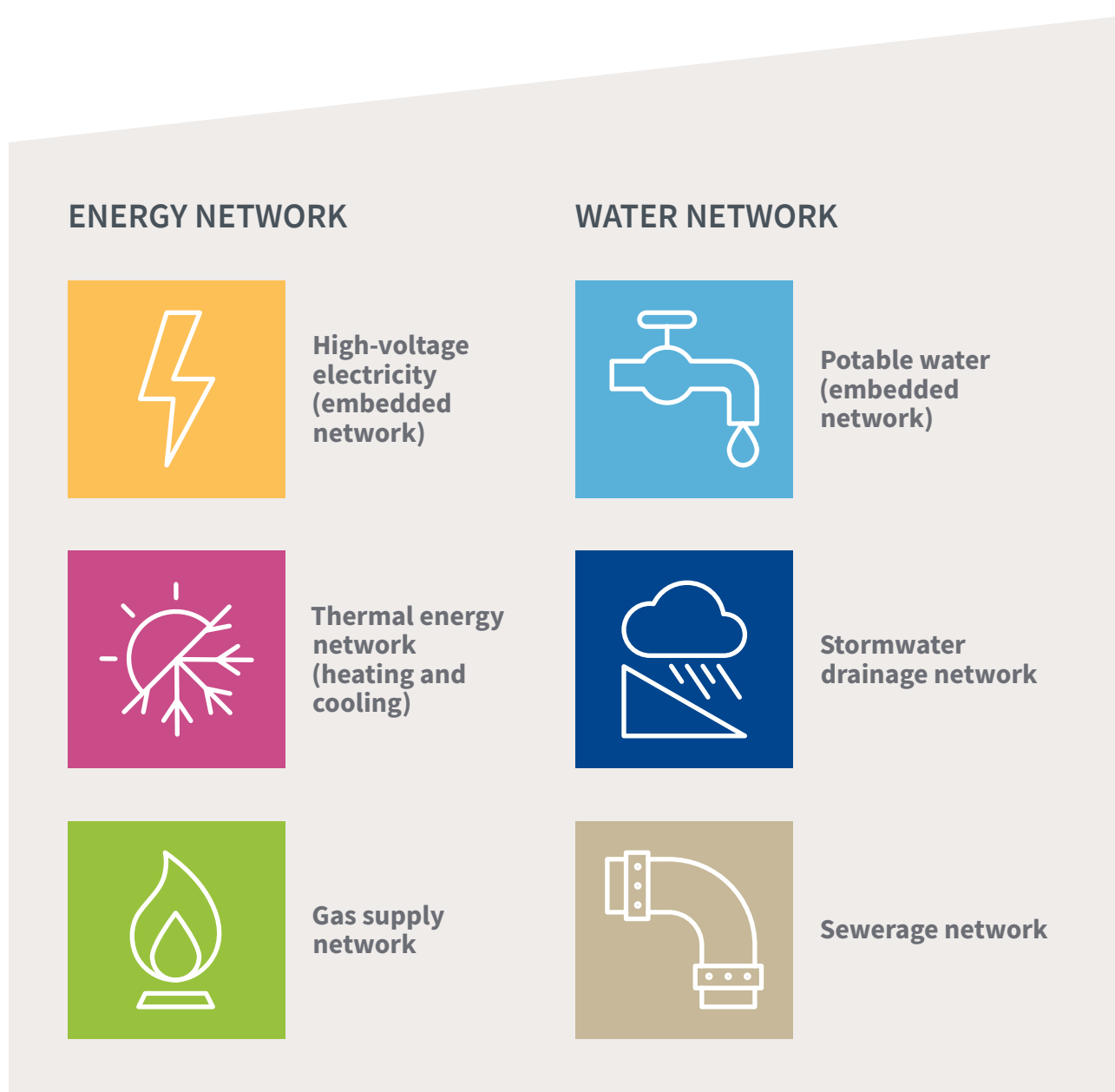


Figure 5-11: Melbourne Airport's utilities infrastructure portfolio

## 5.6 Cultural heritage and environmental context

Melbourne Airport is located on a broad plateau on the land of the Wurundjeri people, the traditional owners. Our site includes several environmentally important areas (including one of Victoria's largest remaining stands of Grey Box Woodland) and provides habitat for a range of native fauna (such as the Australian grayling and the growling grass frog). There are 182 locations on or near the airport where artefacts of cultural significance have been found. The site interacts with several natural surface water systems that support aquatic ecological communities and are used for irrigation and stock watering purposes (refer to Figure 5.12).

Operations at Melbourne Airport are expansive and are characterised by a large number of different organisations undertaking a variety of activities under varying degrees of control by Melbourne Airport. There are a number of locations on site of known water and soil contamination, some of which have been due to airport activities (e.g. firefighting foams and fuel storage) and some of which are likely due to historic or off-site activities (e.g. the use pesticides and herbicides).

As a result of these contextual factors, Melbourne Airport has a broad set of cultural heritage and environmental site attributes to protect and enhance. Where disturbance is unavoidable, appropriate and effective mitigation measures must be employed to minimise environmental and cultural impacts. These site attributes are summarised in section 5.6.1.

Significant growth is forecast for the airport, and this growth is set to occur within a context of evolving environmental and carbon regulation, and a changing climate. The possible impacts of this uncertain future on the airport's cultural and environmental attributes are discussed in section 5.6.2.

The management, protection and enhancement of the airport's attributes is guided by Melbourne Airport's Environment Policy and Strategy, which are implemented via a certified Environmental Management System (EMS). A brief overview of Melbourne Airport's Environment Management Framework (which includes the policy strategy and EMS) is provided in section 5.6.3.

Each of these topics is explored in greater detail in section 16, which documents Melbourne Airport's five-year Airport Environment Strategy.





Figure 5-12: Heritage and environmental site attributes

## 5.6.1 Cultural heritage and environmental attributes

Melbourne Airport manages, protects and enhances cultural heritage and environmental attributes in the course of its day-to-day operations. These are summarised in Table 5-3 and are explored in detail in the Airport Environment Strategy (section 16.0).

**Table 5-3: Cultural heritage and environmental attributes**

| Environmental aspect                  | Key attributes and management actions  |
|---------------------------------------|--|
| Environmental management              | Maintaining a high standard of day-to-day environmental management and ongoing compliance while continually improving the efficiency and effectiveness of processes.   |
| Sustainability in planning and design | Ensuring that planning and design decisions are focused on building long-term sustainability and resilience.   |
| Energy and carbon                     | Balancing volatile energy prices, evolving grid dynamics, new technologies and decarbonisation while ensuring the reliability of energy services provided to customers and tenants.  |
| Hazardous materials                   | Ongoing management, tracking and minimisation of hazardous materials used for a large range of activities on site.   |
| Cultural heritage                     | There are a range of risks that have the potential to have temporary or lasting impacts on cultural heritage values, in particular the risk of disturbance due to construction activities. A comprehensive site register and management plans mitigate these risks.  |
| Land and water management             | Melbourne Airport manages a number of existing land, surface water and ground water contamination issues. These issues are largely a legacy of the site's long history of multiple and complex activities and operators. Contamination has been primarily associated with certain firefighting foams (PFAS), fuel storage and historic use of pesticides and herbicides (on and off site). An airport-wide monitoring regime and risk-based remediation program is ongoing.    |
| Biodiversity and conservation         | Melbourne Airport has wetlands, waterways and areas of native vegetation including threatened species, threatened ecological communities and migratory species listed under the <i>Environment Protection and Biodiversity Conservation Act</i> as 'Matters of National Environmental Significance' (MNES). Tailored management plans are in place and implemented to improve ecological value through the management of pest plants and animals, and through erosion control. |
| Air quality and ground-based noise    | Activities within the airport boundary contribute to Melbourne's air quality and have the potential to result in off-site noise issues. Regular inspections of construction sites and air and noise monitoring are part of the airport's standard suite of environmental management practices.   |
| Waste management                      | A range of waste types are generated by a large number of operators within Melbourne Airport's boundary. APAM's engagement with our operators and tenants is ongoing to reduce landfill waste from the airport.  |

## 5.6.2 Future challenges

The international standard for risk management (ISO 31000) definition of risk is the ‘effect of uncertainty on objectives’. The Airport Environment Strategy has been developed to safeguard the achievement of the airport’s environmental objectives in the face of future uncertainty. Future uncertainty includes growth of airport operations, expansion of the airport’s physical footprint, evolving regulation and community expectations, and a changing climate. Each of these uncertainties, and their possible impact on the airport’s cultural heritage and environmental attributes, is discussed below (Figure 5.13 – new figure showing overlay of 2023 and 2038 on CH and Env attributes).

### 5.6.2.1 Growth of operations and demand

**The population of Melbourne is growing rapidly and, with it, demand for air travel is also growing.**

The 2023 airport development concept includes the Runway Development Program (RDP), which will involve a third runway and extensions to the existing east–west runway. The 2038 concept includes the expansion of the terminal buildings and new extended piers. These expansions are intended to meet a significant increase in demand for air travel. By 2038 Melbourne Airport is expected to cater for more than 65 million passengers per year (up from 34 million in FY16). Over this same period, aircraft movements are expected to increase from 238,000 to 384,000 movements per year and freight throughput is expected to almost double. Historically, growth of this magnitude for the organisation has required increased consumption of natural resources. This increased consumption has both local and global risk implications for the airport’s environment and heritage. Recognising these risks, Melbourne Airport is taking action by investing in renewable energy, energy efficiency, water efficiency, improved waste management and sustainable procurement. By implementing these actions, Melbourne Airport will continually improve the resource efficiency of our operations and minimise our overall ecological footprint.

### 5.6.2.2 Expanded physical footprint

**The potential impacts of future expansions will be assessed in advance. Risks will be mitigated through implementing pre-approved management and offsets plans.**

The proposed airport expansions will result in the disruption of known (or as yet undiscovered) areas of cultural and/or environmental value. Similarly, it is possible that works will intersect with areas of contamination or could result in emissions to air, land or water. Well-planned and proactive environmental management of expansion works will therefore be critical.

More specifically, for major development projects such as the RDP, thorough investigations and management programs for environmental and cultural impact are required prior to approvals being granted by the federal government. Major development projects are subject to a Major Development Plan (MDP) in accordance with the requirements of the *Commonwealth Airports Act 1996*. For other development projects, Melbourne Airport requires that higher risk proponents prepare detailed Construction Environment Management Plans (CEMPs) that must be approved by the airport prior to works commencing. Similarly, higher risk tenants require approved Operational Environmental Management Plans (OEMPs). All lower risk projects and tenants are required to adhere to Melbourne Airport’s Code of Environmental Practice as part of their approval and lease conditions.

Through these assessment, approval and management mechanisms, Melbourne Airport will ensure that the environmental values and performance of the airport is safeguarded into the future.

### 5.6.2.3 Evolving regulation and expectations

#### **The compliance environment within which Melbourne Airport operates will continue to evolve.**

Melbourne Airport maintains, as part of its Environmental Management System, a register of state and Commonwealth environmental and cultural heritage Acts, regulations and policies with which it must comply (Appendix E). Each of these documents is subject to ongoing changes (e.g. the Airports Act has been updated 30 times since it was released in 1996).

Changes to the regulatory environment are an inevitable result of continuous improvement in regulation as new science is integrated and community expectations shift. For example, the body of knowledge around the health risks of diesel exhaust particulates or PFAS (per- and poly-fluoroalkyl substances found in firefighting foams) has improved in recent years and this has been reflected in regulatory shifts.

Similarly, Melbourne Airport tracks the environmental management expectations of a broad range of stakeholders including its customers, tenants, airlines, neighbours and community groups and shareholders.

Historically, these expectations have been focused on planning considerations, managing current risks, responding to incidents, maintaining compliance, providing guidance and reporting to regulators. These expectations will continue as our stakeholders become increasingly interested in the broader, long-term risks we manage. In particular, this interest relates to the airport's contribution to the sustainability of Melbourne (and Victoria) as a whole, and how the airport will manage risks and opportunities related to climate change.

### 5.6.2.4 Climate change

#### **Climate change will amplify a number of risks and opportunities already faced by Melbourne Airport, and could introduce some new ones. Melbourne Airport will work to build its resilience to a range of possible future scenarios.**

Melbourne Airport is located within a temperate climate, with warm to hot summers, mild springs and autumns and cool winters. The region is on the boundary of the hot inland areas and the cool Southern Ocean. This results in temperature differences that can cause strong cold fronts to form, which sometimes lead to severe weather conditions such as gales, thunderstorms and heavy rain. The region can also experience extreme heat in summer.

Historically, climatic events such as storms, high winds, fog, heatwaves and bushfires (smoke) have resulted in service disruptions, delays and temporary airport closures, each of which has had financial implications. Of these events, all (except fog) are expected to increase with climate change.

Melbourne Airport has undertaken a Climate Risk and Vulnerability Assessment, and a similar assessment has been undertaken as part of the RDP. The identified climate-related risks and opportunities can be categorised as being physical or transitional in nature.

Physical risks and opportunities result directly from the physical effects of climate change. For Melbourne Airport, projected changes in climate will exacerbate many existing climate-related risks, in particular those risks related to high temperatures, extreme rainfall, drought and fire weather are likely to increase in both likelihood and severity. The effect of climate change on other weather-driven risks such as those related to wind and lightning is less clear. These physical factors can affect airport operations as well as the health and resilience of the surrounding environment.

Transition risks and opportunities are not directly linked to climate-related events but relate to the regulatory and market transformation likely to result from governments and communities acting to curtail greenhouse gas emissions and/or adapt to climate change. These risks have been examined and have the potential to affect access to capital, reputation, investor concerns and regulatory pressure on the carbon-intensive aviation sector. The airport's current enterprise risk management system includes transition risks related to state and federal carbon policies and energy market volatility. Conversely, some of these factors also represent opportunities to drive projects in renewable energy and resource efficiency.

Furthermore, the resilience of Melbourne Airport contributes directly to the resilience of Victoria as a whole. Therefore, in the interests of future-proofing its operations and environmental performance in the face of this uncertainty, Melbourne Airport will work to build its resilience to a range of possible future scenarios.

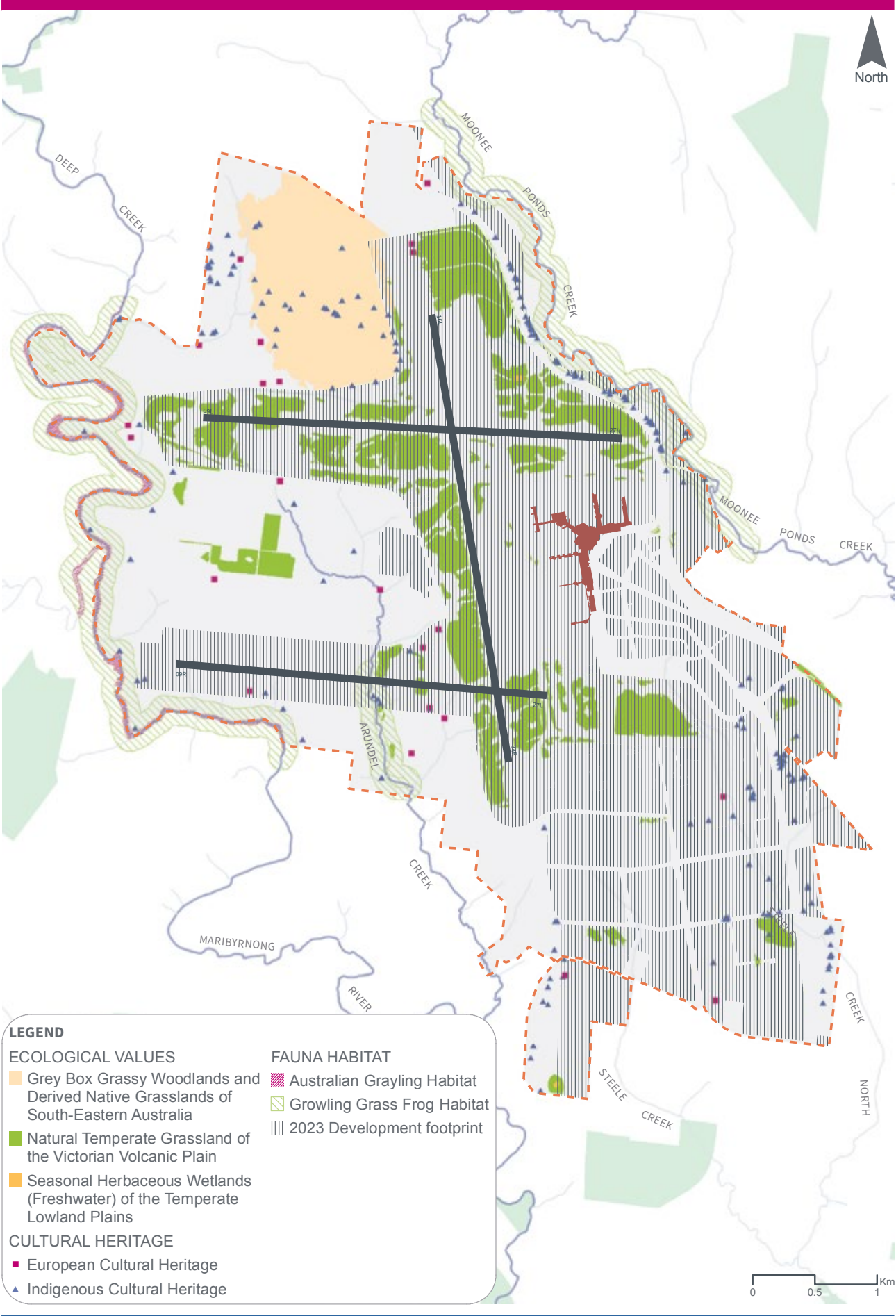


Figure 5-13: Key environmental values at Melbourne Airport 2023



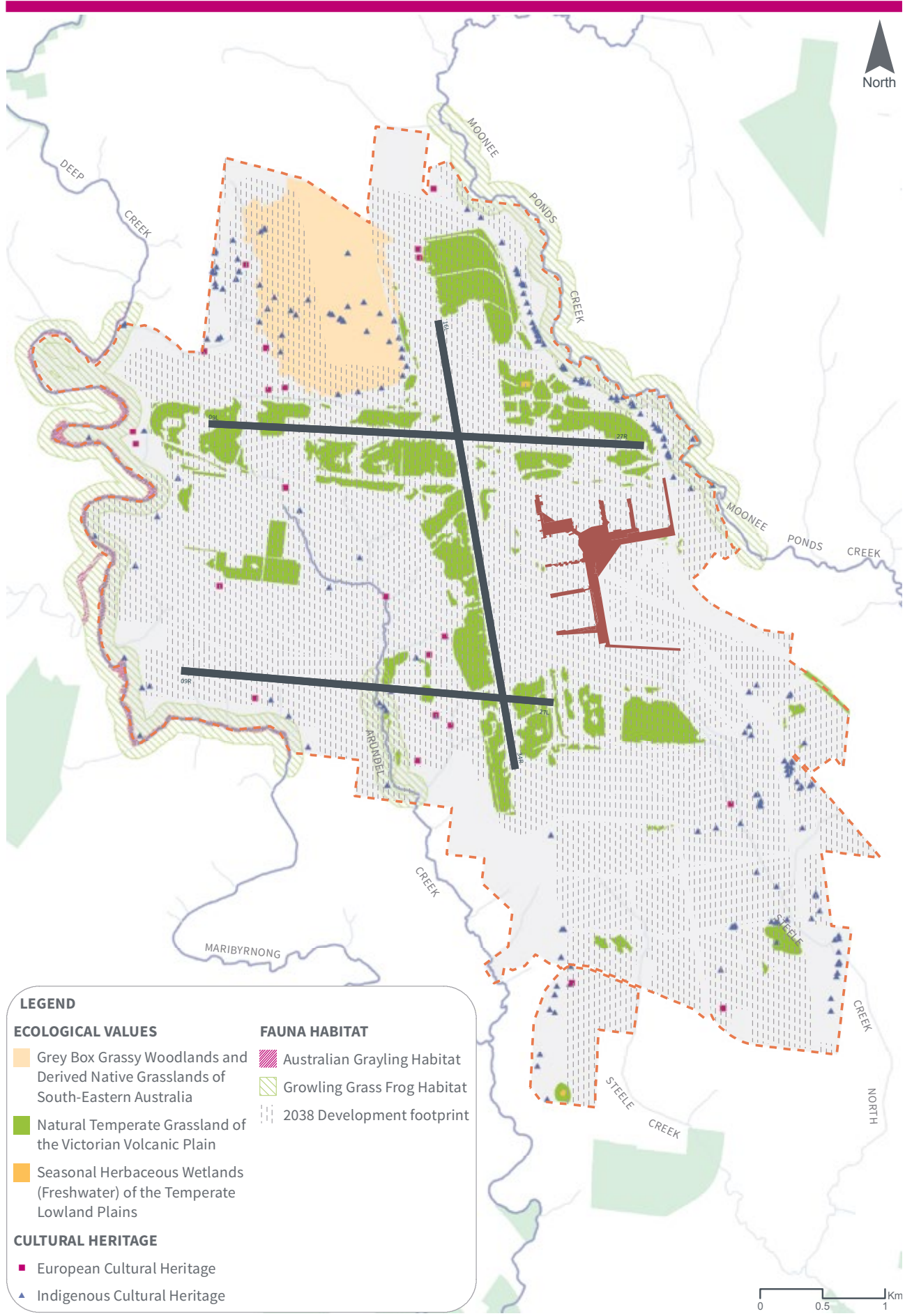


Figure 5-14: Key environmental values at Melbourne Airport 2038



### 5.6.3 Environmental Management Framework

Melbourne Airport has an Environmental Management Framework that is designed to ensure that processes for continuous improvement and ongoing monitoring of compliance are embedded in the way we work.

The Airport Environment Strategy forms one part of the Environmental Management Framework and is one of the key mechanisms for ensuring that the commitments made in Melbourne Airport's Environment Policy are met. The strategy is enacted and implemented via the EMS.

More generally, Melbourne Airport operates within a framework of corporate governance, goals and values. These have been reflected in the environmental management principles outlined in the Environment Policy. The Environmental Management Framework enables Melbourne Airport to effectively manage and adapt to environmental risks and continually improve environmental management practices.

Under the framework, environmental compliance is internally monitored and reviewed on an ongoing basis. Compliance is also externally (and annually) reviewed by the Airport Environment Officer, on behalf of the Department of Infrastructure, Regional Development and Cities, via the annual Airport Environment Report. In addition, the EMS itself is externally audited periodically as part of maintaining ISO certification. These processes, and the overall framework, are shown in Figure 5.13.

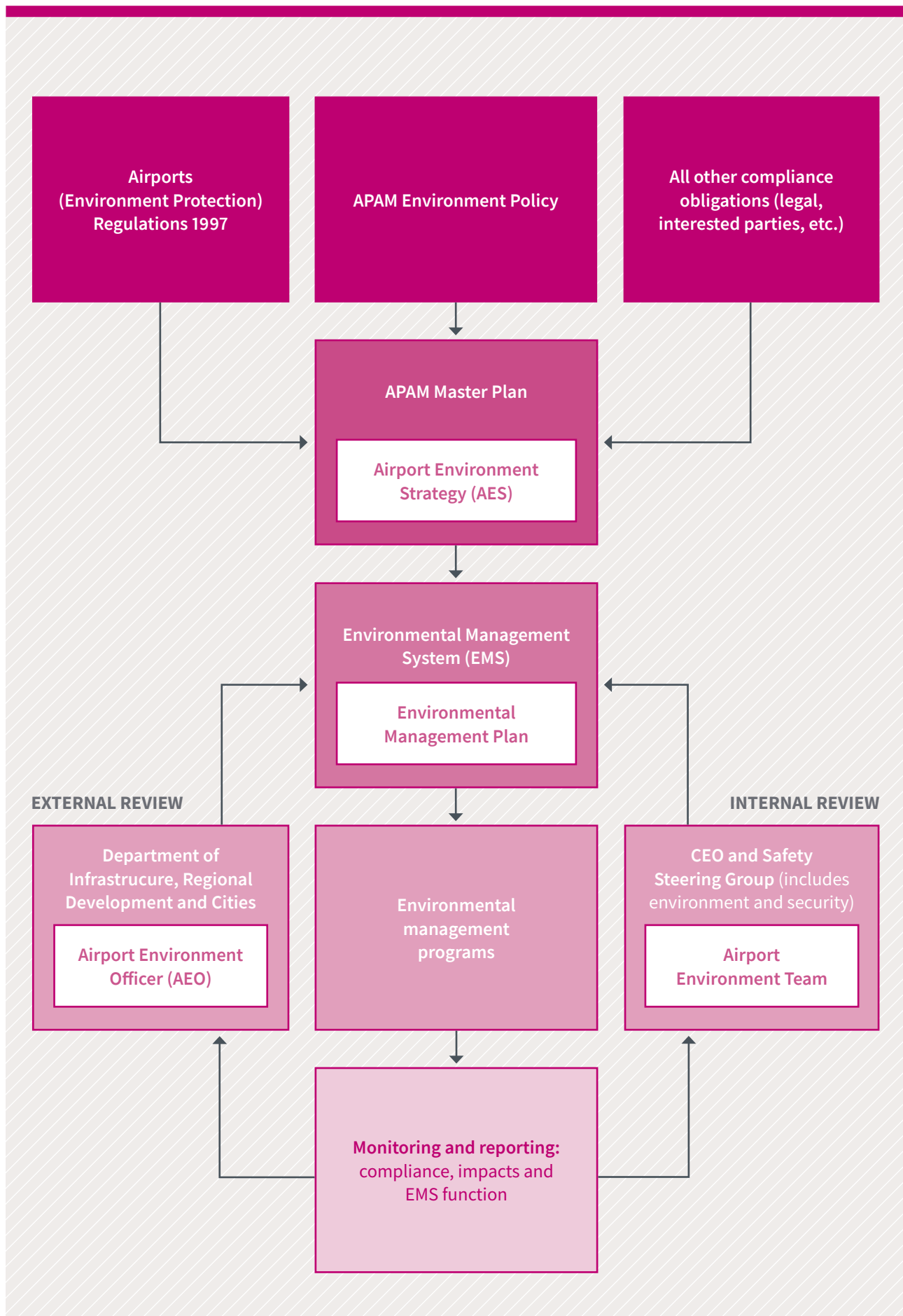


Figure 5-15: APAM Environment Management Framework and continuous improvement review loop



# 6.0

## Melbourne Airport in context

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*This section provides a context for Melbourne Airport and incorporates a range of aspects that influence and guide the airport's future use and development, and forms the basis of the Master Plan's strategic directions and concepts.*

# 6.0 Melbourne Airport in context

## KEY FEATURES



### GLOBALLY CONNECTED

39 international destinations



### 35.2M PASSENGERS

Including 9.9 million international and 25.2 million domestic passengers



### 30% AUSTRALIA'S AIR FREIGHT

Over 30 percent of the nation's air freight from Melbourne Airport



### 24/7 OPERATIONS

Curfew-free 24/7 operation



### \$20.7 BILLION TO THE ECONOMY

Including a \$17.6 billion contribution to Victoria's economy



### 20K+ EMPLOYEES

Major employment hub – more than 20,600 FTE and supporting more than 170,000 jobs

## 6.1 Aviation context

Melbourne Airport's physical and locational advantages, together with its 24-hour curfew-free operations, have reinforced its position as Australia's second busiest airport by passenger numbers and as a freight hub for Australasia.

### 6.1.1 Passenger numbers

Melbourne Airport is the origin and destination for three of the five busiest domestic air routes and two of the five busiest international air routes in Australia. During 2016–17 there were 35.2 million passengers who passed through Melbourne Airport, up by 3.8 percent on the year before. Over the past decade, total passenger numbers have increased by almost 10 million up from 22.3 million in 2006–07.

Growth in passenger numbers was driven by a strong increase in international passengers, which reached 9.9 million for the year, an increase of over eight percent on the previous year. International passenger volumes have more than doubled over the past decade from 4.5 million in 2006–07. International travel has become increasingly affordable relative to domestic travel for Australians.

A typical Australian resident currently generates around 0.8 international passenger movements per year compared with less than 0.3 in 1995. International departures by Australian residents at Melbourne Airport have changed significantly over the past 10 years. Holiday travel now accounts for 57 percent of all Australian departures, up from 45 percent in 2006.

Domestic passenger numbers grew at a slower rate than international passengers in 2016–17, up by 2.1 percent to 25.2 million passengers. While domestic passenger growth has slowed more recently, the domestic passenger numbers are up by more than 40 percent over the past decade, with 7.4 million more domestic passengers passing through Melbourne Airport in 2016–17 compared with a decade earlier.

### 6.1.2 Aircraft movements

More than 239,000 flights arrived at or departed from Melbourne Airport in 2016–17, an average of more than 650 flights each day – the equivalent of one flight every two and a half minutes.

The majority of these flights are for passenger aircraft, with more than 230,000 passenger aircraft movements for the year. Melbourne Airport now has over 38 airlines flying to 30 Australian and 39 international destinations each week. There were 7,300 dedicated freighter aircraft movements in 2016–17, an average of 20 flights per day.

### 6.1.3 Drivers of aviation growth

This strong growth in passenger numbers reflects trends in aviation globally, with air travel the world over increasing by 60 percent over the past decade, driven by developments in the aviation industry and strong economic growth in emerging markets.

Melbourne has been well positioned to benefit from these trends given the strong population growth of Melbourne, the economic development of China and the attraction of Melbourne as a destination for domestic and international visitors. Since 2008 Melbourne has increased direct connections to Asia and the Americas, international passenger growth outpaced the national average growth rate of six percent, and increased its share of Australian international passenger movements from 20.6 percent in 2009 to 25.7 percent in 2017.

Growth in the aviation industry over the past decade has been driven by the rise of low-cost carriers, which, along with lower oil prices, have increased the supply of air travel, making it more affordable and accessible to more people than ever before.

Low-cost carriers have become important parts of both the domestic and international markets over the past decade. In Australia, both Jetstar and Tigerair have become major suppliers of air travel to the domestic market. This growth has been supported out of Melbourne Airport with the construction of Terminal 4, which primarily services these airlines.

More recently, lower oil prices have reduced the costs for airlines, which has also supported growth in the supply of air travel, increasing competition and supporting lower fares. This growing competition within the aviation industry has led to increased customer expectations and pressure to reduce costs.

Strong economic growth in emerging markets has created a new middle class in these countries, which has been a key driver of demand of international travel for both tourism and business. Australia has particularly benefited from economic growth in Asia, particularly in countries such as India and China.



Passenger travel between Melbourne and China has increased significantly over the past decade, growing at an average of 13 percent each year, from around 350,000 in 2006–07 to almost 1.2 million passengers in 2016–17. Driven primarily by a four-fold increase in the number of in-bound passengers from China, growth in the Chinese market has accounted for 15 percent of the growth in international passengers over the past decade. Increased capacity in this market has made this growth possible, with nine different airlines now flying to 12 destinations in mainland China.

#### 6.1.4 Air freight

Air freight is used to move high-value, time-sensitive and perishable items that need to be delivered to customers or markets quickly. Almost half a million tonnes of air freight passed through Melbourne Airport in 2016–17. Melbourne Airport's 24-hour operation, and the growing number of international services flying from the airport, provides new opportunities for exporters in southeast Australia to reach the growing demand of international markets.

In 2016–17 Melbourne Airport handled 277,000 tonnes of international air freight worth \$16 billion. This represents over 30 percent of Australia's international air freight market. Approximately 85 percent of international air freight that moves through Melbourne Airport is carried in the belly of passenger aircraft, with the remainder transported on dedicated freighters.

A diverse range of products are exported, from fresh fruit, vegetables, dairy products, meat and fish, to medicines and medical products, electrical parts and precious stones and metals. These goods are delivered to multiple destinations, with leading export countries being China, Singapore, Malaysia, New Zealand and the United Arab Emirates. Four international freight airlines currently service Melbourne Airport.

Melbourne is also a key domestic air freight hub, with 186,000 tonnes of air freight delivered around the country in 2016–17. Around half of this was transported in passenger aircraft.

#### 6.1.5 Curfew-free status

Melbourne Airport is Australia's largest major airport on the eastern seaboard that does not have a curfew, providing significant competitive advantages over other airports. The curfew-free status provides greater flexibility in the arrival and departure of flights supporting time-critical freight to arrive fresh at its destination as well as avoiding passenger flights being detoured to non-curfew locations. This benefits Victorian exporters of fresh food, allowing their produce to be exported in a timely manner, and supports international airlines in particular by providing them greater flexibility to schedule flights, which ultimately benefits their passengers.



## 6.2 Economic and social significance of the airport

Melbourne Airport makes a significant contribution to the Victorian economy. As a key driver of tourism and trade-based industries that support jobs and create economic growth, Melbourne Airport plays an important role in the lives of Victorians through job creation, and connects them with other parts of Australia and the rest of the world.

### 6.2.1 Economic contribution

As Australia's second busiest passenger airport, Melbourne Airport connects passengers to their destinations across Australia and right around the world. It also facilitates tourism and air freight that contribute to the national economy.

#### 6.2.1.1 Economic activity

In 2015–16 the economic activity of businesses operating within the airport precinct contributed \$7 billion to the Victorian economy. However, Melbourne Airport is a driver of economic growth across Victoria and the rest of Australia, contributing to \$20.7 billion of economic activity across Australia in 2015–16, including \$17.6 billion in Victoria. This accounted for almost seven percent of Victoria's total economic activity.

This includes air freight that was transported through Melbourne Airport that facilitated \$4.3 billion in economic activity, of which \$3.7 billion was in Victoria. In 2016–17 exports passing through Melbourne Airport were worth \$5.5 billion.

A typical daily international flight contributes \$109.1 million to the Victorian economy and supports more than 1,000 jobs per annum. A typical daily domestic service used by interstate visitors adds \$16.2 million to the state's economy.

As Melbourne Airport continues to grow, so will the economic activity that it generates. By 2037–38 economic activity in Victoria on the Melbourne Airport precinct is expected to increase from \$7 billion to over \$12 billion.

Over the next decade the economic contribution of the airport to tourism in Victoria is projected to increase by over \$5 billion, with international visitor expenditure in Victoria estimated to contribute 68 percent of the overall growth in overnight tourism expenditure for Victoria. As a major destination for investment and tourism, and ranked as the world's most liveable city by The Economist magazine, Melbourne continues to be a highly attractive location for domestic and international visitors and people migrating from within Australia and from overseas.

#### 6.2.1.2 Employment

The airport precinct is an anchor employer that directly supports more than 20,600 full-time equivalent (FTE) jobs. It is an important employment hub for the local community, with nearly two-thirds of employees living within the seven surrounding municipalities.

Proximity to Melbourne Airport can create significant benefits for those who are involved in airport-related industries, such as the export and import of goods, while passengers travelling through Melbourne Airport support other industries in the local economy such as hospitality. There are 237,000 jobs located in the local region surrounding the airport. The most significant industries in the area include manufacturing, retail, transport and warehousing, construction and health care.

Around 44 percent of employed people who live in the local region surrounding Melbourne Airport also work in the region. The local region has an unemployment rate higher than the unemployment rate across Greater Melbourne. The role of the airport as a local employment hub is particularly important for the local community.

This role as an important employment hub is expected to continue over the next twenty years as Melbourne Airport continues to grow. Employment within the airport precinct is projected to increase to 35,000 jobs by 2038 if a third runway is built, stronger growth compared with the projected state-wide and national averages, underscoring its economic significance. Most of this increase in jobs will support employment in the local community that surrounds the airport, in industries such as accommodation services, other construction, business services, wholesale trade and retail trade.

More broadly, the airport directly and indirectly supports around 170,000 jobs across Australia, of which almost 150,000 are in Victoria, equivalent of around seven percent of all jobs within the state. The movement of air freight supported more than 31,000 of these jobs nationally, of which more than 28,000 were in Victoria.

### 6.2.1.3 Tourism

Melbourne Airport is a key tourism hub for Australia, which facilitates 29 percent of all international visitor nights to Australia and 21 percent of total visitor expenditure across the country. During 2015–16 Melbourne Airport facilitated 71.9 million visitor nights and \$8.9 billion in tourism spending in Victoria, supporting 75,100 FTE jobs across the state and another 10,000 throughout Australia.

International students are a key source of international visitors, representing nearly 30 percent of international visits to Victoria. In 2016 more than 220,000 international students were enrolled in Victorian education institutions, who contributed an extra \$5 billion to the Victorian economy.

Tourism facilitated by Melbourne Airport is expected to continue to grow. By 2026–27 the contribution of tourism to the economy is projected to almost double, supporting an additional 40,000 Victorian jobs.

### 6.2.2 Social value

Melbourne Airport is also one of Victoria's most important pieces of community infrastructure, linking people with their families, friends and employment.

With a social and environmental focus, the airport supports local surrounding communities through its Melbourne Airport Community Fund. Western Chances and Banksia Gardens Community Services are two programs supporting young people to achieve their educational aspirations through scholarship and tutoring programs. Both programs support students to overcome socioeconomic barriers in providing greater access to further education.

Melbourne Airport is proactively supporting the protection and growth of the eastern bandicoot population through its partnership with Conservation Volunteers Australia. The Woodlands Historic Park neighbours Melbourne Airport and, over the past four years, volunteers have worked to create and maintain a predator-proof fence. This partnership has supported a population of 47 bandicoots to grow to more than 400.

Airport operations are a source of noise, and Melbourne Airport works proactively to manage the impact of aircraft noise on the community. Melbourne Airport works with a range of Victorian and Commonwealth government agencies to manage noise and reduce impacts where possible. Airservices Australia is a government-owned corporation providing safe, efficient and environmentally responsible services to the aviation industry and works closely with Melbourne Airport.

In particular, Airservices Australia supports Melbourne Airport by:

- ensuring that flight departures and arrivals are designed to minimise noise impacts on communities around airports
- providing information about aircraft noise
- monitoring aircraft noise around major airports
- providing a national Noise Complaints and Information Service.

More information about managing the impacts of noise including the Noise Abatement Committee is provided in section 17.5.

# The economic contribution of Melbourne Airport

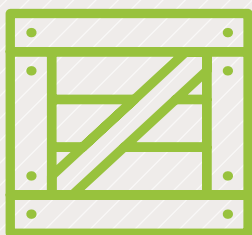


**35.2 million**  
passengers per year

**9.9m**  
international  
passengers

**25.2m**  
domestic  
passengers

**67.8 million**  
passengers  
by 2038



**\$16 billion**

in international freight  
moved through  
Melbourne Airport

**\$5.5 billion**  
in exports

**\$10.5 billion**  
in imports

Airport precinct  
economic activity

2018

**\$7 billion**

2038

**Over \$12 billion**

**\$20.7 billion**  
contributed to the  
national economy

**\$17.6 billion**  
contributed  
to Victoria's  
economy

Figure 6-1: The economic contribution of Melbourne Airport



## 6.3 Planning context for Melbourne Airport

### 6.3.1 Australian Infrastructure Plan

Infrastructure Australia is an independent statutory body with a mandate to prioritise and progress nationally significant infrastructure. It released the Australian Infrastructure Plan in February 2016, outlining priorities and reforms for infrastructure to support Australia's future. The Infrastructure Priority List 2018 is the reference point for the most important infrastructure investments Australia requires over the next 15 years.

Those projects and initiatives of relevance to Melbourne Airport include:

- Melbourne Airport third runway
- M80 upgrades (0–5 years)
- preserve corridor for Melbourne Outer Metropolitan Ring Road/E6 (0–5 years)
- preserve corridor for East Coast High Speed Rail (0–5 years)
- Melbourne Airport to CBD public transport capacity (5–10 years)
- North East Link (5–10 years).

### 6.3.2 Victoria's 30-Year Infrastructure Strategy

In December 2016 Infrastructure Victoria, a government advisory body, released Victoria's 30-Year Infrastructure Strategy. The strategy presents a summary of Victoria's infrastructure needs and priorities over the next 30 years.

The strategy identifies Melbourne Airport (and surrounds) as a key passenger and freight gateway to Melbourne and Victoria. Key recommendations of the strategy relevant to the airport include:

- delivering on-road priority bus services linking Melbourne Airport to central Melbourne
- developing the Melbourne Airport Rail Link
- connecting Melbourne Airport to the Outer Metropolitan Ring Road.

### 6.3.3 Victorian Infrastructure Plan

In response to Infrastructure Victoria's 30-Year Infrastructure Strategy, the Victorian Government released its Victorian Infrastructure Plan in October 2017.

The Victorian Infrastructure Plan identifies that the Victorian Government partially supports or supports in principle the recommendations that are relevant to Melbourne Airport.

### 6.3.4 Plan Melbourne 2017–2050

Plan Melbourne 2017–2050 is Melbourne's overarching metropolitan planning strategy that guides the management of growth in the city and suburbs through to 2050 (Figure 6-2). It specifically recognises the need to:

- protect Melbourne Airport and its surrounds from incompatible land uses while encouraging adjacent complementary uses and employment-generating activities to ensure it keeps generating economic activity and new jobs (Direction 1.1)
- protect Melbourne Airport's curfew-free status and support its expansion (Direction 3.4)
- improve regional connectivity to Melbourne Airport (Direction 7.2).





Map 2  
Melbourne 2050 Plan

- Central city
- National employment and innovation cluster (NEIC)
- Metropolitan activity centre
- State-significant industrial precinct
- State-significant road corridor
- Rail network
- Rail improvements Sunbury to Cranbourne / Pakenham (including Metro Tunnel)
- Western Distributor
- Transport gateway – major airport
- Transport gateway – airport
- Transport gateway – seaport
- Potential transport infrastructure project
- Outer Metropolitan Ring / E6 reservation
- North East Link (alignment subject to investigation)
- Airport Rail Link
- Avalon Rail Link
- Western Port highway upgrade / Rail Link to Hastings
- Interstate freight terminal (indicative)
- Transport gateway – possible airport (indicative)
- Transport gateway – possible seaport (indicative)
- Water's edge parklands
- Green wedge land
- Urban growth boundary
- Urban area
- Waterway
- Waterbody
- Metropolitan Melbourne region

Source:  
Department of  
Environment, Land,  
Water and Planning



**NOTE: POTENTIAL INFRASTRUCTURE PROJECTS AND GATEWAYS ARE SUBJECT TO INFRASTRUCTURE VICTORIA ADVICE AND VICTORIAN GOVERNMENT APPROVAL. THIS FRAMEWORK WILL BE UPDATED AT THE END OF 2017, FOLLOWING THE GOVERNMENT RESPONSE TO INFRASTRUCTURE VICTORIA'S 30 YEAR PLAN.**

Source: Department of Environment, Land, Water and Planning  
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Figure 6-2: Plan for Melbourne 2050  
Source: Department of Environment, Land, Water and Planning, 2017

### 6.3.5 Melbourne Airport Environs Strategy Plan

The Melbourne Airport Environs Strategy Plan (MAESP) made recommendations to ensure inappropriate land use and development in the noise-affected areas surrounding Melbourne Airport do not affect its efficient operation. One of its recommendations is the Melbourne Airport Environs Overlay (MAEO).

MAEO controls generally apply to land on the approaches to the airport's existing and proposed runways (Figure 6-3). It has two levels of controls: Schedule 1 and Schedule 2.

The MAEO boundaries are based on the recommendations of Australian Standard AS2021-2015 (AS2021) and the 2003 Long Term Capacity Aircraft Noise Exposure Forecast (ANEF) boundaries from the 2003 Master Plan. The Schedule 1 boundaries are defined by the 25 ANEF contour, and the Schedule 2 boundaries are defined by the 20 ANEF contour.

The details and requirements of Schedules 1 and 2 of the MAEO are in the local planning schemes of the five councils covered by these controls: Hume, Brimbank, Moonee Valley, Melton and Whittlesea. In accordance with AS2021, the Schedule 1 controls are more restrictive than those of Schedule 2.

The MAESP is recognised under Part 3C of the Planning and Environment Act. Amendments to planning schemes in the Melbourne Airport Environs Area must be consistent with the approved MAESP. However, the MAESP primarily relates to land inside the 20 ANEF contour and has little effect outside it.

The Victorian Government has committed to review the MAESP, the effectiveness of controls intended to safeguard the Melbourne Airport Environs Area and the airport's ongoing curfew-free status.

### 6.3.6 Urban growth boundary and green wedges

The Urban Growth Boundary (UGB) and associated Green Wedge Zones (Figure 6-4) play an important role by protecting flight path corridors from encroachment that may conflict with current or future aircraft operations.

The UGB safeguards land on the city's fringe for environmental, farming, tourism and infrastructure assets such as Melbourne Airport. Victoria's State Planning Policy Framework identifies the purpose of green wedges as to 'protect major transport facilities that serve the wider Victorian community, such as airports and ports with their associated access corridors'.

Formal recognition of the current UGB and Green Wedge Zones in state and local planning policy (including Plan Melbourne) will help safeguard the airport from urban encroachment over the long term.

### 6.3.7 Hume Planning Scheme

In the Hume Planning Scheme, under Clause 21.01-1, Melbourne Airport is designated as a Transport Gateway. This highlights the importance and nature of Melbourne Airport with its range of retail, commercial and community services. Melbourne Airport has an integrated transport network, including public transport, walking and cycling routes, which enhances its accessibility. The Melbourne Airport Transport Gateway has a wide catchment, with people visiting the site for travel, business, employment or leisure opportunities.

Clause 18.04-1 seeks to strengthen the role of Melbourne Airport within the state's economic and transport infrastructure and to protect its ongoing operation. Key strategies of this clause include ensuring that any new use or development does not prejudice the optimum usage of the airport and does not prejudice its curfew-free operation. In particular, council planning must consider as relevant the National Airports Safeguarding Framework and the Melbourne Airport Master Plan.

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1 State Planning Policy Framework, Clause 11.04-6

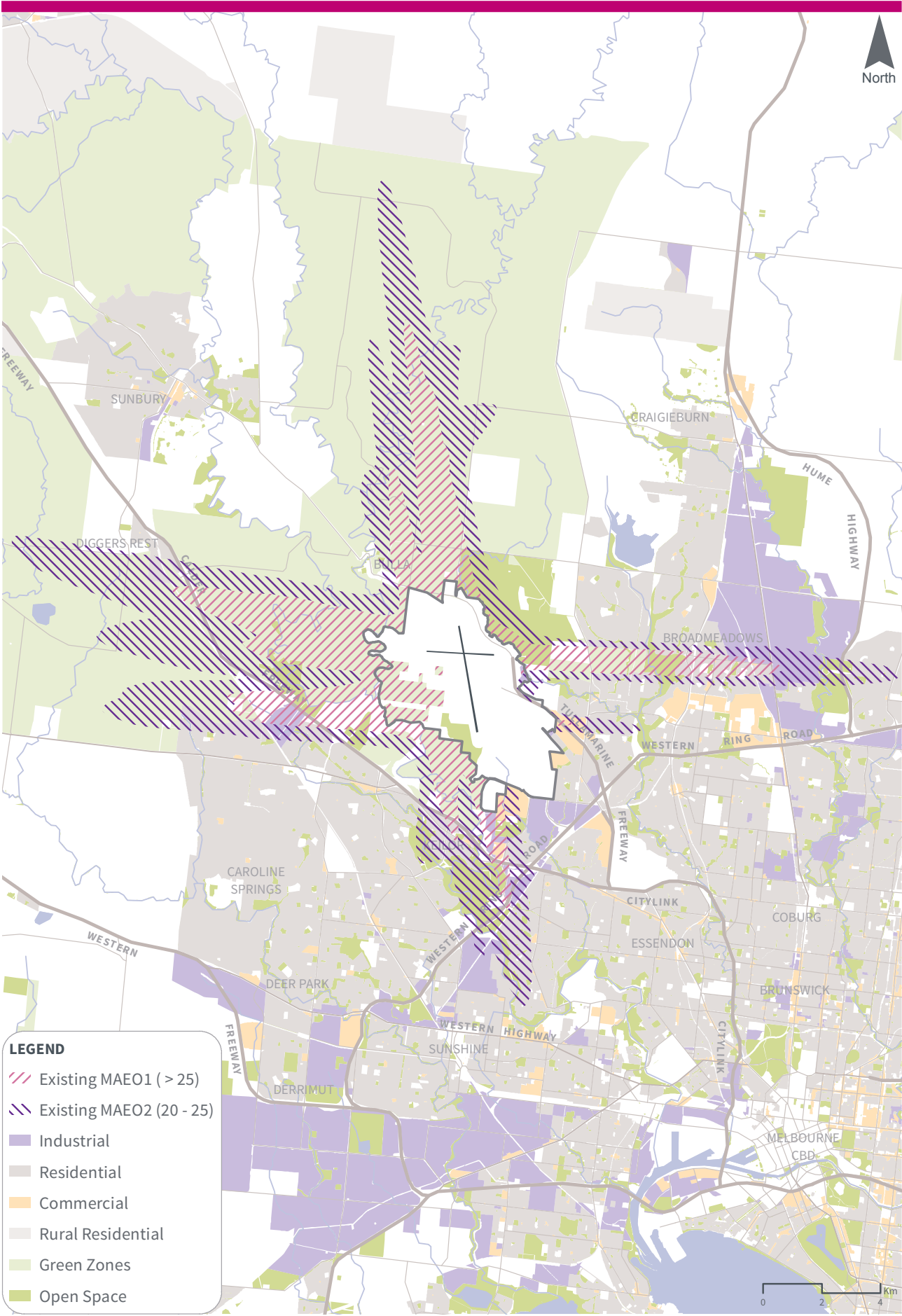


Figure 6-3: Melbourne Airport Environs Overlay map

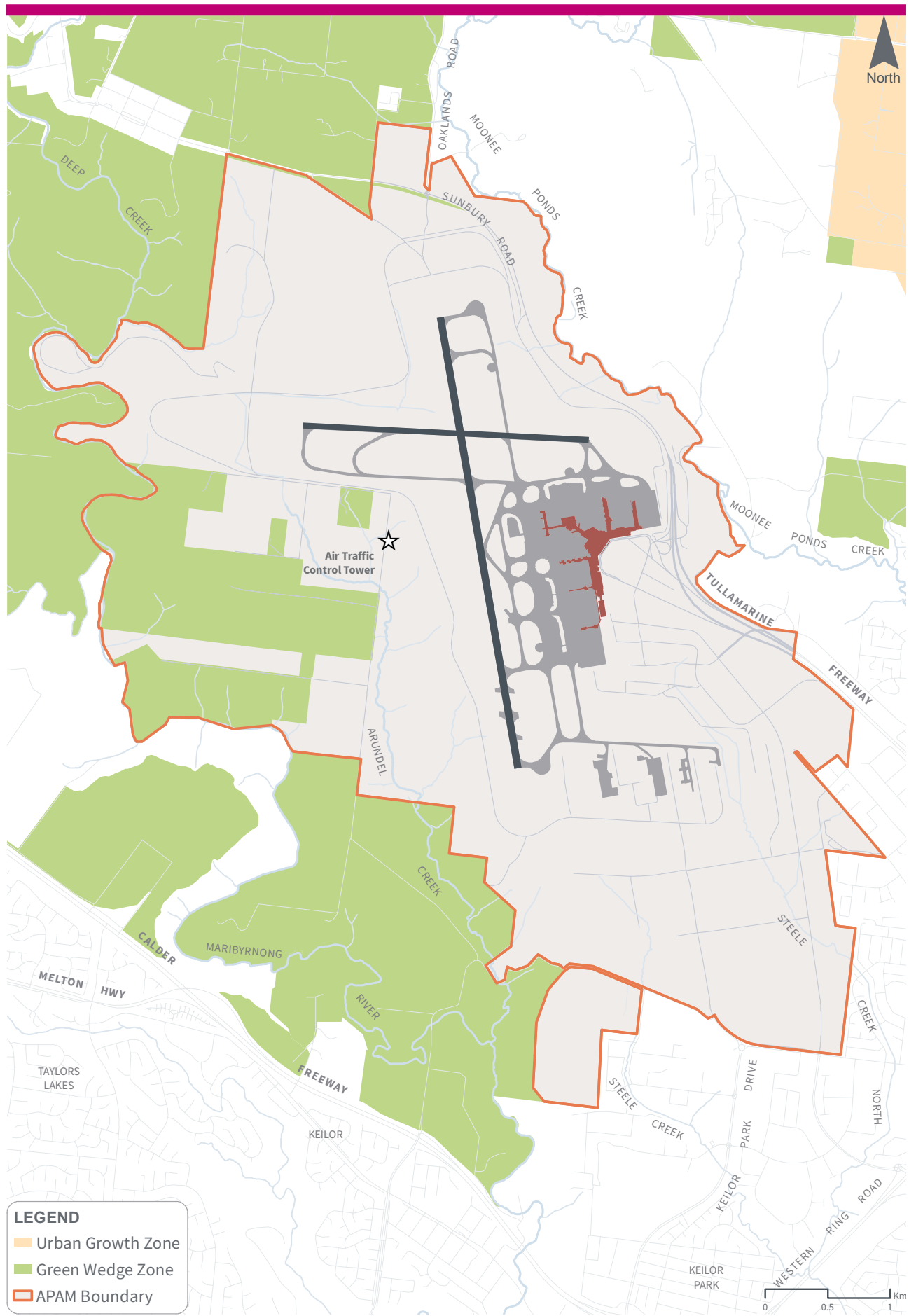


Figure 6-4: Urban Growth Boundary and Green Wedge Zones around Melbourne Airport











Part C:

# The Plan

The Master Plan strengthens the position of the airport as Victoria's gateway to the world, delivering economic benefits and generating employment for Victorians. The plan for the airport in the next five years and within the 20-year planning horizon is to deliver on this vision through significant investments in aviation infrastructure, terminals, ground transport and utilities infrastructure.

The Master Plan highlights the airport's plan to accommodate increased growth in passenger, aircraft and freight movements.

# 7.0

## Airport growth forecasts

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*This section provides forecasts for growth in passenger, aircraft and freight movements, and the attendant growth in traffic to and from the airport. These forecasts allow Melbourne Airport to consider how to respond to this growth while delivering on the vision.*

## 7.0 Airport growth forecasts

### KEY FEATURES



**35M – 68M  
PASSENGERS**

#### **Annual passenger movements**

2016–17 – More than 35 million passengers  
2037–38 – Almost 68 million passengers



**460T – 900T  
FREIGHT**

#### **Annual freight movements**

2016–17 – More than 460,000 tonnes  
2037–38 – More than 900,000 tonnes



**238K – 384K  
FLIGHTS**

#### **Annual aircraft movements**

2016–17 – More than 239,000 movements  
2037–38 – More than 384,000 movements



**127K – 240K  
CAR TRIPS**

#### **Busy day vehicle trips (to and from the airport)**

2016 – 127,000 vehicles per day  
2038 – 240,000 vehicles per day

## 7.1 Aviation forecasting context

Future expected trends in the aviation industry underpin the future forecasts of passenger growth in the Master Plan. Evolving trends in global aviation require the Master Plan to respond to changes in security requirements, oil prices and technology enhancements. Passengers are changing their choice of travel destination, airline and airport of departure and arrival. These changing expectations will drive Melbourne Airport to improve the airport environment and experience of its passengers.

Aviation development to accommodate these shifts over the next 20 years will include expanding and improving terminals, increased apron area for more and larger aircraft, and supporting infrastructure. The forecasts in this chapter inform the future development plans that are outlined throughout the Master Plan.



## 7.2 Passengers

Total passenger movements are forecast to grow from 35.2 million in 2016–17 to 67.8 million in 2037–38 (Figure 7-1). The increase of 32.6 million passengers represents overall growth of 92 percent and an average annual growth rate of 3.2 percent. Growth in passenger numbers is forecast to be slightly stronger in the medium term, growing at an average of 3.3 percent a year out to 2022–23 to a total of 42.7 million passengers. Longer term growth from 2022–23 to 2037–38 is forecast to be slightly slower, at 3.1 percent per annum.

The domestic market is expected to account for the majority (63 percent) of overall passenger growth, but the international market is expected to grow more quickly than the domestic market (3.9 percent per annum versus 2.9 percent per annum).

The number of seats per aircraft in both domestic and international markets continues to grow due to revised seating layouts and larger-capacity aircraft. This trend results in a lower growth rate for aircraft movements compared with the domestic and international passenger growth rates.

### 7.2.1 International passengers

International passengers are forecast to more than double by 2038, from almost 10 million in 2016–17 to more than 22 million. This reflects an average rate of growth of 3.9 percent, with more than 12 million extra international passengers forecast to be using the airport by 2037–38.

Future growth in international passenger numbers is expected to be driven by increases in airline competition and developments in aircraft technology that reduce the cost of international travel, and the continued economic development of Asia.

Opportunities for capacity growth in new services to North Asia and the Americas are expected to be particularly strong. There is scope for continued growth to leisure destinations, primarily in Asia, while strong growth from China is expected to continue as its economy continues to develop.

Advances in aircraft technology have increased the potential range of direct services out of Melbourne, which has created the opportunity for sustainable direct connections to North American cities such as San Francisco, Vancouver and Dallas.

This outlook is in line with Tourism Australia forecasts, which over the next decade expect international visitor numbers to Australia from China to triple from 1.3 million to 3.9 million, and the United States to increase from 750,000 to 1.3 million over the same period.

### 7.2.2 Domestic passengers

Domestic passengers are forecast to increase from 25.2 million in 2016–17 to 45.7 million by 2037–38. This increase of 20.5 million passengers reflects an overall increase of 81 percent, or annual average growth of 2.9 percent.

Growth rates in domestic passengers have moderated recently due to the lack of any major structural changes in the domestic aviation market such as new carriers, the current economic environment that has been influenced by a slowing resource sector, and the strong growth in international outbound travel.

However, growth in domestic passengers is expected to be supported by advances in aviation technology and continued growth in the size of the domestic population, which reflects the size of the potential domestic traveller market in Australia. Melbourne's population is projected to grow from 4.2 million to almost eight million by 2050, with Melbourne expected to become Australia's biggest city by 2036.

### 7.2.3 Passenger forecast scenarios

Total passenger movements are forecast to grow at an average of 3.2 percent each year to reach 67.8 million in 2037–38. Given the uncertainty that comes with forecasting into the future, different forecast scenarios can provide an indication of the range which future passenger numbers could be expected to fall. Figure 7-2 shows the Melbourne Airport passenger forecasts alongside low growth and high growth forecast scenarios.

Under the low growth scenario, passenger numbers are forecast to reach 58.1 million by 2037–38, reflecting an average growth rate of 2.4 percent a year. Under the high growth scenario, passenger numbers are forecast to grow by an average of 3.9 percent a year to 2037–38 to a total of 78 million.





Figure 7-1: Forecast annual passenger numbers for Melbourne Airport

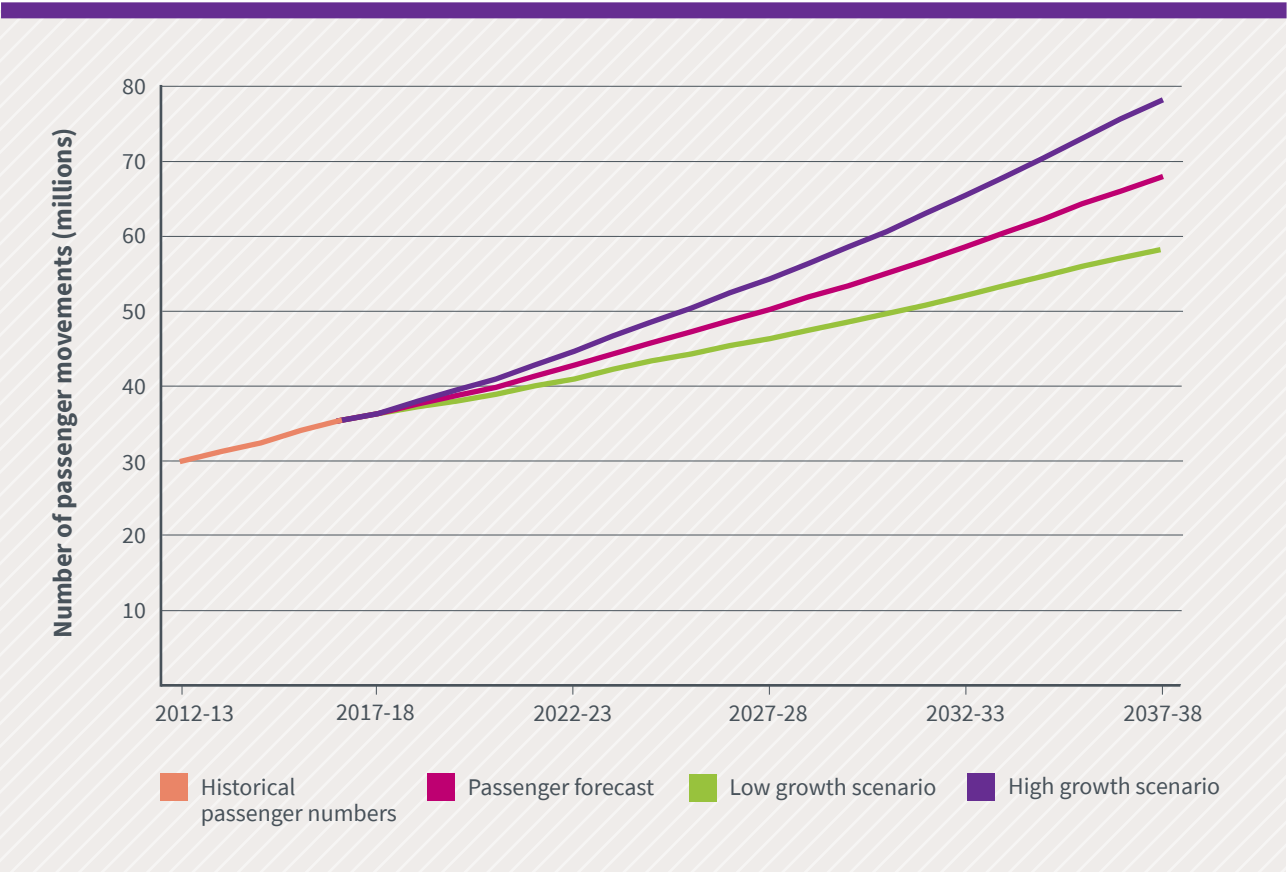


Figure 7-2: Annual passenger forecast scenarios

## 7.3 Air freight

In 2016–17 Melbourne Airport handled 277,000 tonnes of international air freight worth \$16 billion, on top of 186,000 tonnes of domestic air freight. Approximately 85 percent of international freight tonnage is transported in the belly of passenger aircraft, while the remaining 15 percent is handled in dedicated freighter aircraft.

International freight tonnage at Melbourne Airport is expected to grow to 598,000 tonnes by 2037–38, reflecting average growth of 3.7 percent (Figure 7-3). Domestic freight tonnage at Melbourne Airport is forecast to grow from approximately 186,000 tonnes in 2016–17 to 303,000 tonnes in 2037–38, reflecting annual average growth of 2.4 percent a year.

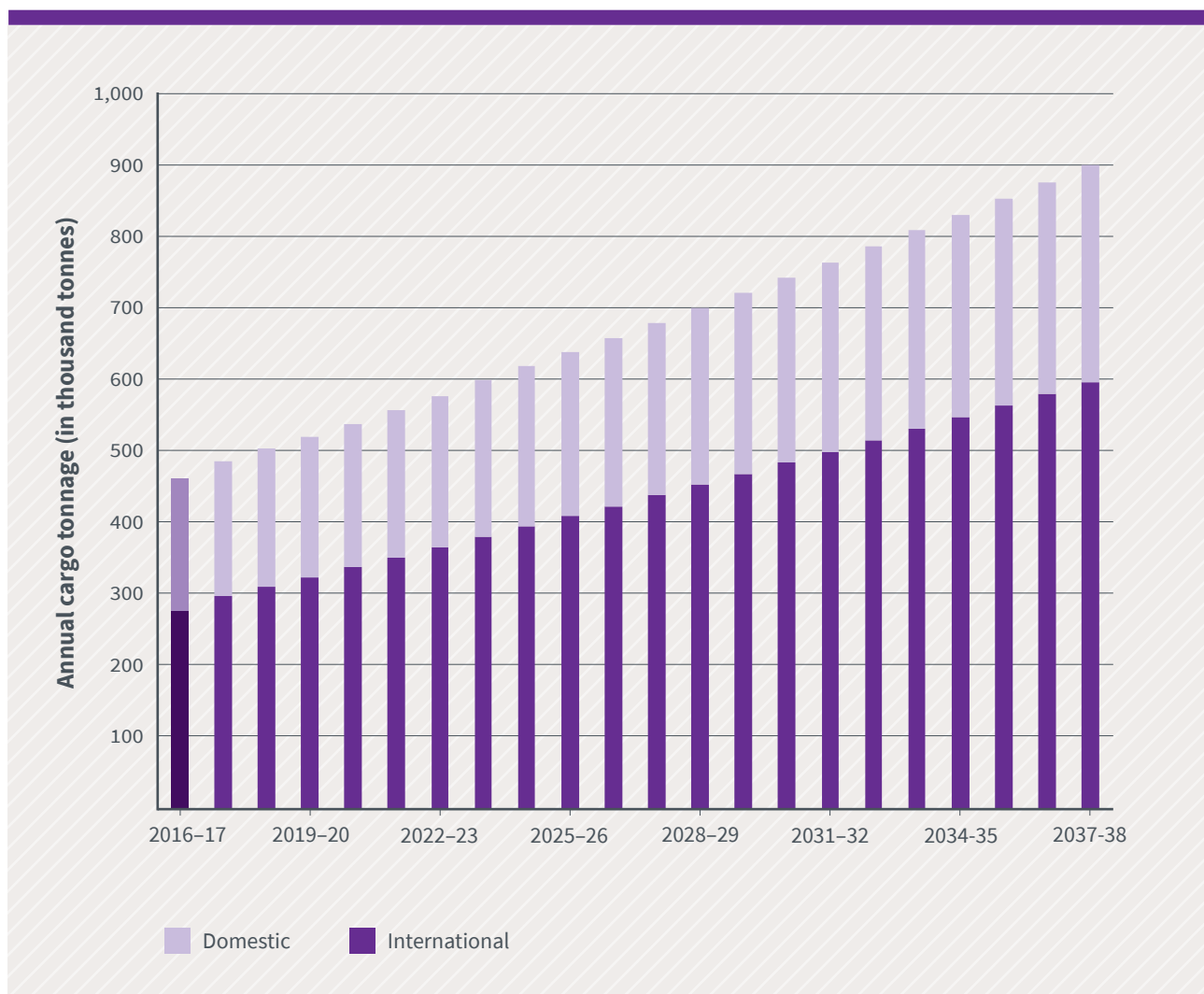


Figure 7-3: Annual freight tonnage projection for Melbourne Airport

## 7.4 Aircraft movements

Aircraft movements at Melbourne Airport are forecast to grow from 239,300 in 2016–17 to more than 384,000 in 2037–38 (Figure 7-4).

International aircraft movements are expected to grow by 2.5 percent per annum over the forecast period, driven primarily by regular public transport (RPT) aircraft movements. The overall rate of growth in international aircraft movements is lower than the projected growth in international passenger movements of 4.1 percent because the average number of seats per aircraft movement is expected to continue growing.

Domestic aircraft movements are expected to grow by 1.8 percent per annum over the forecast period, also driven primarily by RPT movements. This overall rate of growth in domestic aircraft movements is lower than the projected growth in domestic passenger movements of 2.9 percent because the average number of passengers per aircraft movement is expected to continue growing.

Non-RPT aircraft movements (international and domestic) are expected to remain unchanged, which, given that the majority of freight is carried in passenger aircraft, is consistent with recent trends.

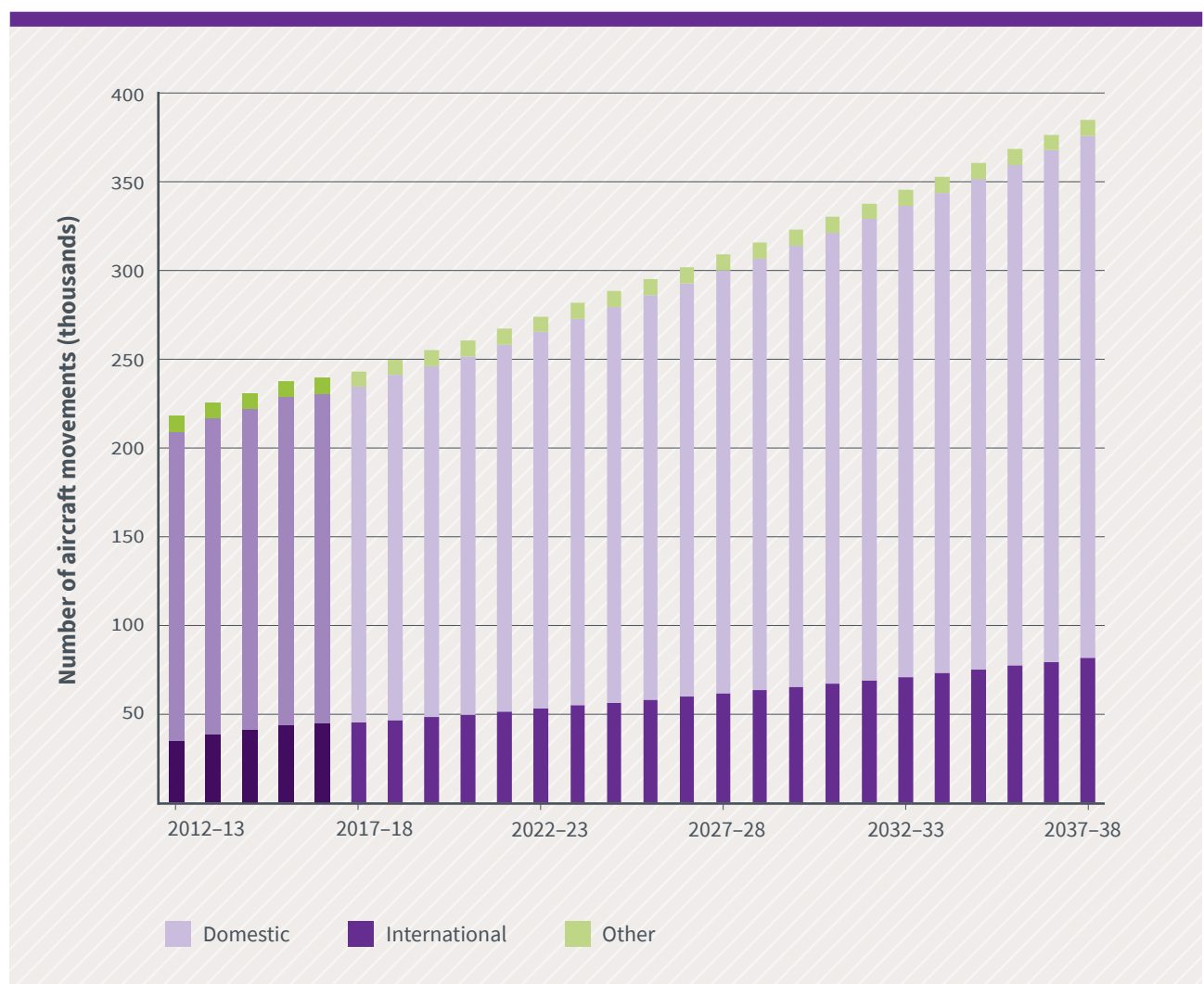


Figure 7-4: Forecast annual aircraft movements for Melbourne Airport

## 7.5 Vehicle traffic

By 2038 increases in passenger, employee and commercial vehicle trips to Melbourne Airport are projected to generate up to 240,000 vehicle trips per day if there is no investment in public transport or other travel demand measures (Figure 7-5). The impact of this growth on traffic flows in and around the airport will depend on the route chosen to access or leave the airport (Figure 7-6).

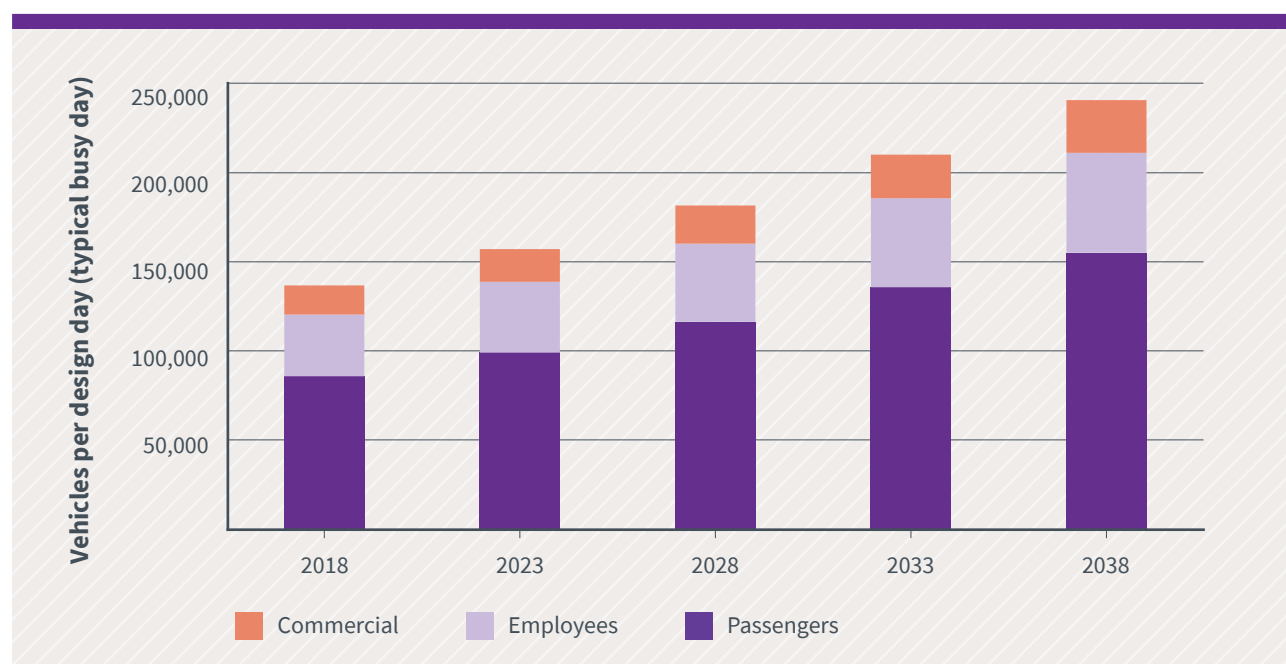


Figure 7-5: Projected busy day vehicle volumes for Melbourne Airport

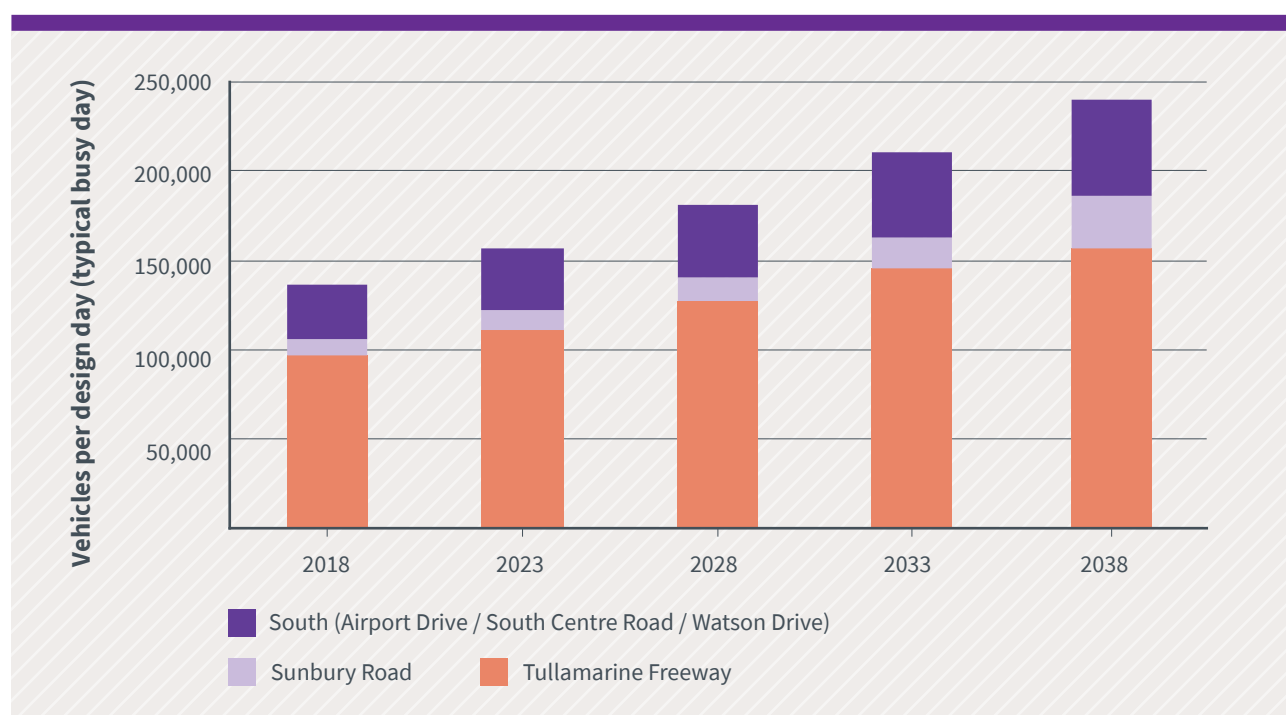


Figure 7-6: Projected busy day vehicle volumes by access road, Melbourne Airport





# 8.0

## Development concept plans

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*This Master Plan sets a development framework for the future orderly development of Melbourne Airport. It is based on a planning interpretation and distillation of the external policy frameworks, community considerations and the airport's strategic objectives. In the sections that follow, proposals for the future development of the airport are portrayed for three time horizons: the first five years (up to 2023), the period between five and 20 years (up to 2038) and beyond 20 years (up to the long-term development of the airport).*

## 8.0 Development concept plans

### KEY FEATURES



#### 3RD RUNWAY

The 2023 development concept includes the Runway Development Program infrastructure, with a third runway and extensions to the existing east-west runway



#### TERMINAL EXPANSIONS

The 2038 concept includes the expansion of the terminal buildings and new extended piers



#### 80M+ PASSENGERS

The Long Term Development Concept includes four runways and the full build out of the airport site, to support more than 80 million passengers per annum



## 8.1 2023 Development Concept Plan

The 2023 Development Concept Plan (five-year plan) for Melbourne Airport (Figure 8-1) is based on capacity needs as determined by the current growth forecasts (see section 7.0). Melbourne Airport will continue to monitor the expected traffic growth, as well as customer needs, and adjust implementation plans accordingly.

The airport's five-year development plan aligns with the capacity gains from the proposed RDP, which is subject to a separate Major Development Plan (MDP) process. Development proposals are also carefully integrated with this critical project from geometric, operational and functional perspectives.

Melbourne Airport's development will maximise investments in the existing Terminals Precinct and complete developments agreed to with airlines. With the advent of new processing technologies, as well as the emergence of new aircraft fleet types, the focus for Melbourne Airport is on maximising the use of the available capacity at the airport. To the extent possible, mixed user terminal and apron facilities will be adopted. The scheme is further premised on consolidating international terminal and apron activity within the expanding Terminal 2 precinct.

The 2023 Development Concept Plan assumes the full completion of the proposed RDP. Other key improvements to the airport in the first five years include:

- constructing new taxiways to facilitate aircraft traffic movements and to enable aircraft to access new stands
- developing efficient common-use domestic and international capability facilities such as boarding gates and aircraft stands
- extensions and improvements to apron areas with shared use between international and domestic operations
- development of additional remote stands in the Northern Apron Precinct
- extensions and improvements to the internal road network and main forecourt to increase capacity and improve safety.

Detailed descriptions of the planned Airside, Terminals and Aviation, Non-Aviation and Ground Transport Plans can be found in sections 11.0, 12.0, 13.0 and 14.0 respectively.

### 8.1.1 Runway Development Program

The 2023 Development Concept Plan assumes the full completion of the proposed RDP. A detailed description of the scope of the RDP can be found in Section 11.

Melbourne Airport formalised the need for a third runway in the 2013 Master Plan and identified the preferred orientation for the third runway as east-west. A number of factors were considered when selecting the preferred orientation such as capacity, safety, community, environment, financial considerations and growth. The key advantage of the east-west parallel runway layout is that the existing Terminals Precinct will be located between the runways, facilitating efficient and safe aircraft movements without the 'live' runway crossings that would be necessary with a north-south parallel layout.

Operational efficiencies have deferred the requirement for an additional runway by over ten years. Further potential changes in operations to enhance efficiency would provide limited runway capacity benefit only in the short term which would not sufficiently meet the increase in runway demand between now and the RDP being delivered.

Refinement of the RDP design and development footprint since 2014 has quantified the impact on the environment and community and is subject to a separate Major Development Plan (MDP) approval process.

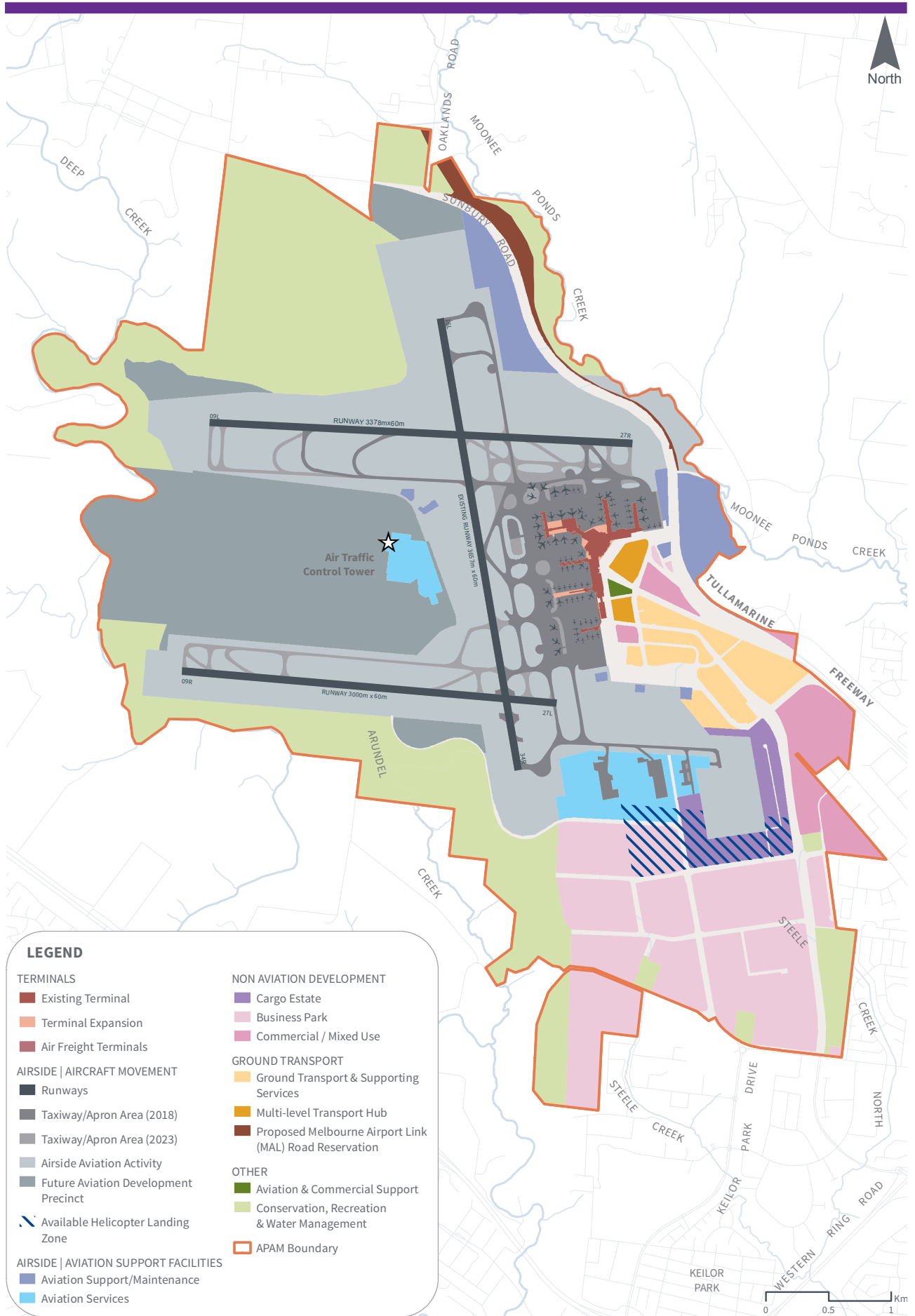


Figure 8-1: 2023 Development Concept Plan for Melbourne Airport

## 8.2 2038 Development Concept Plan

The 2038 Development Concept Plan (20-year period) for Melbourne Airport (Figure 8-2) involves expanding the existing Terminals Precinct up to the maximum number of aircraft parking positions that it can foreseeably support.

A key aspect of this development concept is the expansion of terminal facilities south of the existing Terminal 4 precinct, with a new terminal pier expansion (Terminal 5 ) catering for further passenger capacity. These facilities are planned and positioned to balance aviation, aviation support and commercial facility growth, maximising the use of the existing precinct and its proximity to landside access options.

In line with the 2013 Master Plan and the long-term development vision for the airport's existing site, the deepening of the international terminal forecourt area, maximum extensions to Piers B, D and E and a new Pier A would be concluded by 2038. A redevelopment of Pier G will be undertaken to complement the development of the Southern Terminal Precinct expansion (Terminal 5). By this time, current freight activity will be relocated to the Southern Freight Apron, adjacent to significant freight warehouse operations that have been developed over the past five years.

Based on current forecasts, it is expected that the airport will require wide-body aircraft parking positions to be developed in the midfield future Terminal 6 Precinct, west of the existing north-south runway (16/34) before 2038. These aircraft parking positions will initially serve as inactive parking positions for aircraft that are based on the ground overnight or for long periods during the day. As demand increases they will be utilised into fully serviced remote bussing aircraft parking stands.

To support the growth in the Terminals Precinct, the internal road network and main forecourt capacity will be further expanded.

It is envisaged that the Melbourne Airport rail link would be operational by this time, providing a reliable public transport service to facilitate growth.



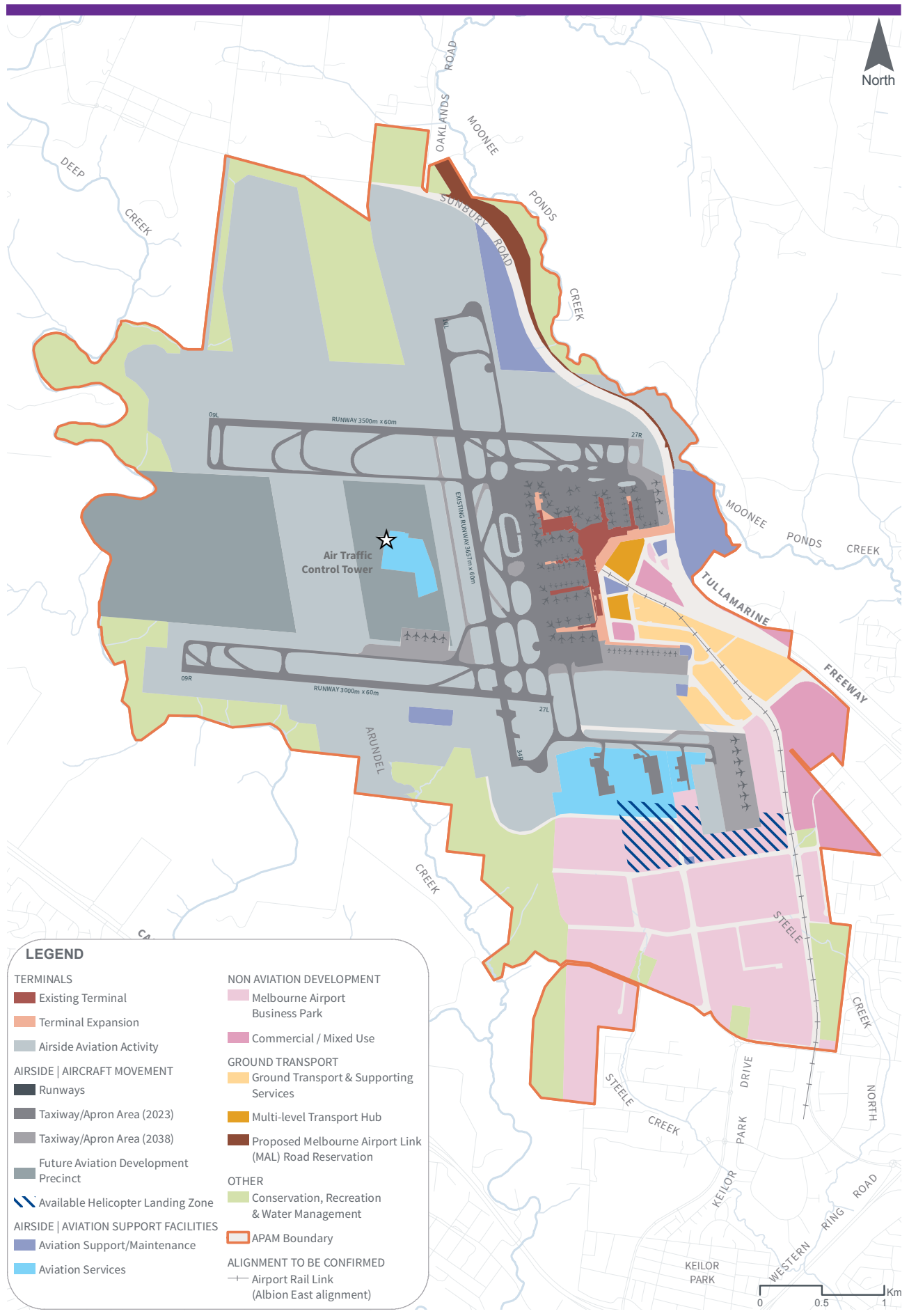


Figure 8-2: 2038 Development Concept Plan for Melbourne Airport

## 8.3 Long Term Development Concept Plan

All airport developments are to be based on a robust and flexible framework set out by the Master Plan. Not only does the Master Plan inform safeguarding decisions, it ensures that all preceding developments (as illustrated elsewhere in this document) are integrated and implemented towards maximum overall benefit.

The Long Term Development Concept Plan describes this long-term airport vision in development terms (Figure 8-3).

By 2038 the existing Terminals Precinct will have been exceeded in terms of spatial capacity, and there will be increasing aircraft activity within the midfield development area. Towards the long-term development of the airport, the midfield area (between all four runways) will be expanded to include not only additional aircraft parking capacity but also associated Terminal 6 and concourse development. Additionally, the airport has safeguarded aviation development on the western side of the airport (west of the fourth runway). Such significant aviation infrastructure is anticipated to require additional access to the west and midfield areas from existing roads either to the north or west of the airport, which will relieve pressure on the existing access points of Airport Drive and the Tullamarine Freeway. Landside access to serve the new Terminals Precinct will continue to be safeguarded for ground-based transport access, including future rail connections.

The development footprint and the associated safeguarding of the long-term concept plan are strongly influenced by the four-runway configuration on the site, which will provide capacity well beyond the scope of this 20-year Master Plan. The evolution of future aircraft and navigation technologies are changing rapidly and, in conjunction with forecast air transport demands, may present alternative timings for development and alternative configuration of airfield layouts of these long-term development concepts. However, the continued safeguarding of this multiple runway system will ensure Melbourne Airport can continue to provide for Victoria's and Australia's air transport and aviation sector well into the future.

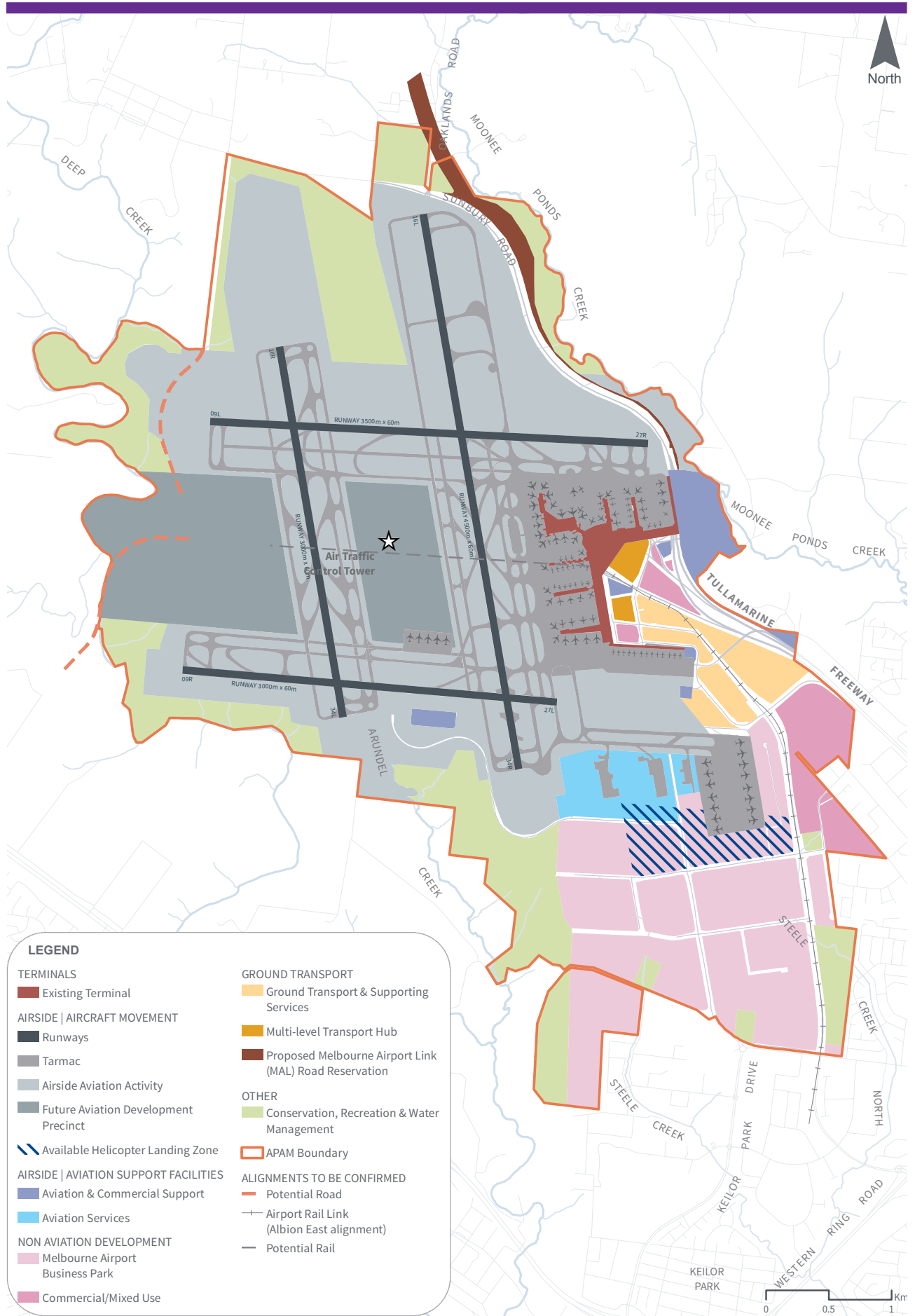


Figure 8-3: Long Term Development Concept Plan for Melbourne Airport

# 9.0

## Aircraft noise and flight paths

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*Aircraft noise is an unavoidable by-product of an airport's operation. While modern aircraft are relatively quiet compared with their predecessors, it is still an issue that requires considerable attention. This section of the Master Plan outlines the impact of aircraft noise on areas surrounding Melbourne Airport and illustrates the approved Australian Noise Exposure Forecast and approved flight paths over the planning period.*

## 9.0 Aircraft noise and flight paths

### KEY FEATURES



#### MANAGE FLIGHTS OVER RESIDENTIAL AREAS

Preferential runway use and flight paths to manage flights over residential areas



#### NIGHT NOISE ABATEMENT

Night noise abatement procedures



#### REGULAR MONITORING

Regular monitoring and review of aircraft operations and flight paths

### 9.1 Background

As the main gateway to Victoria and a vital contributor to the Victorian economy, it is essential that Melbourne Airport's operations continue to be safeguarded while protecting communities living around the airport. Melbourne Airport's ongoing operation is supported by a range of legislation, planning controls, studies, strategies and other measures that together ensure that the social, economic and community connectivity benefits are realised now and into the future.

Aircraft noise is perhaps the most important issue for all airports in terms of land use protection as well as the communities living, working and studying in close proximity to the airport. The site for the airport was originally selected, in part, to minimise the impact of aircraft noise on surrounding areas, which at the time was largely rural. Since then, urban development has encroached closer to the airport and under its flight paths.

Aircraft noise is an unavoidable by-product of an airport's operation, and while modern aircraft are relatively quiet compared with their predecessors, it is still an issue that requires considerable attention. Accordingly, there are a number of systems and procedures designed to deal with aircraft noise as outlined in the following sub-sections.

The main statutory planning tool currently safeguarding Melbourne Airport is the Melbourne Airport Environs Overlay (MAEO), which is based on the airport's 2003 Master Plan ANEF noise contours. A number of local policies and state protections under the P&E Act also contribute to the protection of the airport.

Experience at Australian federally leased airports has shown that aircraft noise is not confined to areas inside the ANEF noise contours, nor does the noise stop at a line on a map. In fact, most complaints relating to aircraft noise at Australian airports, including Melbourne Airport, come from people who live outside the published 20 ANEF noise contours. It is generally recognised that basing land-use planning decisions solely on ANEF noise contours, without reference to other information, is likely to lead to a less-than-optimal outcome for airports and the community. Additional or supplementary noise planning tools are used to better support the airport's ongoing operation and protect surrounding communities as well as managing the impacts of noise. These additional tools are discussed in section 17 of this master plan.

Melbourne Airport will continue to work with Airservices, all levels of government, aircraft manufacturers and airline carriers to manage aircraft noise. Melbourne Airport will also continue to run the Noise Abatement Committee and the Community Aviation Consultation Group to ensure that noise issues are being appropriately monitored and managed.



## 9.2 Noise forecast

The Airports Act requires that each airport Master Plan includes an ANEF to determine likely noise exposure around the airport. A description of the ANEF system and the associated land use compatibility advice for areas in the vicinity of airports is described in detail in the Australian Standard AS2021-2015 (Acoustics – Aircraft noise intrusion – Building siting and construction). A brief summation of this information is included in the following sections.

The ANEF contours prepared for the 2018 Master Plan represent Melbourne Airport's forecast long-range noise impacts extending to 2048. The ANEF safeguards the development stages of the four-runway system and a long-term forecast of almost 486,000 fixed wing and rotary wing flights. The basis of these aircraft movement forecast levels are discussed in more detail in section 7.0. Significant forecast stages of runway infrastructure development and their respective inclusions in the ANEF are discussed in section 9.2.4.

Integrated Noise Model (INM) (version 7d) was used to produce the noise contours in this Master Plan in accordance with Commonwealth Government requirements. The previous Master Plan utilised version 7c, which was the version current at the time of publishing. INM is an aircraft noise modelling software package produced by the United States Federal Aviation Administration. The model uses a much wider range of aircraft types than was available for the previous versions of the tool. The operational levels for the various runway layouts were broken down by aircraft type, arrival or departure, day (7.00am to 7.00pm) or night (7.00pm to 7.00am), origin or destination, and INM stage length. When feasible under the prevailing weather and traffic demand conditions, runway operating modes used in the modelling have considered noise abatement procedures aimed at directing noise away from heavily populated areas. There are three types of aircraft noise charts produced using the ANEF system. These charts are described below.

### 9.2.1 Australian Noise Exposure Index

The Australian Noise Exposure Index (ANEI) is a contour map that shows actual historical aircraft noise levels over a given time period. The ANEI contours are used primarily to show historic noise exposure patterns used in environmental reporting and benchmarking. A 2015 ANEI is shown in Table 9-2.

### 9.2.2 Australian Noise Exposure Concepts

An Australian Noise Exposure Concept (ANEC) is a contour based on predicted aircraft operations at an airport in the future. As ANEC maps are based on various assumptions and may not have been subject to review or official endorsement, they have no official status and cannot be used for land use planning.

An ANEC or set of ANECs can be converted into an ANEF when it undergoes assessment for Technical Accuracy by Airservices and is subsequently endorsed.

### 9.2.3 Australian Noise Exposure Forecast

ANEFs are the official forecasts of future noise exposure patterns around an airport and constitute the contours on which land use planning authorities base their controls. The ANEF chart shows the cumulative noise effect of a full year of operations so that seasonal changes in weather patterns and airline schedules are taken into account. The resulting contours are therefore a measure of the total noise exposure over a 12-month period divided by 365 to show an average annual day. They do not represent the maximum exposure on any day or the maximum exposure caused by a single aircraft.

Australian Standard AS2021-2015 (Acoustics – Aircraft noise intrusion – Building siting and construction) defines areas where construction of certain building types is 'acceptable', 'conditionally acceptable' and 'unacceptable', based on the ANEF. Chapter 17 discusses land use and building acceptability in various ANEF zones, and the mechanisms for ensuring the compatibility of surrounding land uses.

Table 9-1 shows the building site acceptability based on ANEF zones, from AS2021-2015.

The ANEF for Melbourne Airport comprises a number of ANECs and must be endorsed for technical accuracy by Airservices, which manages airspace and air traffic control. The first Melbourne Airport ANEF was issued in 1993 and updates were published in 1996, 1998, 2003, 2008 and 2013.

A new ANEF (see Figure 9-11) was produced in the preparation of this Master Plan and the RDP Major Development Plan (MDP). This long-range ANEF is a composite of four ANECs prepared for the major operational stages of the airport's development. All aircraft flight paths, operating procedures and aircraft allocation to runways used in preparing the ANEF and associated noise contours have been developed, reviewed or endorsed by Airservices.

Table 9-1: Building site acceptability based on ANEF zones

| Building type                        | ANEF zone site               |                        |                      |
|--------------------------------------|------------------------------|------------------------|----------------------|
|                                      | Acceptable                   | Conditional            | Unacceptable         |
| House, home unit, flat, caravan park | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF (Note 2) | Greater than 25 ANEF |
| Hotel, motel, hostel                 | Less than 25 ANEF            | 25 to 30 ANEF          | Greater than 30 ANEF |
| Hostel, school, university           | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF (Note 2) | Greater than 25 ANEF |
| Hospital, nursing home               | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF          | Greater than 25 ANEF |
| Public building                      | Less than 20 ANEF (Note 1)   | 20 to 30 ANEF          | Greater than 30 ANEF |
| Commercial building                  | Less than 25 ANEF            | 25 to 35 ANEF          | Greater than 35 ANEF |
| Light industrial                     | Less than 30 ANEF            | 30 to 40 ANEF          | Greater than 40 ANEF |
| Other industrial                     | Acceptable in all ANEF zones |                        |                      |

### 9.2.4 Forecast major operational stages of Melbourne Airport and the Runway Development Program

Since 1990 Melbourne Airport's Master Plans have shown two additional runways: one north-south and one east-west. In the 2013 Master Plan, Melbourne Airport nominated the east-west runway as its preferred orientation for the airport's third runway. Planning for the third runway has progressed as part of the RDP, and construction, pending the approvals process, is currently forecast to commence as early as 2019. The MDP is currently being prepared for the RDP, and the draft MDP is anticipated to be on public exhibition in late 2018. Some information regarding the RDP is included in this Master Plan. The MDP will include significantly more detail about the RDP and the planned construction of a third runway.

In addition to the RDP infrastructure, the 2013 Master Plan also showed construction of a second north-south runway, the airport's fourth runway, and an extension at the northern end of the existing north-south runway, to a total runway length 4,500 metres. This infrastructure is maintained in the 2018 Master Plan.

To adequately capture the aircraft noise around the airport in the periods preceding and following the construction of the two new runways, a composite ANEF has been prepared. Furthermore, in anticipation of new rules applying to the operation of parallel runways, the three-runway scenarios consider the application of both the current and updated rulesets (these rulesets are discussed in section 9.2.7).

Four ANEC have been prepared based on the various runway configurations and rulesets. Together these form the composite long-range ANEF 2048. The four ANEC are:

- ANEC 1 Existing (two-runway) 2043
- ANEC 2 RDP Three-runway current ruleset 2043
- ANEC 5 RDP Three-runway updated ruleset 2043
- ANEC 4 Four-runway current ruleset 2048.

The airfield layouts considered in the composite ANEF are shown in Figure 9-1.

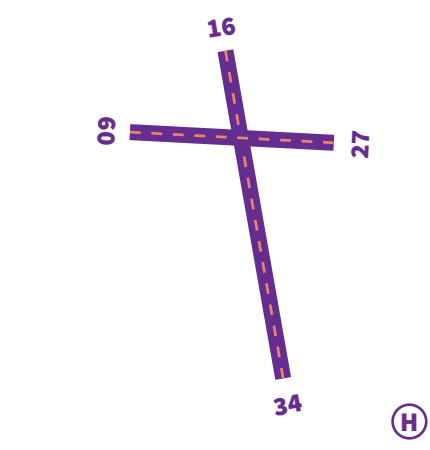
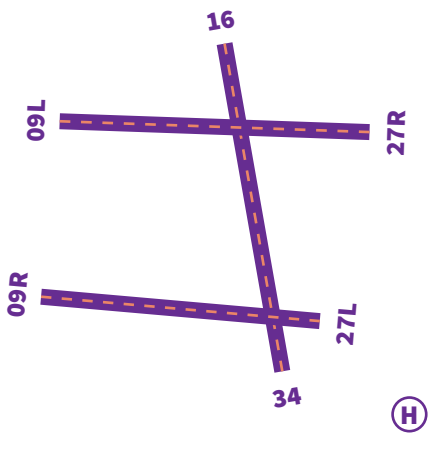
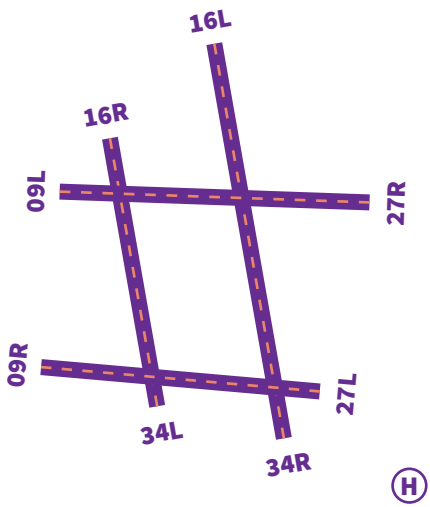
|  |                |        |                |        |  |        |   |        |  |
|--|----------------|--------|----------------|--------|--|--------|---|--------|--|
| <p><b>Airport Layout ANEC 1</b></p> <p>Two Existing Runways</p> <table> <tr> <td>Runway 16/34</td> <td>3,657m</td> </tr> <tr> <td>Runway 09/27</td> <td>2,286m</td> </tr> </table>   | Runway 16/34   | 3,657m | Runway 09/27   | 2,286m |  |        |   |        |  |
| Runway 16/34   | 3,657m         |        |                |        |  |        |   |        |  |
| Runway 09/27   | 2,286m         |        |                |        |  |        |   |        |  |
| <p><b>Airport Layout ANEC 2 &amp; 5</b></p> <p>Three-Runway Airfield</p> <p>East-West Parallel Runways</p> <table> <tr> <td>Runway 16/34</td> <td>3,657m</td> </tr> <tr> <td>Runway 09L/27R</td> <td>3,377m</td> </tr> <tr> <td>Runway 09R/27L</td> <td>3,000m</td> </tr> </table>   | Runway 16/34   | 3,657m | Runway 09L/27R | 3,377m | Runway 09R/27L   | 3,000m |  |        |  |
| Runway 16/34   | 3,657m         |        |                |        |  |        |   |        |  |
| Runway 09L/27R   | 3,377m         |        |                |        |  |        |   |        |  |
| Runway 09R/27L   | 3,000m         |        |                |        |  |        |   |        |  |
| <p><b>Airport Layout ANEC 4</b></p> <p>Four-Runway Airfield</p> <p>E-W &amp; N-S Parallel Runways</p> <table> <tr> <td>Runway 09L/27R</td> <td>3,500m</td> </tr> <tr> <td>Runway 09R/27L</td> <td>3,000m</td> </tr> <tr> <td>Runway 16L/34R</td> <td>4,500m</td> </tr> <tr> <td>Runway 16R/34L</td> <td>3,000m</td> </tr> </table> | Runway 09L/27R | 3,500m | Runway 09R/27L | 3,000m | Runway 16L/34R   | 4,500m | Runway 16R/34L  | 3,000m |  |
| Runway 09L/27R   | 3,500m         |        |                |        |  |        |   |        |  |
| Runway 09R/27L   | 3,000m         |        |                |        |  |        |   |        |  |
| Runway 16L/34R   | 4,500m         |        |                |        |  |        |   |        |  |
| Runway 16R/34L   | 3,000m         |        |                |        |  |        |   |        |  |

Figure 9-1: Melbourne Airport airfield layouts

Table 9-2 shows the annual aircraft movements for each ANEC scenario used in the noise modelling for the 2018 Master Plan.

**Table 9-2: 2015 ANEC for Melbourne Airport**

| Concept | Annual aircraft movements |               |            |             |                  |
|---------|---------------------------|---------------|------------|-------------|------------------|
|         | Figure reference          | Forecast year | Fixed wing | Rotary wing | Total operations |
| ANEC 1  | Figure 9-7                | 2043          | 302,800    | 10,000      | 312,800          |
| ANEC 2  | Figure 9-8                | 2043          | 418,300    | 10,000      | 428,300          |
| ANEC 5  | Figure 9-10               | 2043          | 418,300    | 10,000      | 428,300          |
| ANEC 4  | Figure 9-9                | 2048          | 475,900    | 10,000      | 485,900          |

### 9.2.5 Flight paths and rules for the safe operation of parallel runways

Flight paths for ANEC 1 were based on an analysis of existing operations.

Flight paths for ANEC 2, ANEC 4 and ANEC 5 were developed in consultation with Airservices. Significant airspace design development has been undertaken for ANEC 2 and ANEC 5 as part of the Runway Development Program. However, detailed airspace design will not be formally undertaken until a time closer to the Runway Development Program completion. Flight paths for the east–west parallel runways in ANEC 4 are the same as those for ANEC 2. Flight paths for the north–south parallel runways in ANEC 4 have remained largely unchanged from the 2013 Master Plan.

The development of the flight paths and modes of operation for future scenarios has been guided by the following principles, which have been developed with reference to Airservices Commitment to Aircraft Noise Management (2013).

- Safety is always paramount
- The flight paths must be fit for purpose and enable traffic demand to be processed safely, in an efficient and orderly manner
- Noise should be concentrated as much as possible over non-noise-sensitive areas and establishments
- Existing flight path corridors are preferred to new corridors when over populated areas

- Where flight paths over residential areas are necessary, then residential areas overflown by aircraft are to be minimised to the extent practicable
- When comparing options, operations that are conducted at night or on weekends will be treated as being more sensitive than those that occur during the daytime on weekdays
- Options that allow for a gradual change from the current to planned procedures will be given preference, where this is practical
- Noise abatement procedures will be optimised to achieve the lowest possible impact on the community and noise exposure will be fairly shared whenever possible
- It is not possible to guarantee any suburb, group or individual exemption from aircraft noise exposure.

The proposed Runway Development Program involves the introduction of new flight paths for approaches and departures on the new east–west runway (09R/27L) and changes to the existing flight paths to accommodate these new flight paths. Flight paths for aircraft approaching or departing from the existing north–south runway (16/34) will be substantially unchanged with the third runway.

### 9.2.6 Airport operating modes, runway usage and noise abatement procedures

Air traffic control uses operating modes to determine which runways are in use. At Melbourne Airport these modes are selected in accordance with the Melbourne Noise Abatement Procedures (NAPs).

The current noise abatement procedures were applied in forecasts for ANEC 1, with runway proportions based on an analysis of availability due to weather and mode capacity. In comparison with existing mode and runway usage, greater forecast demand in the future means that higher capacity modes would be required more often. The existing runway modes are shown in Figure 9-2.

Forecasts for ANEC 2 and 5 assume that the dominant flow of aircraft during peak periods will become the east-to-west and west-to-east because the parallel runways will cater for the greater demand at these times. During other periods there will be a variety of operating modes available.

With the new infrastructure proposed as part of the RDP, which includes systems to permit precision approaches, both the existing (09L/27R) and new (09R/27L) east-west runways will be used in a greater range of weather conditions. Furthermore, a longer east-west runway (09L/27R) will be available (as compared with the current east-west runway), permitting larger aircraft to land and depart on an east-west runway. The combination of these improvements to the runway infrastructure permits greater flexibility in the operating modes that may be used for noise abatement.

Studies for the RDP MDP have identified alternative NAPs for use during the night time period. The intent of the alternative NAPs is to direct the majority of flights over less populated areas to the north and west of the airport. The Department of Environment, Land, Water and Planning identifies Green Wedges that contain a mix of agriculture and low-density activities and include land-use zoning that is compatible with major infrastructure that supports urban areas, such as Melbourne Airport. The areas north and west of Melbourne Airport form part of the Sunbury Green Wedge and Western Plains North Green Wedge. Development in these areas is restricted in order to protect the areas themselves and the infrastructure that they permit, including Melbourne Airport.

The proposed NAPs would prioritise departures off the north-south runway (16/34). Departing aircraft are heavier and require significantly more thrust than arriving aircraft. Consequently, departing aircraft are louder at the source than arrivals and the resulting noise footprint is significantly greater around the airport. Prioritising the north-south runway (16/34) for departures at night will place those departures over the least populated land surrounding the airport, meaning that the majority of night time departures would not overfly a built-up area within 30 kilometres of the airport.

The ANEC 2 and 5 runway modes are shown in Table 9-5 (6.00am to 11.00pm) and Table 9-6 (11.00pm to 6.00am). The forecast runway usage for ANEC 2 and 5 is presented in Figure 9-3.

ANEC 4, with two sets of parallel runways, offers greater flexibility to meet demand. With the opportunity to utilise north-south or east-west parallel runways, noise modelling assumed that only moderate cross-winds would be tolerated before changing to the parallel runways that were more into wind (headwind). When this assumption was considered against historical meteorological data, it resulted in reasonably equitable use of northerly, southerly and westerly flows using the respective parallel runways. These mode and runway proportions were used for ANEC 4 during the day and evening. At night, when demand is not forecast to require the use of parallel runways for capacity reasons, a similar set of night modes to ANEC 2 and 5 was assumed; operations are forecast to occur north and west of the airport whenever possible.

The ANEC 4 runway modes are shown in Table 9-7 (6.00am to 11.00pm) and Table 9-8 (11.00pm to 6.00am). The forecast runway usage for ANEC 4 is presented in Figure 9-4.



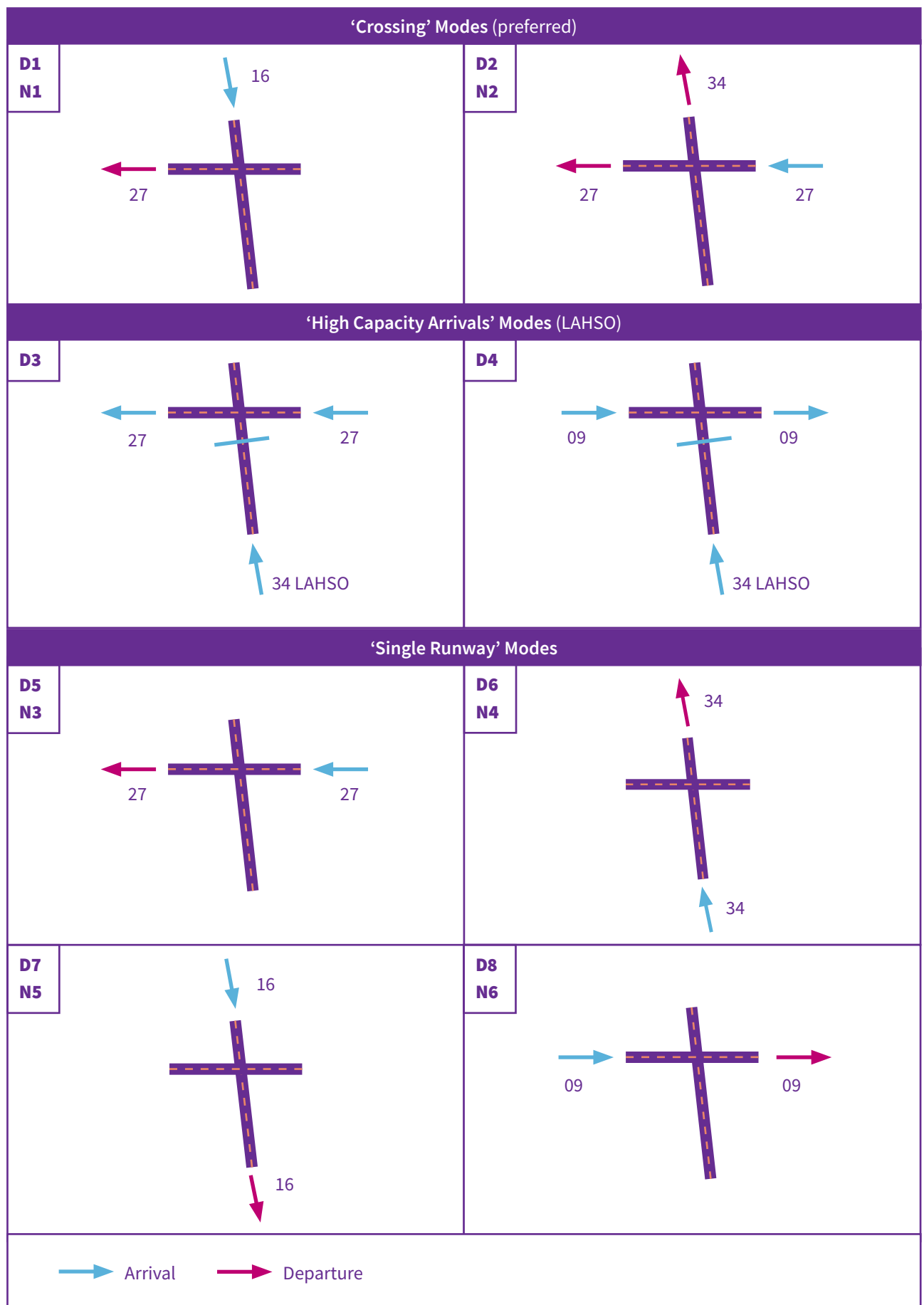


Figure 9-2: ANEC 1 Runway Modes

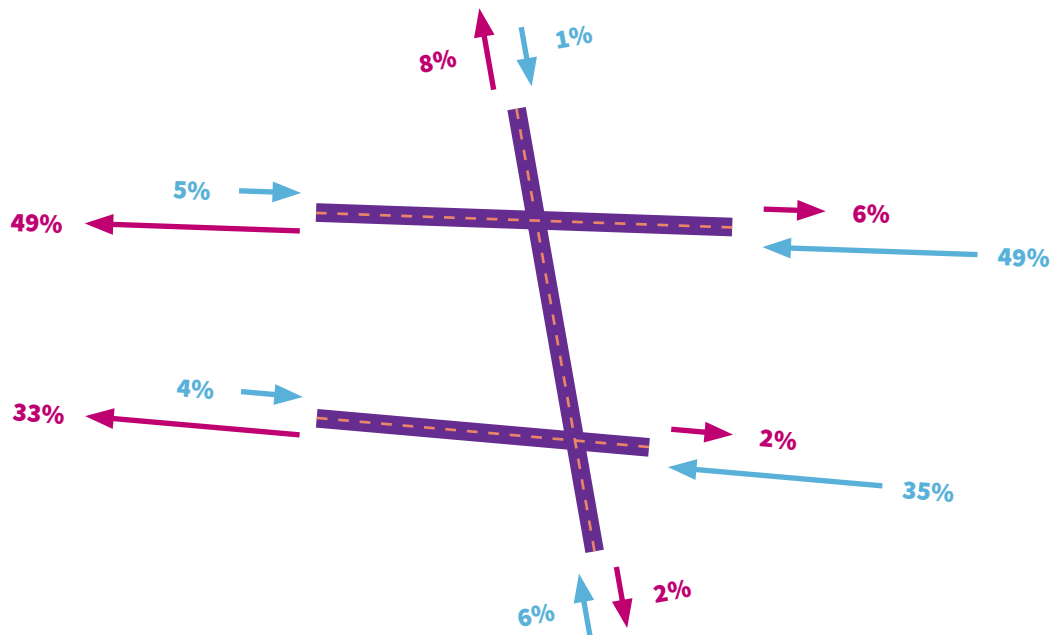
Table 9-3: ANEC 1 mode priorities – 6.00am to 11.00pm

| Priority | Landing runway(s)       | Take-off runway(s) | Notes               |
|----------|-------------------------|--------------------|---------------------|
| 1        | RWY 16                  | RWY 27             | Subject to capacity |
| 2        | RWY 27                  | RWY 27 & RWY 34    | Subject to capacity |
| 3        | RWY 27 & RWY 34 (LAHSO) | RWY 27             | High capacity mode  |
| 4        | RWY 34 & RWY 09 (LAHSO) | RWY 34             | High capacity mode  |
| 5        | RWY 27                  | RWY 27             |                     |
| 6        | RWY 34                  | RWY 34             |                     |
| 7        | RWY 16                  | RWY 16             |                     |
| 8        | RWY 09                  | RWY 09             |                     |

Table 9-4: ANEC 1 mode priorities – 11.00pm to 6.00am

| Priority | Landing runway(s) | Take-off runway(s) | Notes |
|----------|-------------------|--------------------|-------|
| 1        | RWY 16            | RWY 27             |       |
| 2        | RWY 27            | RWY 27 & RWY 34    |       |
| 3        | RWY 27            | RWY 27             |       |
| 4        | RWY 34            | RWY 34             |       |
| 5        | RWY 16            | RWY 16             |       |
| 6        | RWY 09            | RWY 09             |       |

### Day and Evening (6am – 11pm)



### Night (11pm – 6am)

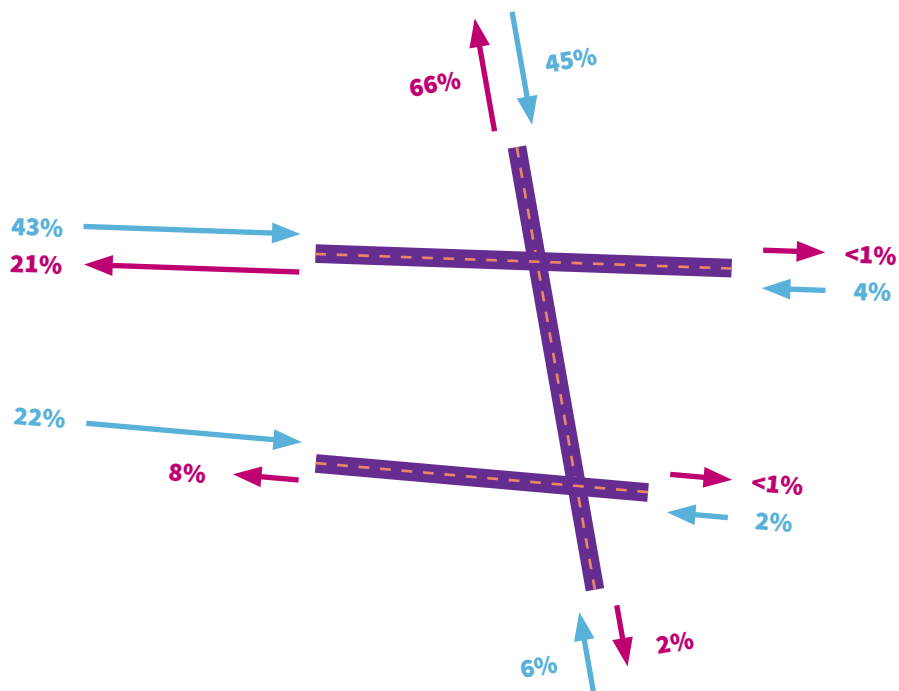


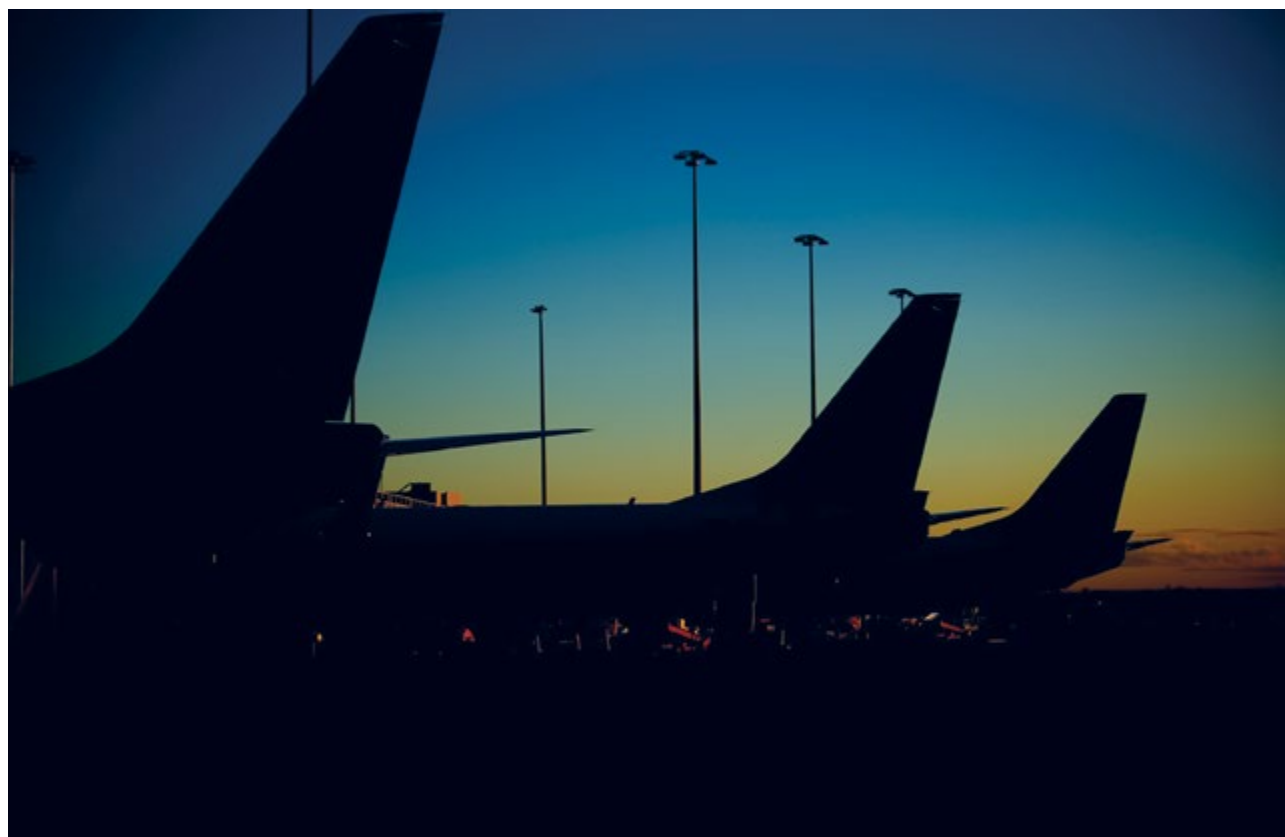
Figure 9-3: ANEC 2 and 5 Runway Modes

Table 9-5: ANEC 2 and 5 mode priorities – 6.00am to 11.00pm

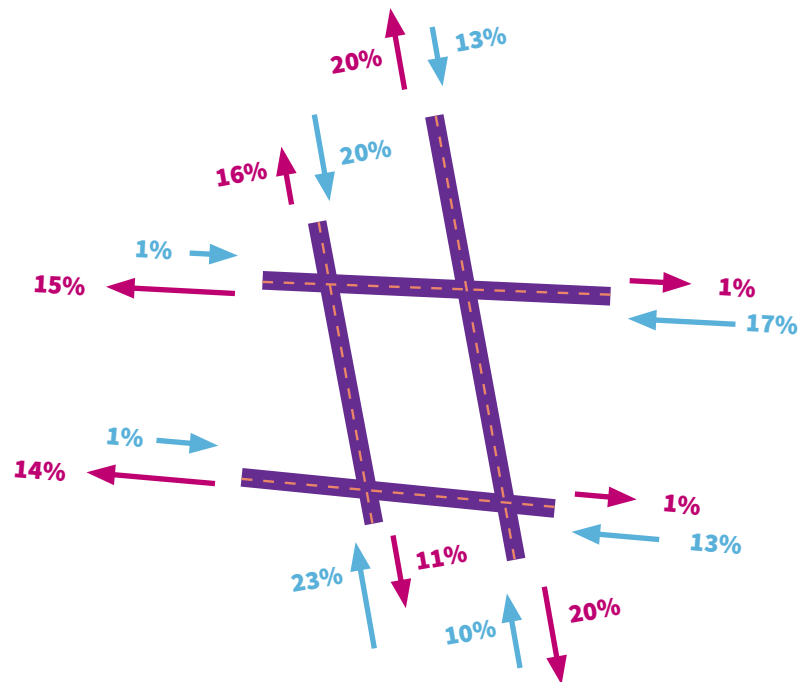
| Priority | Landing runway(s) | Take-off runway(s) | Notes              |
|----------|-------------------|--------------------|--------------------|
| 1        | RWY 27L & RWY 27R | RWY 27L & RWY 27R  | High capacity mode |
| 2        | RWY 09L & RWY 09R | RWY 09L & RWY 09R  | High capacity mode |
| 3        | RWY 16            | RWY 16             |                    |
| 4        | RWY 34            | RWY 34             |                    |

Table 9-6: ANEC 2 and 5 mode priorities – 11.00pm to 6.00am

| Priority | Landing runway(s) | Take-off runway(s) | Notes                |
|----------|-------------------|--------------------|----------------------|
| 1        | RWY 09L & RWY 09R | RWY 34             | Preferred night mode |
| 2        | RWY 16            | RWY 27L & RWY 27R  | Preferred night mode |
| 3        | RWY 27L & RWY 27R | RWY 34             |                      |
| 4        | RWY 27L & RWY 27R | RWY 27L & RWY 27R  |                      |
| 5        | RWY 34            | RWY 34             |                      |
| 6        | RWY 16            | RWY 16             |                      |



### Day and Evening (6am – 11pm)



### Night (11pm – 6am)

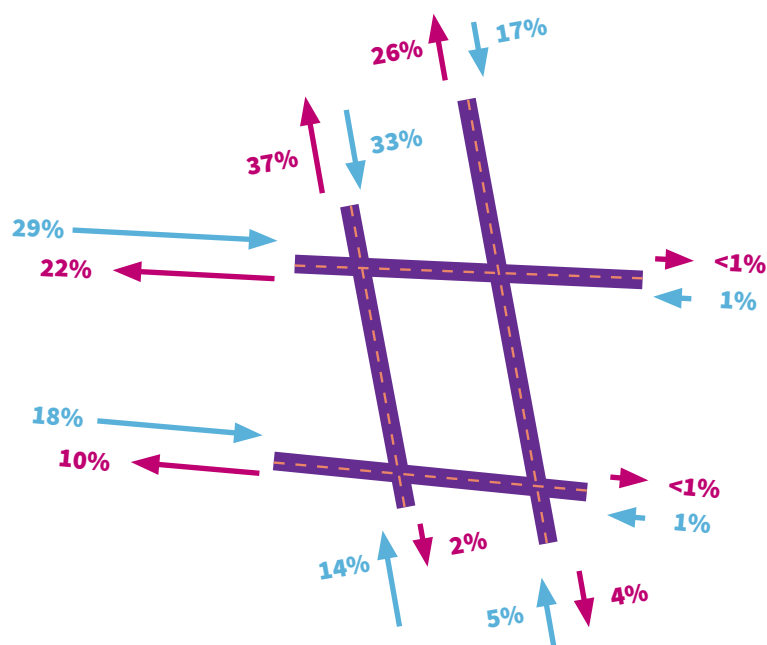


Figure 9-4: ANEC 4 Runway Modes



Table 9-7: ANEC 4 mode priorities – 6.00am to 11.00pm

| Priority | Landing runway(s) | Take-off runway(s) | Notes |
|----------|-------------------|--------------------|-------|
| 1        | RWY 27L & RWY 27R | RWY 27L & RWY 27R  |       |
| 2        | RWY 34L & RWY 34R | RWY 34L & RWY 34R  |       |
| 3        | RWY 16L & RWY 16R | RWY 16L & RWY 16R  |       |
| 4        | RWY 09L & RWY 09R | RWY 09L & RWY 09R  |       |

Table 9-8: ANEC 4 mode priorities – 11.00pm to 6.00am

| Priority | Landing runway(s) | Take-off runway(s) | Notes                |
|----------|-------------------|--------------------|----------------------|
| 1        | RWY 09L & RWY 09R | RWY 34L & RWY 34R  | Preferred night mode |
| 2        | RWY 16L & RWY 16R | RWY 27L & RWY 27R  | Preferred night mode |
| 3        | RWY 34L & RWY 34R | RWY 34L & RWY 34R  |                      |
| 4        | RWY 16L & RWY 16R | RWY 16L & RWY 16R  |                      |
| 5        | RWY 27L & RWY 27R | RWY 27L & RWY 27R  |                      |
| 6        | RWY 09L & RWY 09R | RWY 09L & RWY 09R  |                      |



### 9.2.7 Rules for the safe operation of parallel runways

A change to the rules that apply to operating parallel runways in Australia is anticipated within the foreseeable future. These rules are based on proposals currently before the International Civil Aviation Organization (ICAO), which are scheduled for ratification in late 2018. After that time CASA will then consider the rules and begin the process of implementation in Australia.

In general, the updated ruleset will permit greater flexibility in the airspace design, allowing noise impacts to be further reduced. The MDP for the third runway will consider the potential application of these rules in the preliminary airspace design. Benefits may include the opportunity to maintain the runway centreline for longer before turning as well as requiring less divergence between parallel runway departure procedures. In the context of the RDP preliminary airspace design, these principles present opportunities to reduce noise impacts east/northeast of the airport in Greenvale, Roxburgh Park, Meadow Heights and Coolaroo; west and southwest of the airport in Melton, Hillside, Plumpton, Sydenham and Taylors Lakes, and northwest of the airport in Diggers Rest.

The updated ruleset would also permit greater flexibility in the development of precision arrival tracks, allowing them to be located over less populated areas. The MDP has identified that this has the potential to benefit areas such as Epping.

At present the updated ruleset requires ratification by ICAO and then consideration and implementation by CASA. Furthermore, all of the mitigation measures applying the updated ruleset that have been identified by the MDP would require proper evaluation and some would require a safety case to be prepared. For these reasons, ANEC 2 captures the forecast noise with the current ruleset, while ANEC 5 presents the noise forecast with the updated ruleset. Both are equally important to effectively safeguard for either eventuality, or a combination of the two.

Noise forecasts and the ANEF would be updated in the future, in preparation of the next Master Plan. At that time detailed airspace design for the RDP infrastructure would have been undertaken.

### 9.2.8 Changes to flight paths since the 2013 Master Plan

The 2013 Master Plan identified indicative aircraft flight paths, operating procedures and aircraft allocation to runways associated with developing the new east–west runway. New flight paths for this runway shown in the 2013 Master Plan were:

- new arrivals paths from the west (Runway 09R)
- new arrivals paths from the east (Runway 27L)
- new departures paths to the west (Runway 27L)
- new departures path to the east/south (Runway 09R).

As part of the approval process, Airservices indicated in their response to the Master Plan consultation that further studies and investigation would be required to ensure that the introduction of new flight paths for the new runway would be safe, efficient and allow for equitable access for all airspace users in the Melbourne Basin. A condition of the 2013 Master Plan approval was to complete further studies into the interaction between Essendon Airport and Melbourne Airport traffic prior to introducing flight paths for the new runway. The process of developing the preliminary airspace design for this Master Plan has involved a series of workshops between Melbourne Airport and Airservices in which the initial concepts have been developed into the preliminary airspace design. This process was undertaken between late 2014 and mid-2017, and has included further detailed studies on the feasible operation of the Melbourne Basin airspace between Melbourne Airport, Airservices, CASA, Essendon Airport and DIRDC.

As a result of the additional work, some changes to the indicative flight paths in the 2013 Master Plan have been deemed necessary to preserve the safety of the Melbourne Basin and to reduce the complexity and risk associated with the operation of the 2013 Master Plan flight paths and airspace design. The most notable changes to the 2013 Master Plan include removing the proposed easterly departure flight path from the proposed new Runway 09R, which turned right. This is due to the complex interactions between the Essendon and Melbourne airport traffic that the turn would introduce.

It should be noted that, wherever possible, the preliminary airspace design honours the principles of the previous Melbourne Airport Master Plans and planning documents, consistent with limitations associated with safe and efficient airspace operations. Once the requirements of safety and capacity have been satisfied, the flight paths and operating modes have been optimised to reduce the unavoidable residual impacts of aircraft noise on communities to the lowest practicable level. To assist in this objective, the flight path development process included the use of available census data to identify populated areas and the relative density of population as well as data on noise-sensitive establishments. The assessments completed by Melbourne Airport, Airservices and Essendon Airport have shown that the amended flight paths will:

- reduce overall aircraft noise impacts
- ensure the risks and complexity of operation are at an acceptable level
- maximise the capacity of Melbourne Basin airspace for operations at both Melbourne and Essendon airports.

The proposed changes to the runway system will not be formally approved until a time closer to the opening of the new runway and, therefore, details of the airspace procedures are preliminary at this stage, based on the best information available but suitable for impact assessment purposes. The RDP MDP will provide detailed information on the proposed preliminary airspace design. Further works to develop the detailed airspace design will be completed in the run up to opening day by 2023.

### 9.2.9 Other changes to noise forecasts since the 2013 Master Plan

Since the preparation of the 2013 Master Plan, forecasts of future operations and capacity at Melbourne Airport have been updated.

The previous ANEF was produced for the forecast ultimate capacity of the airport with four runways. Capacity studies undertaken since 2013 indicate that the three- and four-runway systems have greater capacity than was assumed in the 2013 Master Plan. The capacity of the four-runway system has been shown to exceed the forecast aircraft traffic movements in 2048. Recognising that the ultimate capacity of the four-runway system is not anticipated to be realised until a time beyond 2048, Melbourne Airport has adopted a long-range ANEF covering 30 years (ANEF 2048).

In addition to the above items, several particulars of the current noise modelling differ from the 2013 Master Plan, specifically:

- Significant analysis of historical data has been undertaken to determine the tracks flown for ANEC 1
- Design development for the proposed three-runway infrastructure has been undertaken in consultation with airline customers, Airservices and CASA
- Analysis of the existing track dispersions (i.e. the lateral deviation of actual operations around the designed route) has been applied to more accurately predict the dispersion of the future airspace design
- Analysis of more than 13 years of meteorological data and consideration of air traffic control procedures has been used to better predict future operations, including the proportional split of operations between runways.

Ultimately, the noise forecasts undertaken as part of this Master Plan and the MDP, having the benefit of design development of the RDP, are considered to be more accurate than those undertaken previously. Overall, they result in greater noise predictions and a larger overall noise footprint. Melbourne Airport considers that safeguarding and communicating aircraft noise based on the most accurate available information delivers benefits to all stakeholders.

### 9.2.10 Comparison with 2013 Master Plan

Each update to the ANEF requires a refresh of the inputs and assumptions used to calculate the noise footprint. The main variables include weather, aircraft type, aircraft schedules, indicative flight corridors, airline operations and air traffic control procedures. Changes in the inputs and assumptions can influence the noise contours, with the noise contours retracting in some areas and increasing in other areas. Figure 9-5 presents a comparison of the 2013, 2018 20 ANEF and MAEO Schedule 2 (derived from the 2003 Master Plan ANEF) noise contours.

Overall, Figure 9-5 demonstrates a general growth of the ANEF contours in all directions due to increased traffic levels (Table 9-1). The area captured by the ANEF contours, 20 and above, has increased 26 percent, growing 32 square kilometres to 156 square kilometres. Much of the ANEF growth, however, is predicted in the Green Wedge Zone north and west of the airport.

Together, there are 13,848 dwellings and 76 public buildings within the ANEF 20 contour, with 43 dwellings and one public building predicted to be in the 30 ANEF by 2048. The number of dwellings estimated within the ANEF 20 has marginally increased from the 2013 Master Plan ANEF (13,686 dwellings) and decreased by 13 percent from the 2003 Master Plan ANEF (15,943 dwellings).

These changes in the ANEF have been driven primarily by the increased accuracy in the noise modelling, as well as higher aircraft numbers than those predicted in the 2013 Master Plan forecasts. In addition, the more balanced use of the parallel runways in the ANEF reflects the anticipated increases in domestic traffic using the southern precinct of the airport such as Terminal 4 and Terminal 3 when the future third runway is in operation. The removal of the right turn off 09R has minimal effect on the noise contours when compared with the 2013 ANEF, as helicopter operations are anticipated to operate in the area to the south of the new runway on the eastern side of the existing north-south runway. The movement of helicopter operations to this location is necessitated by the proposed third runway and results in a similar contour to the previous Master Plan where the 09R right turn created a bulge in the 2013 Master Plan contours immediately southeast of the runways. The noise contour that results from the removal of the right turn flightpath and the movement of helicopter operations results in a noise contour that is contained well within airport land. However, there is a slight increase in the contour to the north in the easterly direction due to a left turn off 09L necessitated by the 09R right turn removal.

The main areas of change in the contour are to the west and north of the airport over green wedge and to the south of the proposed fourth runway (i.e. the second north-south runway). East of the airport, the noise contours associated with the existing (northern) and new (southern) east-west runways are slightly larger than the previous ANEF. The more balanced use of the parallel runways is evident in the relative extents of the existing and new runways, compared with the previous ANEF.

It is noted that the ANEF has similar extents to the MAEO, with the notable exception of the area east of the new east-west runway. In this regard, the safeguarding that is proposed by the ANEF is similar to that currently in effect via the current planning schemes.





Figure 9-5: Comparison of the 2013, 2018 ANEF 20 Contour and the 2003 (MAEO) Schedule 2



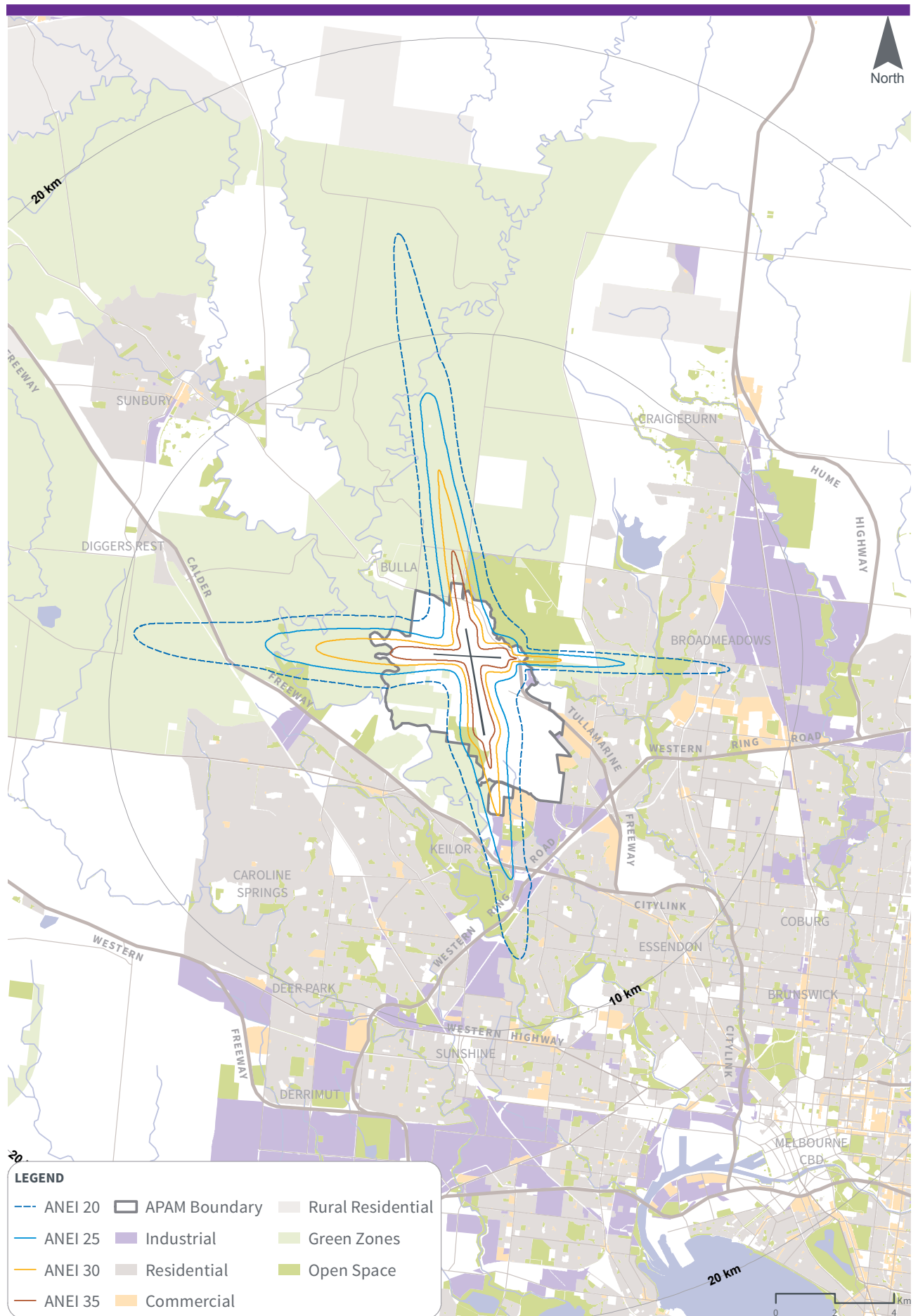


Figure 9-6: 2015 ANEI for Melbourne Airport

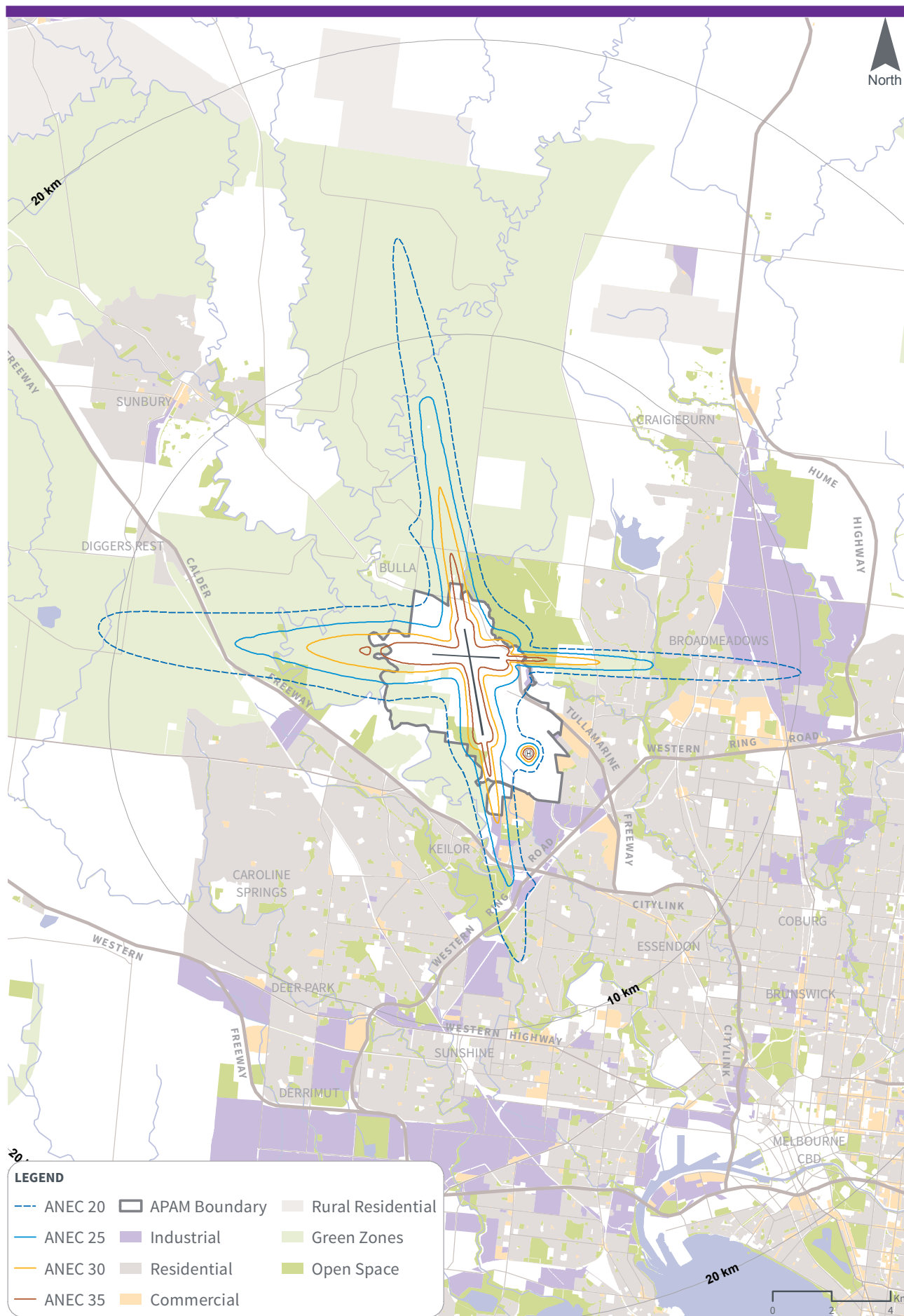


Figure 9-7: ANEC 1 for Melbourne Airport

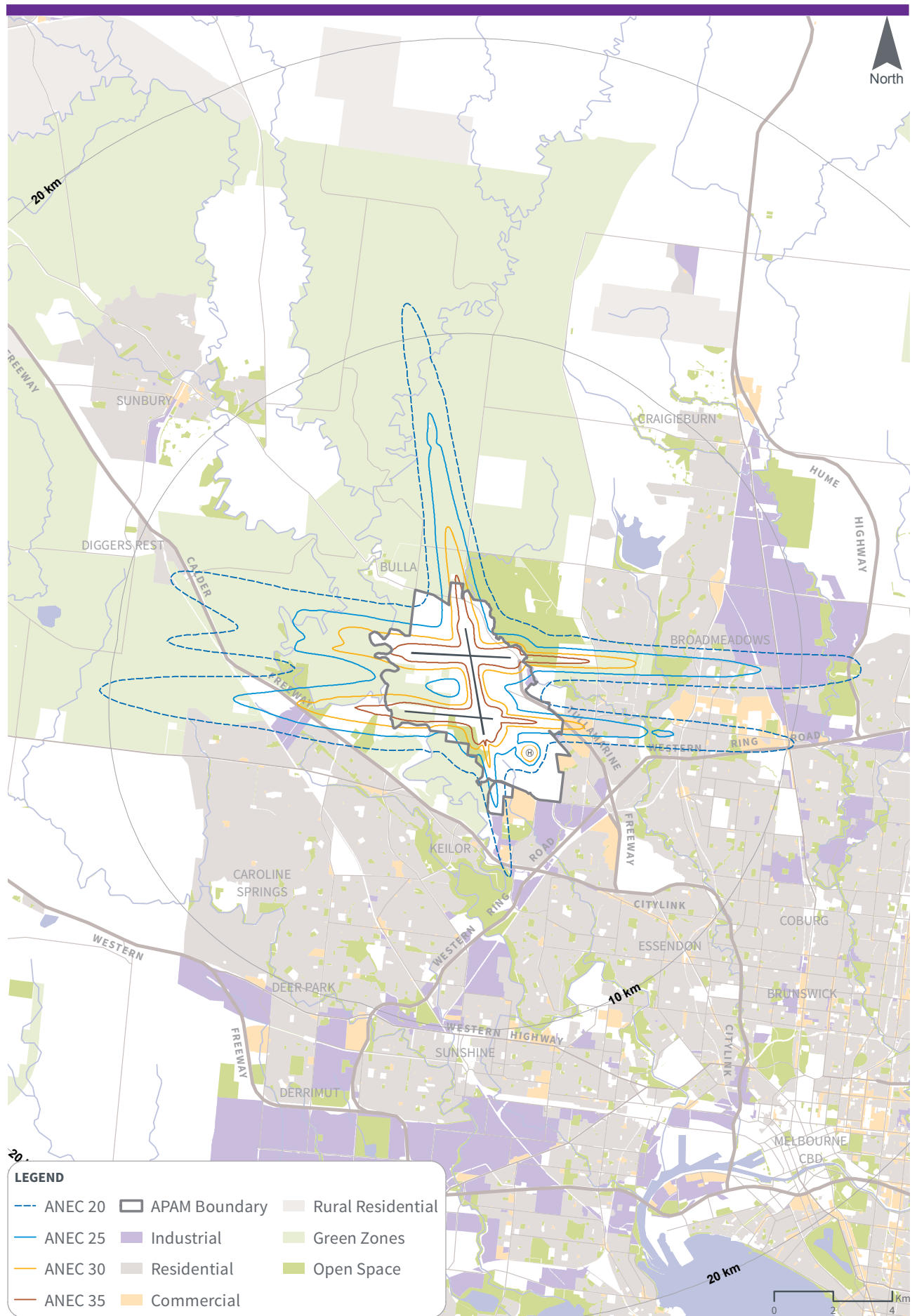


Figure 9-8: ANEC 2 for Melbourne Airport



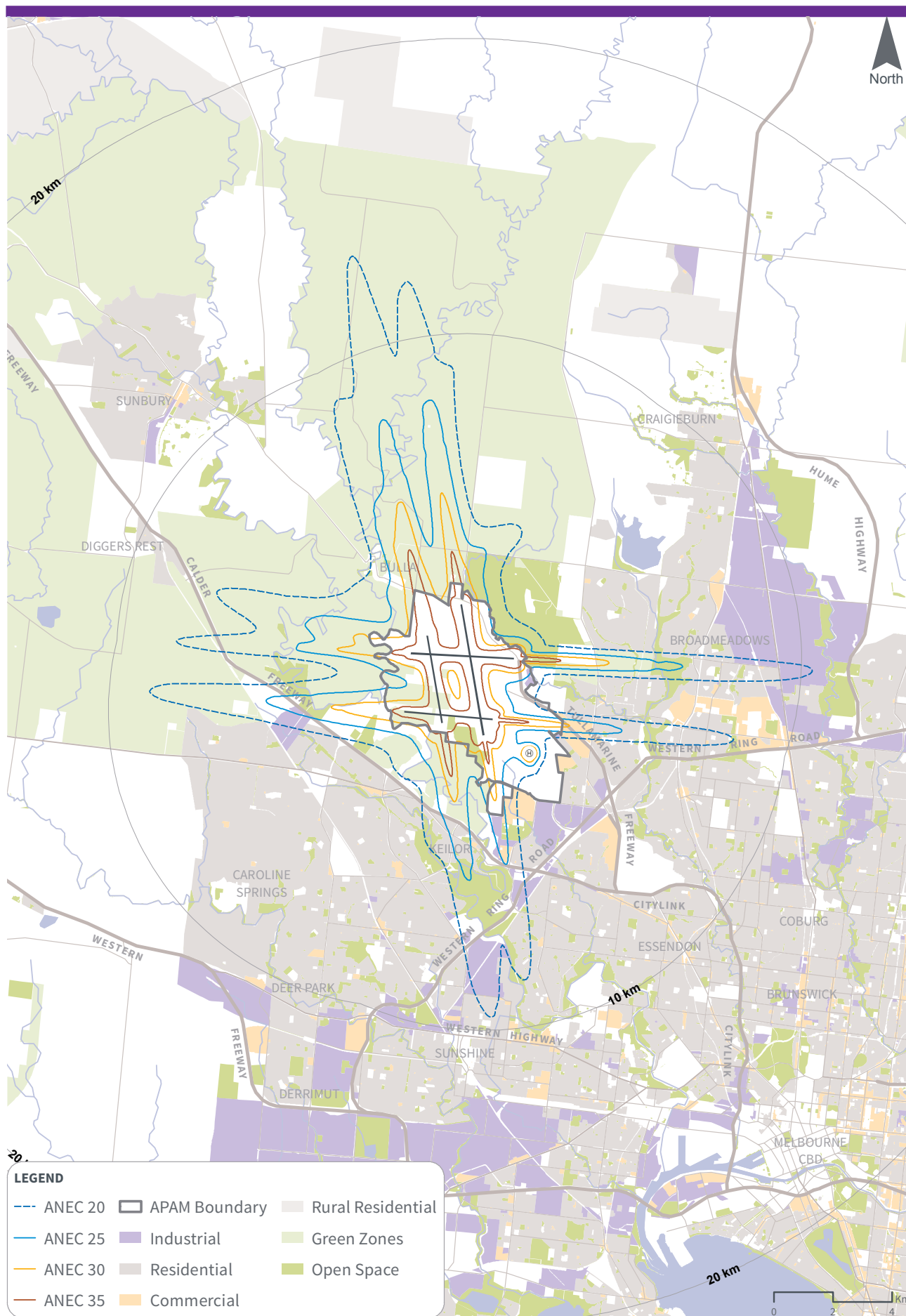
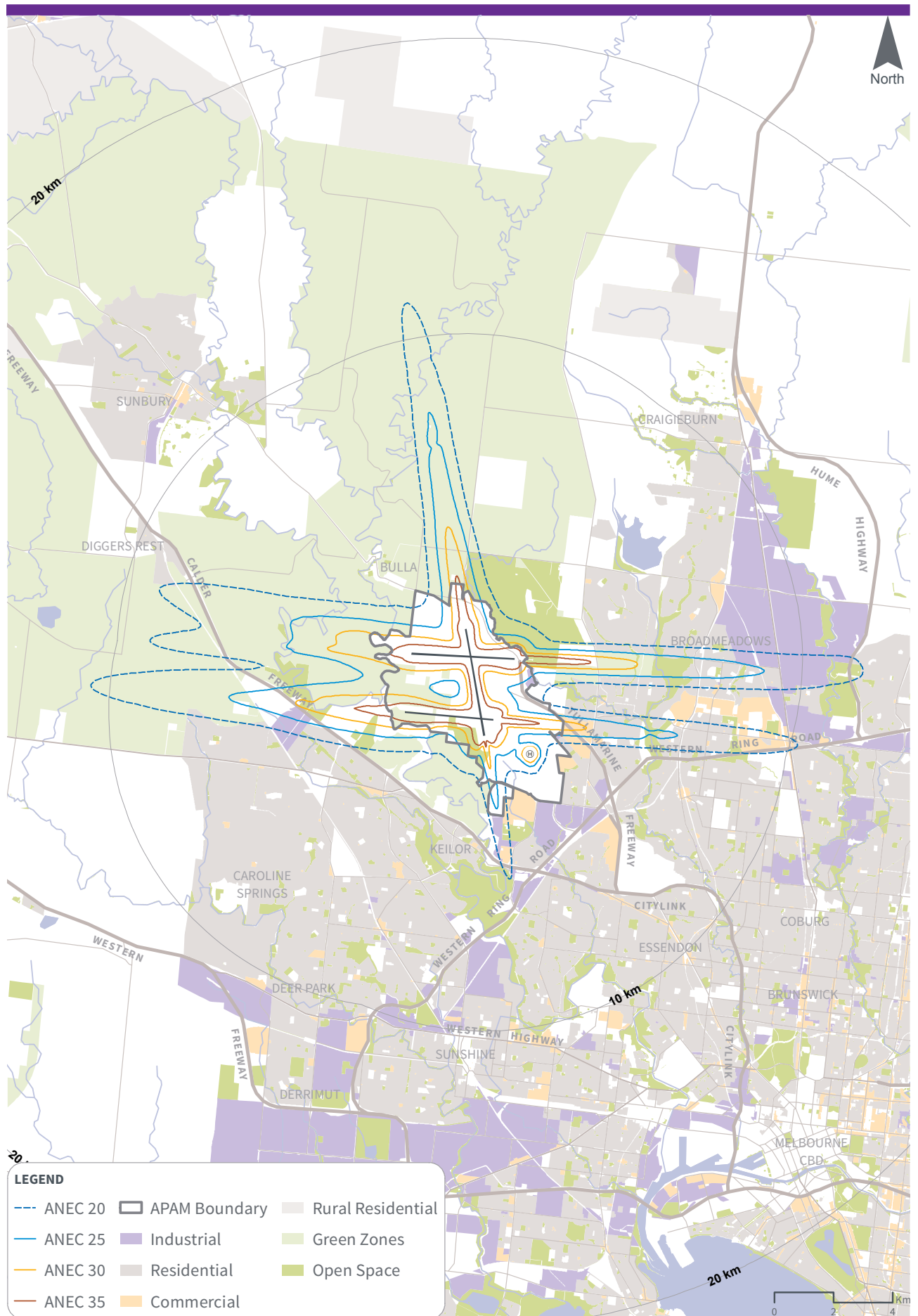


Figure 9-9: ANEC 4 for Melbourne Airport



**Figure 9-10: ANEC 5 for Melbourne Airport**



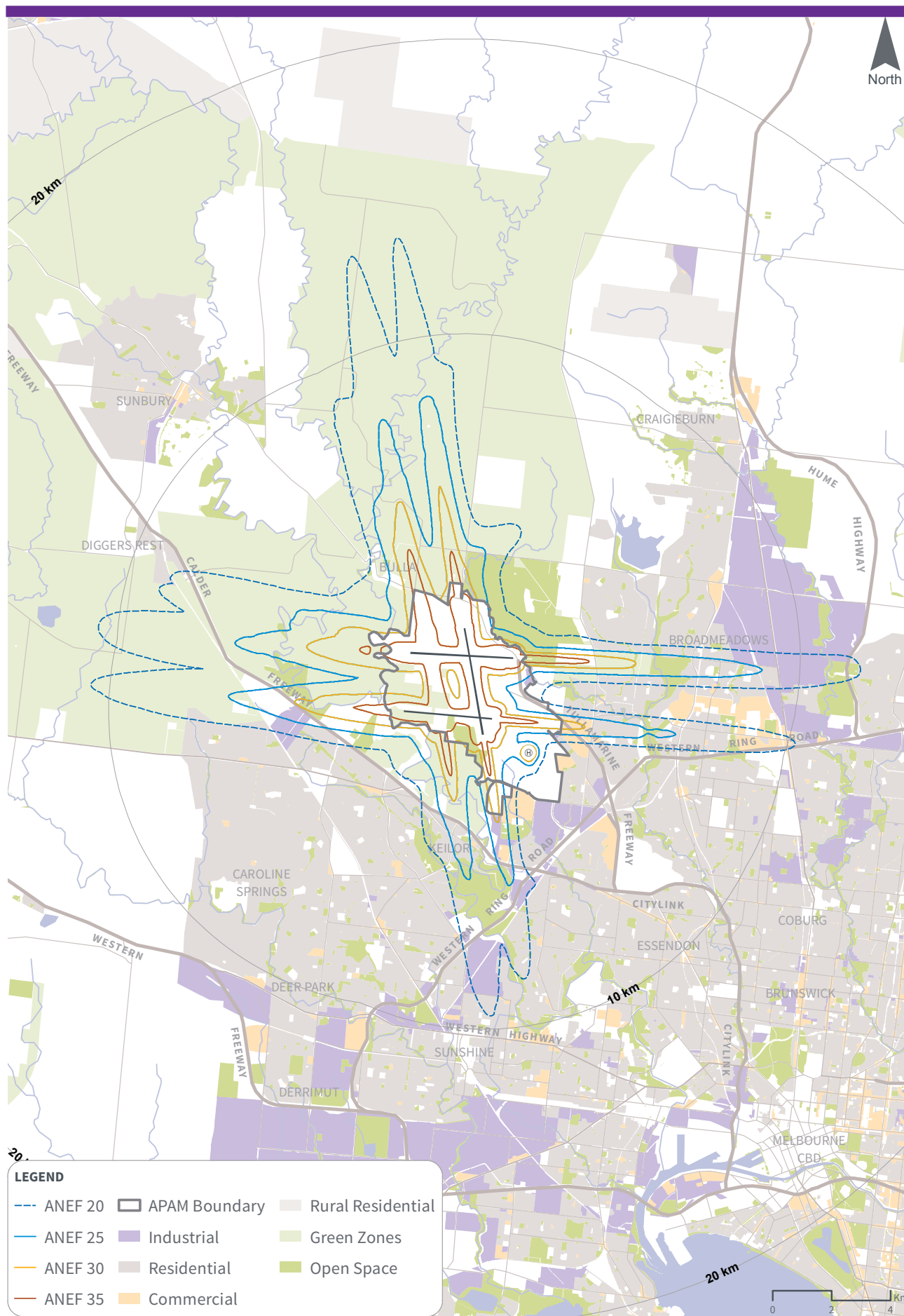


Figure 9-11: ANEF for Melbourne Airport

### 9.2.11 Number-above contours

The number-above or N-contour system is a complementary aircraft noise contour system that produces contours showing the average number of aircraft noise events above 60 dB(A), 65 dB(A) or 70 dB(A) per day.

The most commonly-used noise descriptor in this system is N70, the number of aircraft noise events per day exceeding 70 dB(A). A noise level of 70 dB(A) outside a building will generally result in an internal noise level of approximately 60 dB(A), if windows are open to a normal extent. This noise level is sufficient to disturb conversation, in that a speaker will generally be forced to raise their voice to be understood. An internal aircraft noise level of 60 dB(A) is likely to also cause some words to be missed in speech from a television or radio. N70 values indicate the average number of times per day when such events would occur.

If external windows are closed, thus providing greater noise attenuation through the façade, an internal noise level of 60 dB(A) would be experienced when the external noise level is approximately 80 dB(A). For a listener outside receiving no noise attenuation from a building, the described effects would be experienced with an external aircraft noise level of approximately 80 dB(A).

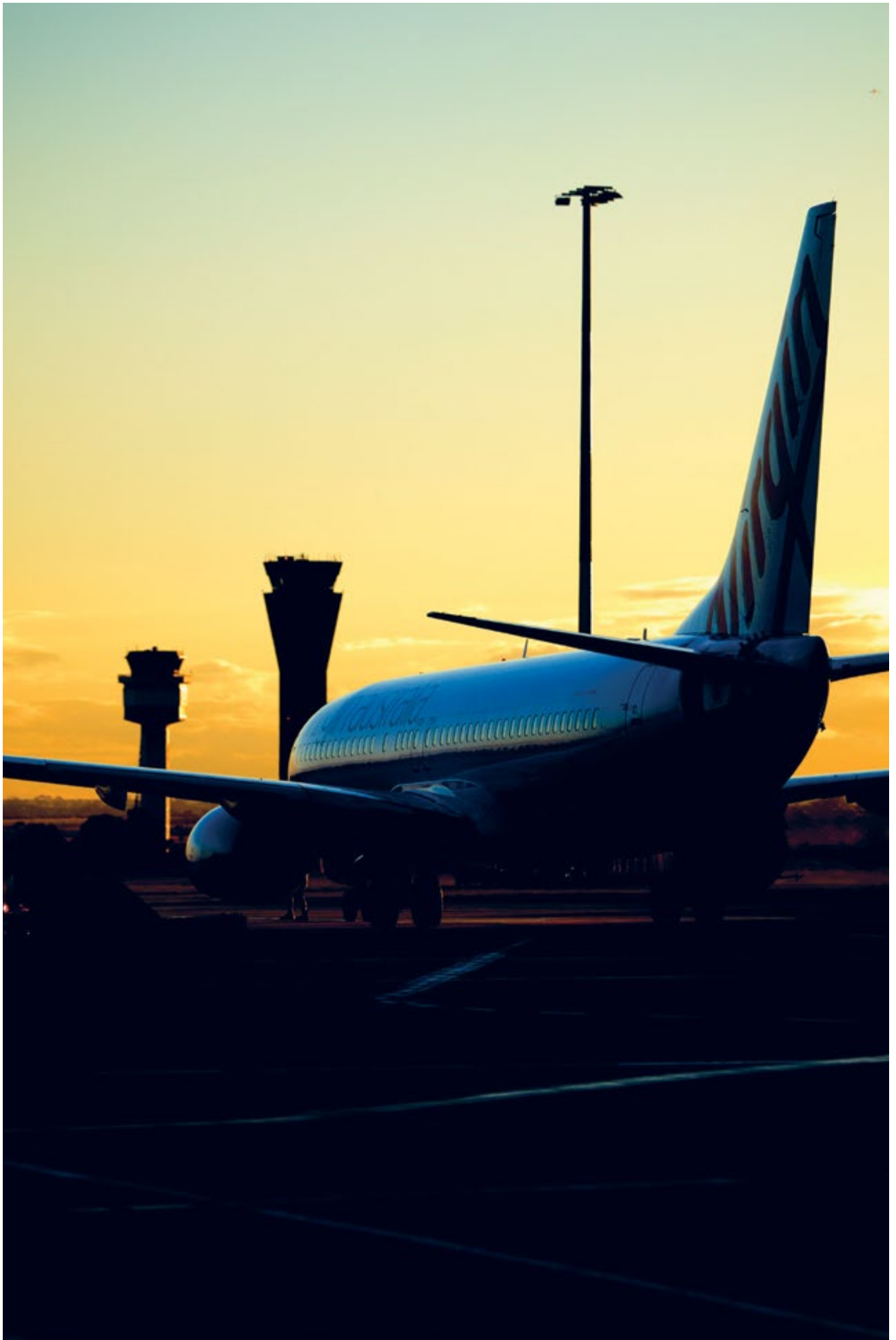
N65 and N60 supplement N70, providing additional information about aircraft noise events at lower noise levels.

To assess night-time noise impacts, it is customary to consider N60 values. The N60 describes the number of events exceeding 60 dB(A) external to a building, which would typically result in a maximum noise level of 50 dB(A) within a building having windows open to a normal extent. If this were the case in a room where a person is sleeping, a 50 dB(A) maximum noise level is considered to be close to the point at which noise may cause awakening. Hence N60, calculated for the night-time period, is considered to reasonably describe the number of events that may in some circumstances cause awakenings and is adopted for assessing night-time noise from aircraft.

A new set of N-contours have been produced in association with this Master Plan based on the revised assumptions used in to develop the new ANEF. The new N-contours are shown in Figure 9-12. In line with the National Airports Safeguarding Framework (NASF) Guideline Attachment A, the following N-contours are provided: N70 24hr = 20, N65 24hr = 50, N60 24hr = 100 and N60 Night = 6. These contours also form part of Melbourne Airport's online flight path and noise tool. Information on the N-contour system in the context of safeguarding can be found in section 17 of this Master Plan.



Figure 9-12: Long Range noise Forecasts – N70, Melbourne Airport





## 9.3 Flight paths

The development of flight paths for use in the noise predictions is discussed in section 9.2.5.

Preliminary standard instrument departures or standard instrument arrival routes route design has been undertaken for the three- and four-runway scenarios through the MDP and this Master Plan, respectively. In practice, aircraft tracks can vary either side of the theoretical flight paths due to factors such as weather, aircraft type and payload. The computer modelling process has allowed for track dispersal to accommodate such variations. Flight paths in the following diagrams (Figures 9-13 to 9-20) are presented as swoosh, or flight zone diagrams, accounting for the aforementioned dispersion as well as some allowance for uncertainty in the airspace design.

All operations will be subject to compliance with the associated noise abatement procedures to minimise the impact on the surrounding communities. It should be noted that introducing flight paths for the third and fourth runways is subject to further studies and processes before implementation. All aircraft flight paths, operating procedures and aircraft allocation to runways used to prepare the ANEF are subject to change as a result of these separate processes.

Flight corridors for the three-runway ANEC 2 and 5 scenarios include anticipated numbers of operations based on forecasts for 2023. In this regard they provide an indication of predicted flight paths and operations in the medium term.

Flight zone diagrams for the four-runway ANEC 4 scenario include anticipated numbers of operations based on forecasts for 2048.





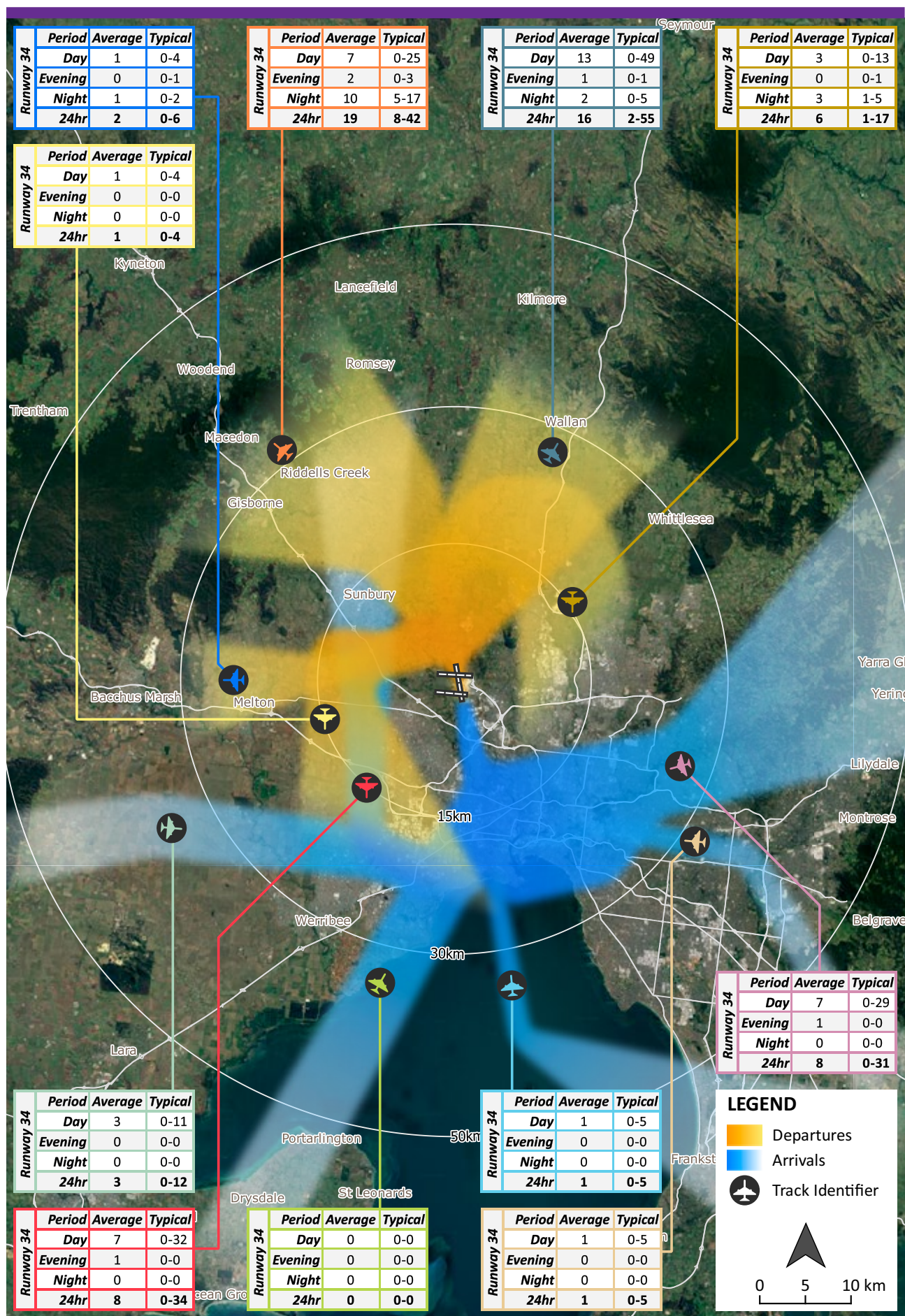


Figure 9-13: Forecast flight paths 2023 – northerly aircraft arrivals and departures, Melbourne Airport



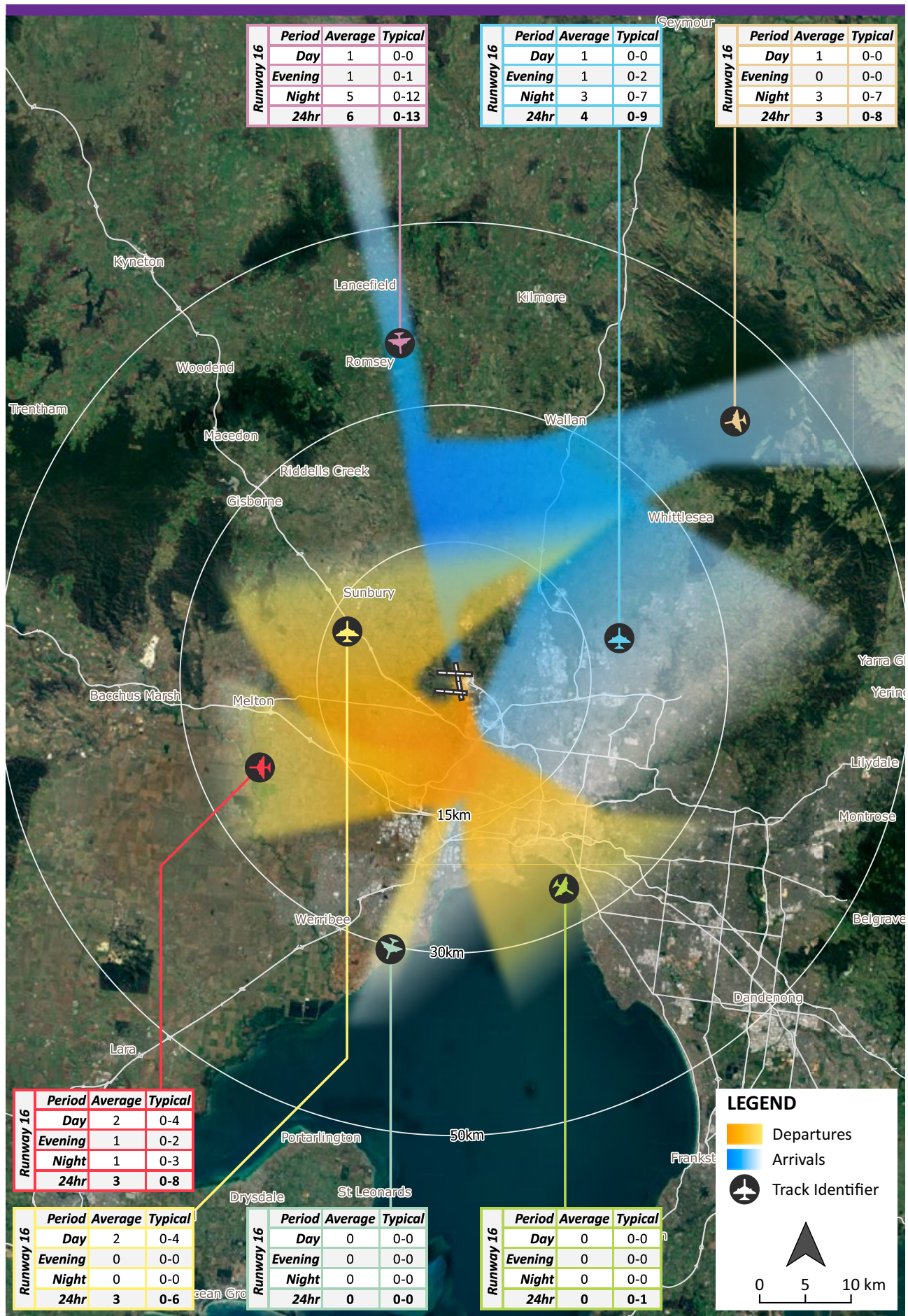


Figure 9-14: Forecast flight paths 2023 – southerly aircraft arrivals and departures, Melbourne Airport



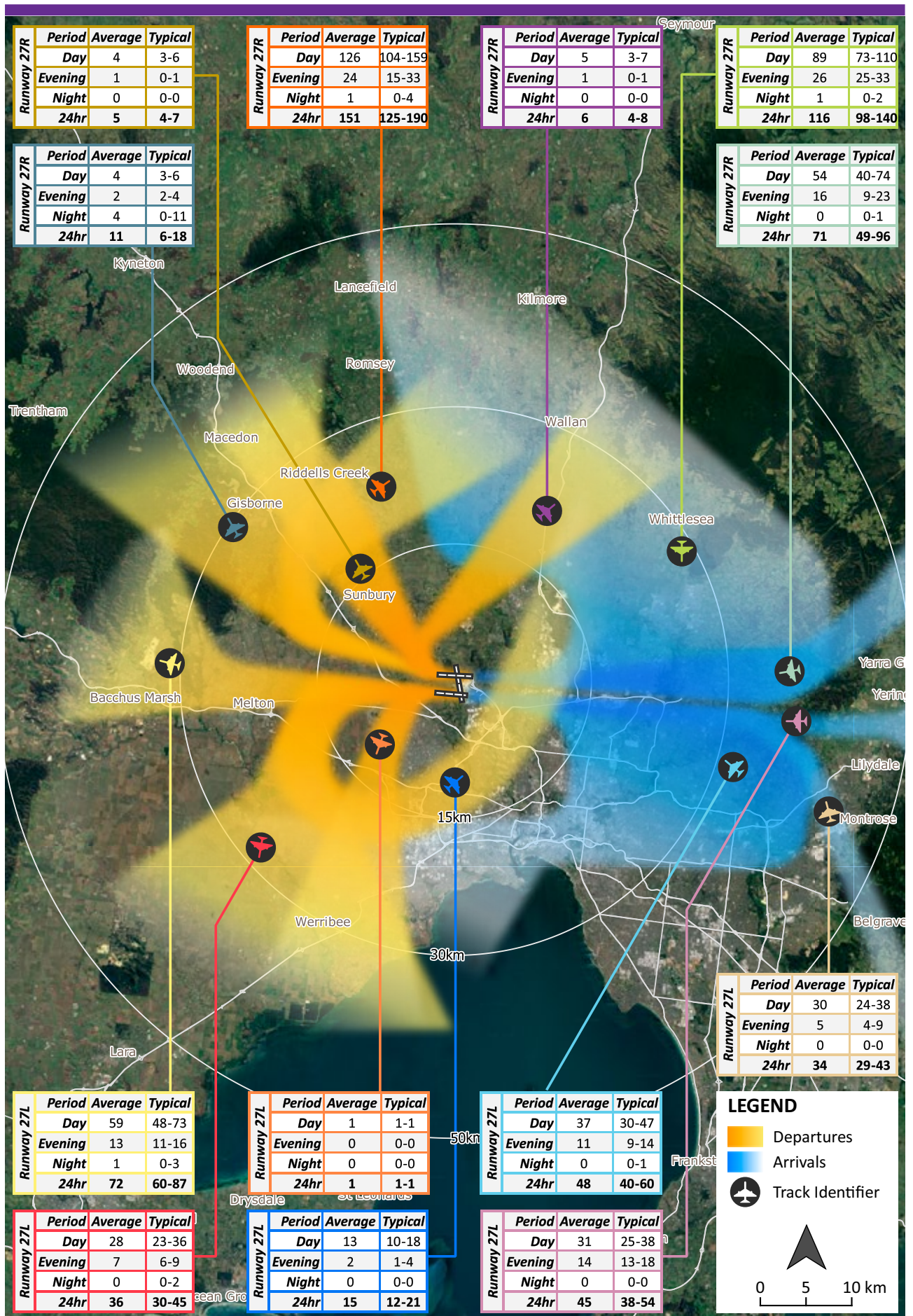


Figure 9-15: Forecast flight paths 2023 – westerly aircraft arrivals and departures, Melbourne Airport



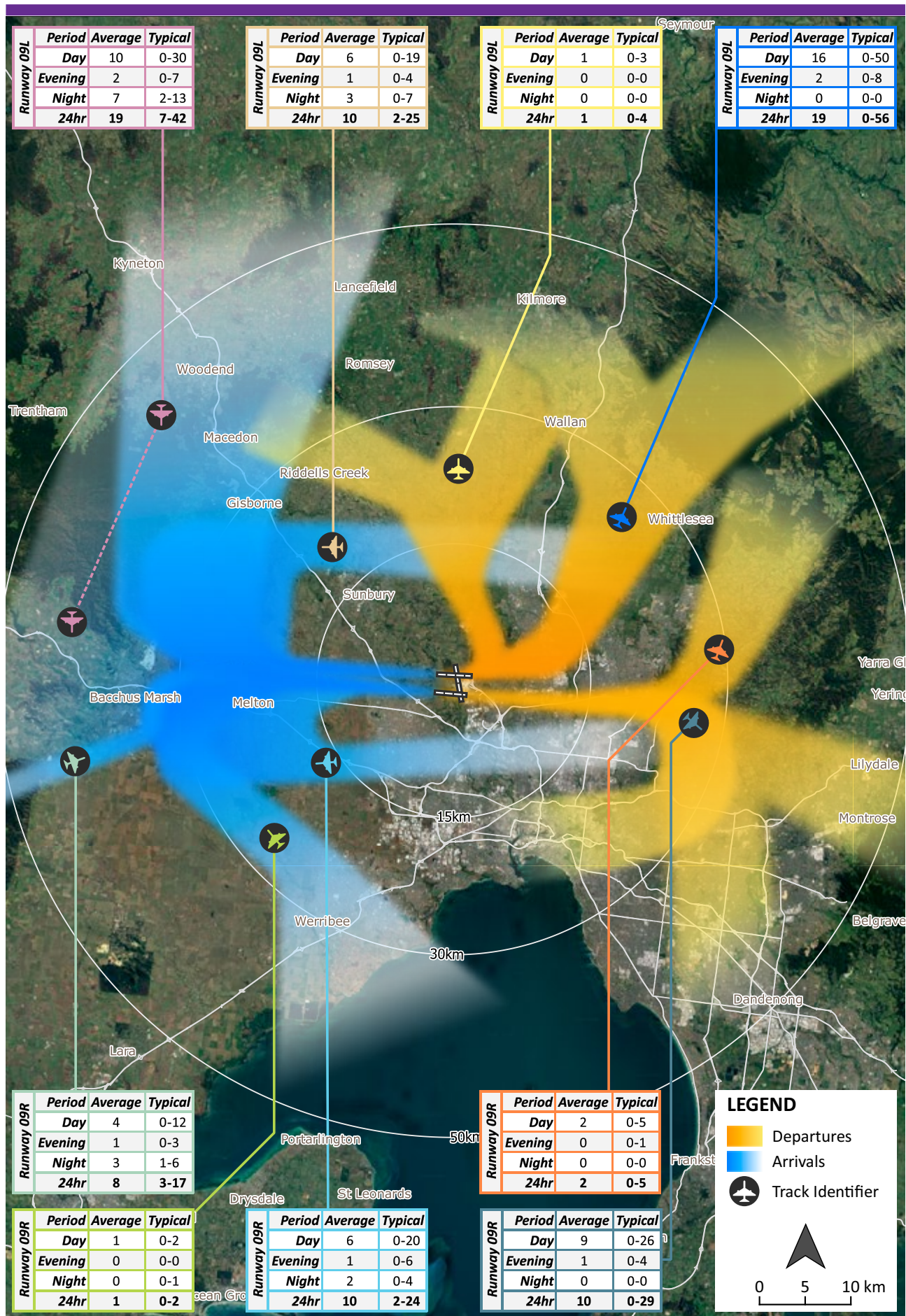


Figure 9-16: Forecast flight paths 2023 – easterly aircraft arrivals and departures, Melbourne Airport



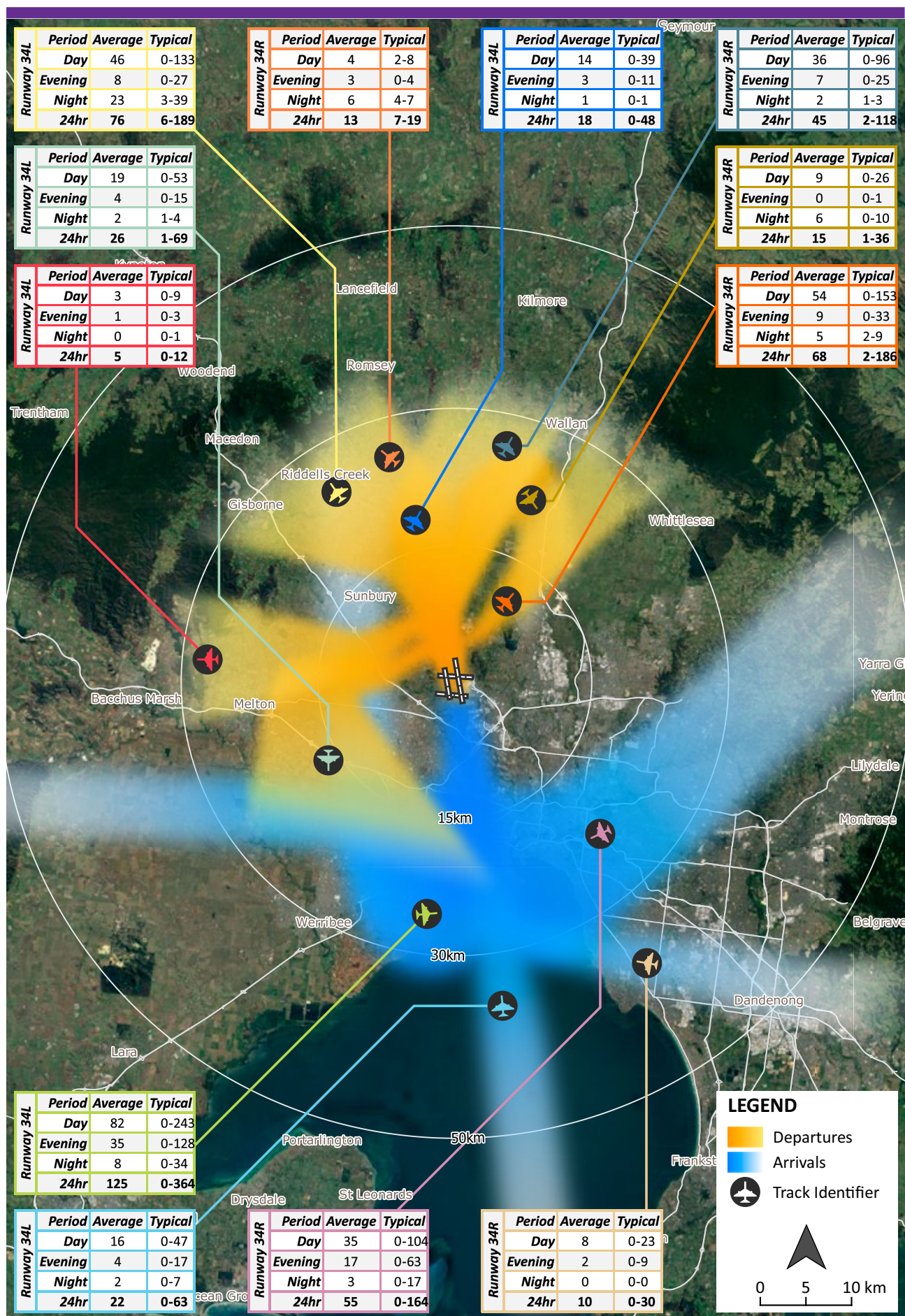


Figure 9-17: Forecast flight paths 2023 – northerly aircraft arrivals and departures, Melbourne Airport



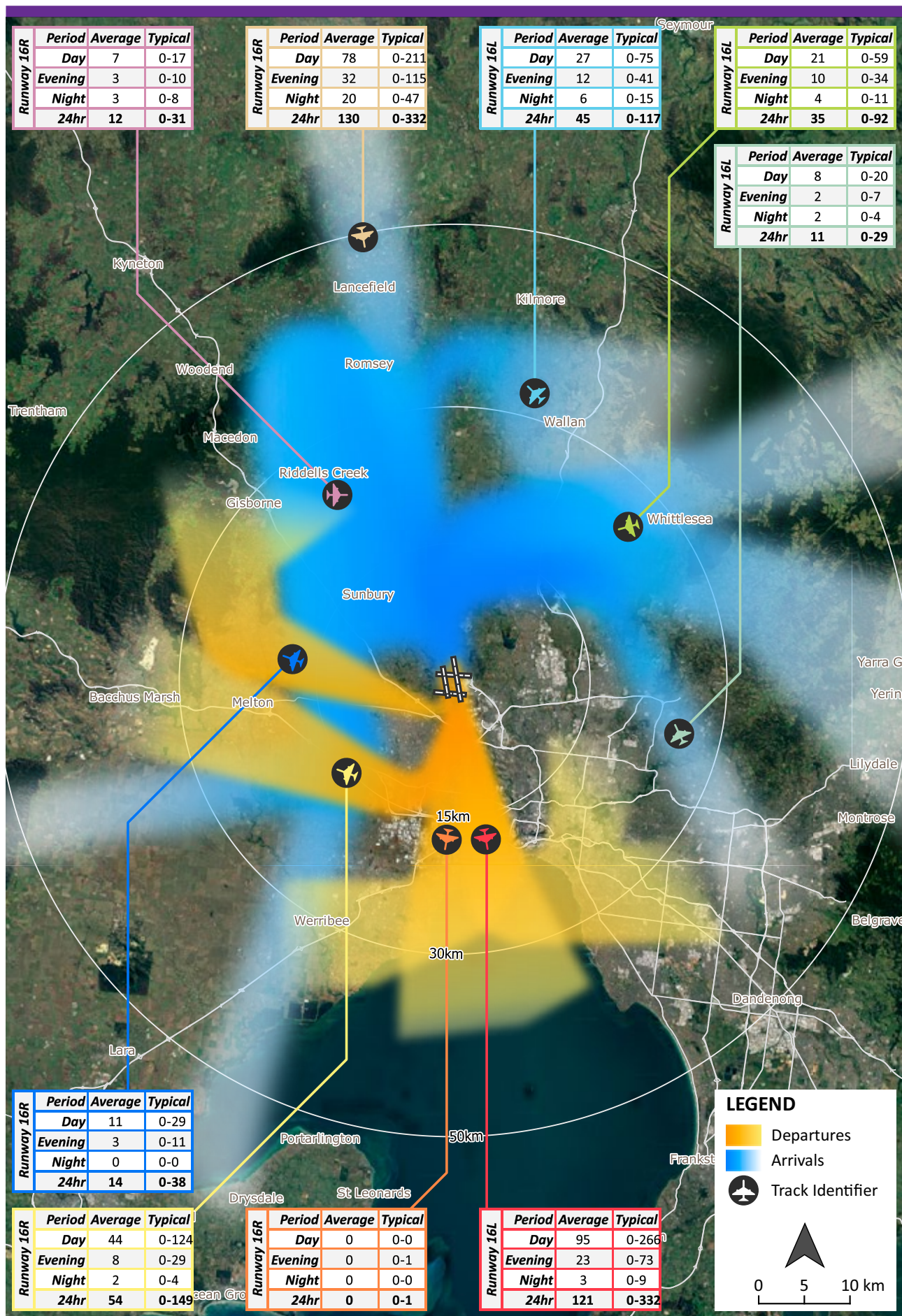


Figure 9-18: Forecast flight paths 2023 – southerly aircraft arrivals and departures, Melbourne Airport



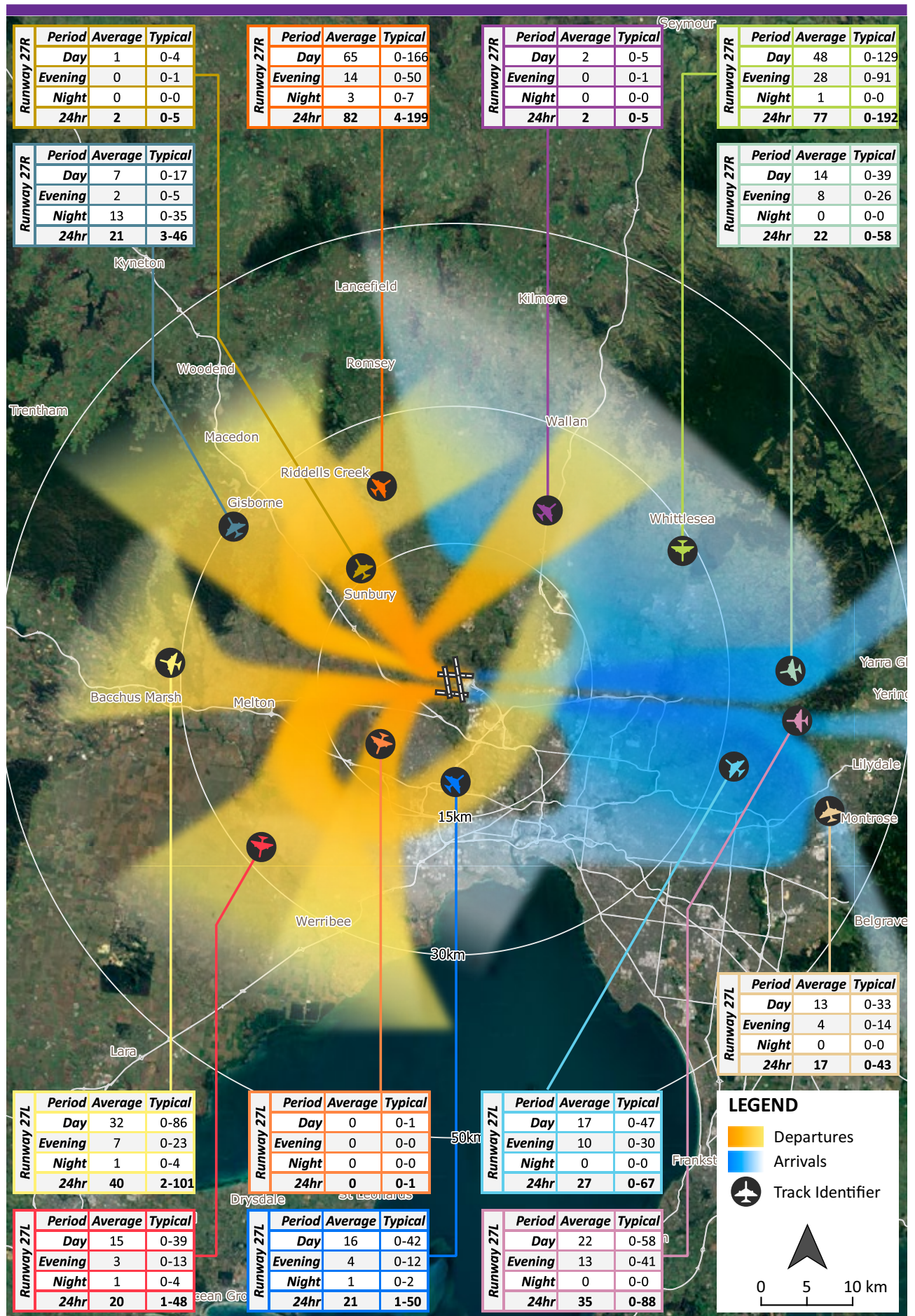


Figure 9-19: Forecast flight paths 2023 – westerly aircraft arrivals and departures, Melbourne Airport



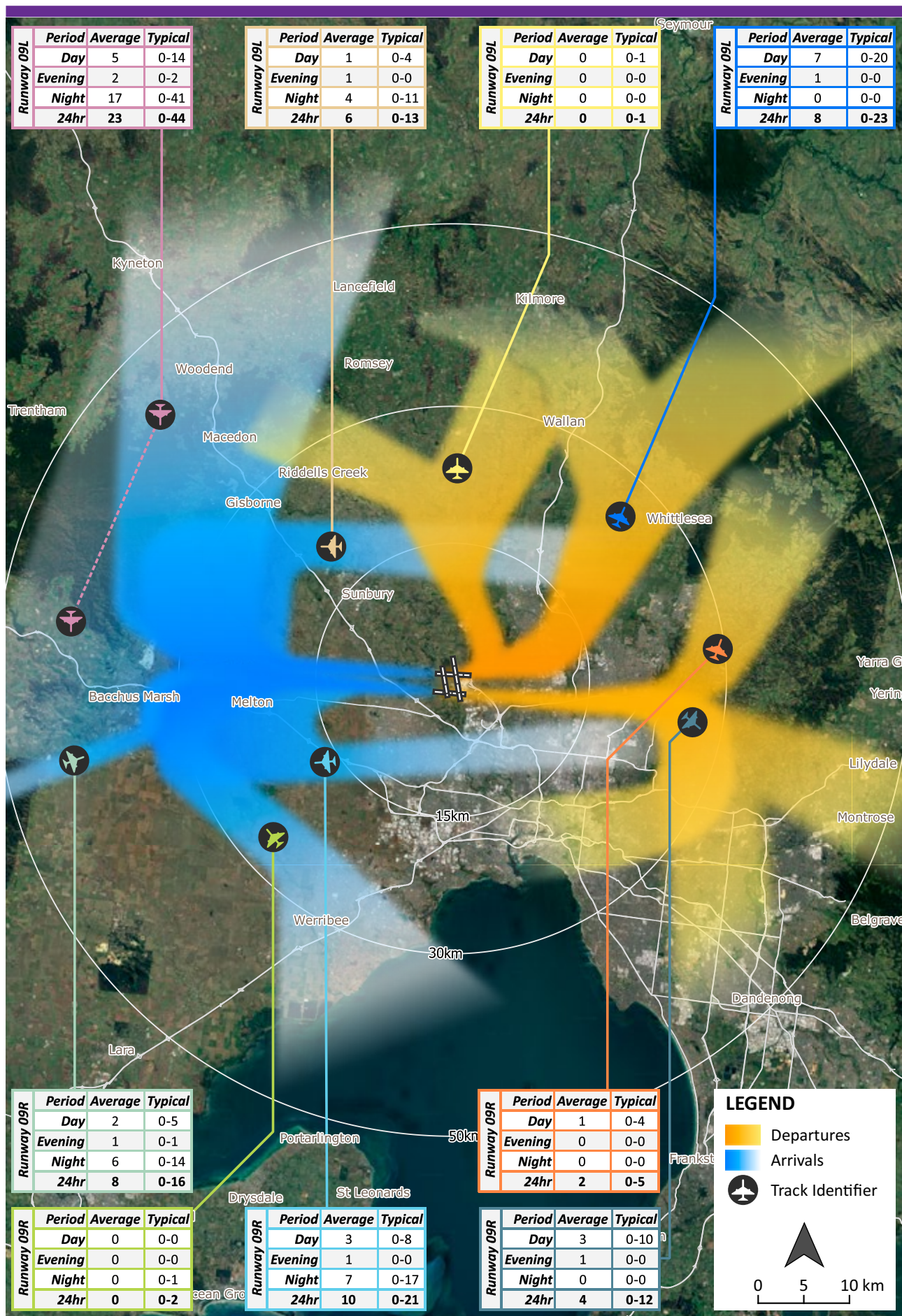


Figure 9-20: Forecast flight paths 2023 – easterly aircraft arrivals and departures, Melbourne Airport

## 9.4 Short-term noise forecasts

Construction of the RDP infrastructure is forecast within the 2018 Master Plan period.

The proposed RDP involves introducing new flight paths for approaches and departures on the new east-west runway (09R/27L) and changes to the existing flight paths to accommodate these new flight paths. The dominant flow of aircraft during peak periods will become the east-west / west-east because the parallel runways will cater for the greater demand at these times.

The third runway and consequent changes to flight paths and runway usage will change the aircraft noise surrounding Melbourne Airport. As such, significant interest in aircraft noise predictions for the period after the third runway's construction is anticipated.

The MDP is part of the approval process for the RDP and contains a comprehensive assessment of aircraft noise for the time of opening, as well as five and 20 years after opening.

The following are key findings of the MDP aircraft noise assessment.

- Some residents to the east and west of the new runway will experience increased noise impacts during the day and evening periods. These impacts have been reduced as much as possible through the preliminary airspace design
- The outcomes of the noise modelling show that the overall number of residents affected by aircraft noise at night will be substantially reduced because of the RDP
- Operational controls have been designed to reduce noise impacts for residents and other sensitive land uses as much as possible.

Figure 9-21 presents the predicted N70 for 2023, based on predictions for a 'busy week'. The N70 24hr is most influenced by the aircraft operations on the new parallel runways during the day and evening periods. The contours favour the east-west runways and, of those, Runways 27L and 27R. The N70 = 5 contour extends approximately 17 kilometres in all directions along prominent flight tracks. N70 contours of 10, 20 and 50 extend further on the east-west runway tracks, while N70 contours of 100 and above are confined to the east-west runway operations.

The N70 reflects the strong bias towards departures off the east-west runways in a westerly direction (Runways 27L and 27R), which results from prevailing winds and the application of the noise abatement procedure.

Figure 9-22 presents the predicted N60 night (11.00pm to 6.00am) for 2023.

The night-time N60 contours reflect the proposed NAPs, which provide two night-time operating modes designed to limit aircraft operations over populated areas. The majority of night-time operations would occur to the north and west of the airport.

With the addition of other noise mitigation measures, which are discussed in the MDP, the aircraft noise exposure avoids populated areas as much as possible.



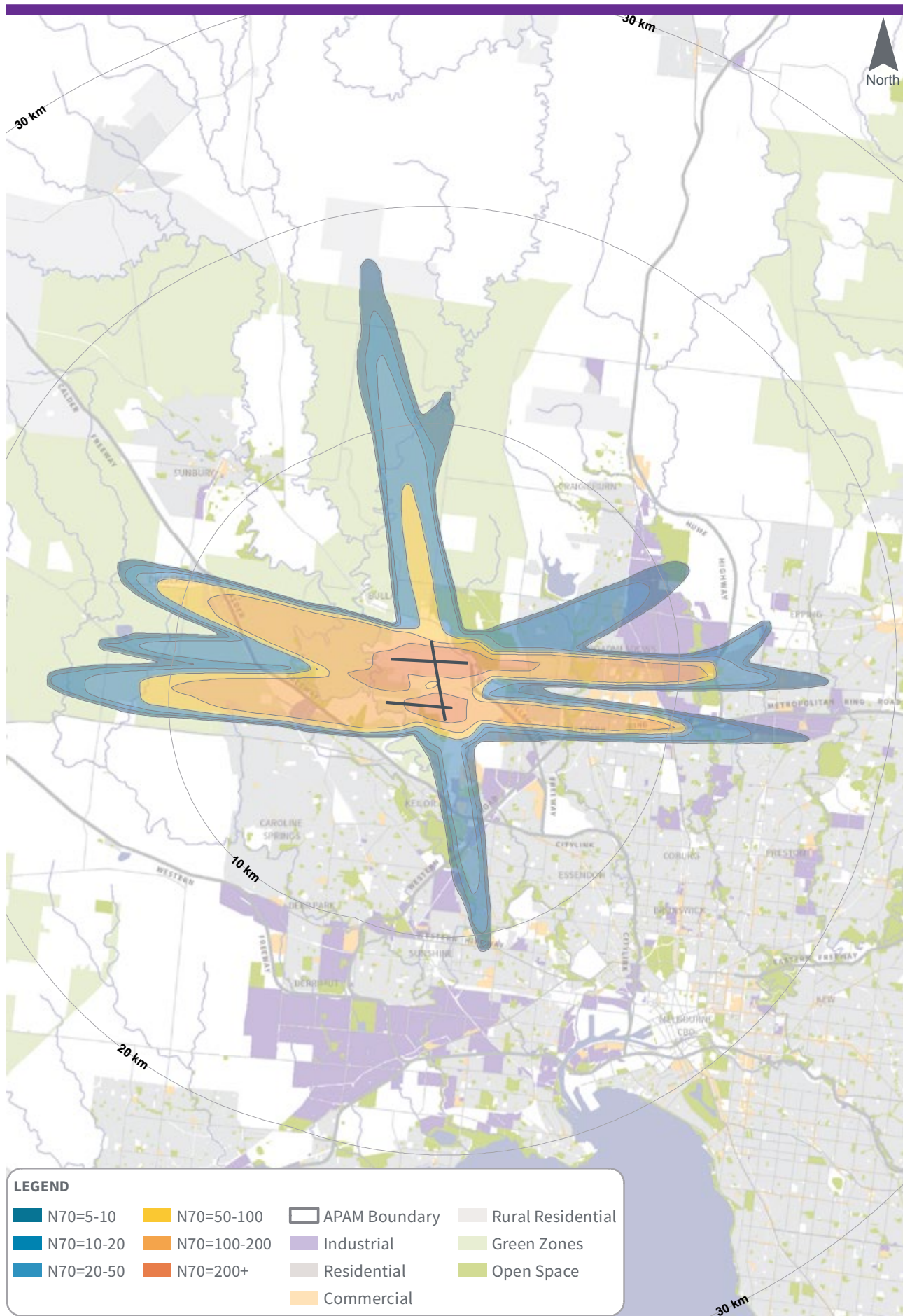


Figure 9-21: Short Term noise Forecasts – N70, Melbourne Airport





Figure 9-22: Short Term noise Forecasts – N60 Night (11pm-6am), Melbourne Airport







Part D:

# Planning Response

In the next 20 years, significant changes will occur at Melbourne Airport through aviation developments, land use and non-aviation property development, ground transport and utilities infrastructure improvements. Dealing with the environmental issues that the airport faces today and those arising from the pressures of increased growth of the airport is an important part of achieving the Master Plan vision.

All Master Plans require an implementation plan for the first five years of the planning period. This describes what Melbourne Airport will do to realise its vision, respond to growth and protect the airport's future.

# 10.0

## Airport Land Use Plan

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*This section sets out the Land Use Plan for Melbourne Airport, which is used to guide all on-airport development and is used to assess non-aviation development proposals.*

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# 10.0 Airport Land Use Plan

KEY FEATURES



CONSISTENCY & INTEGRATION

Consistency and integration with the Victorian planning system



LONG-TERM GROWTH

Planning for long-term aviation growth



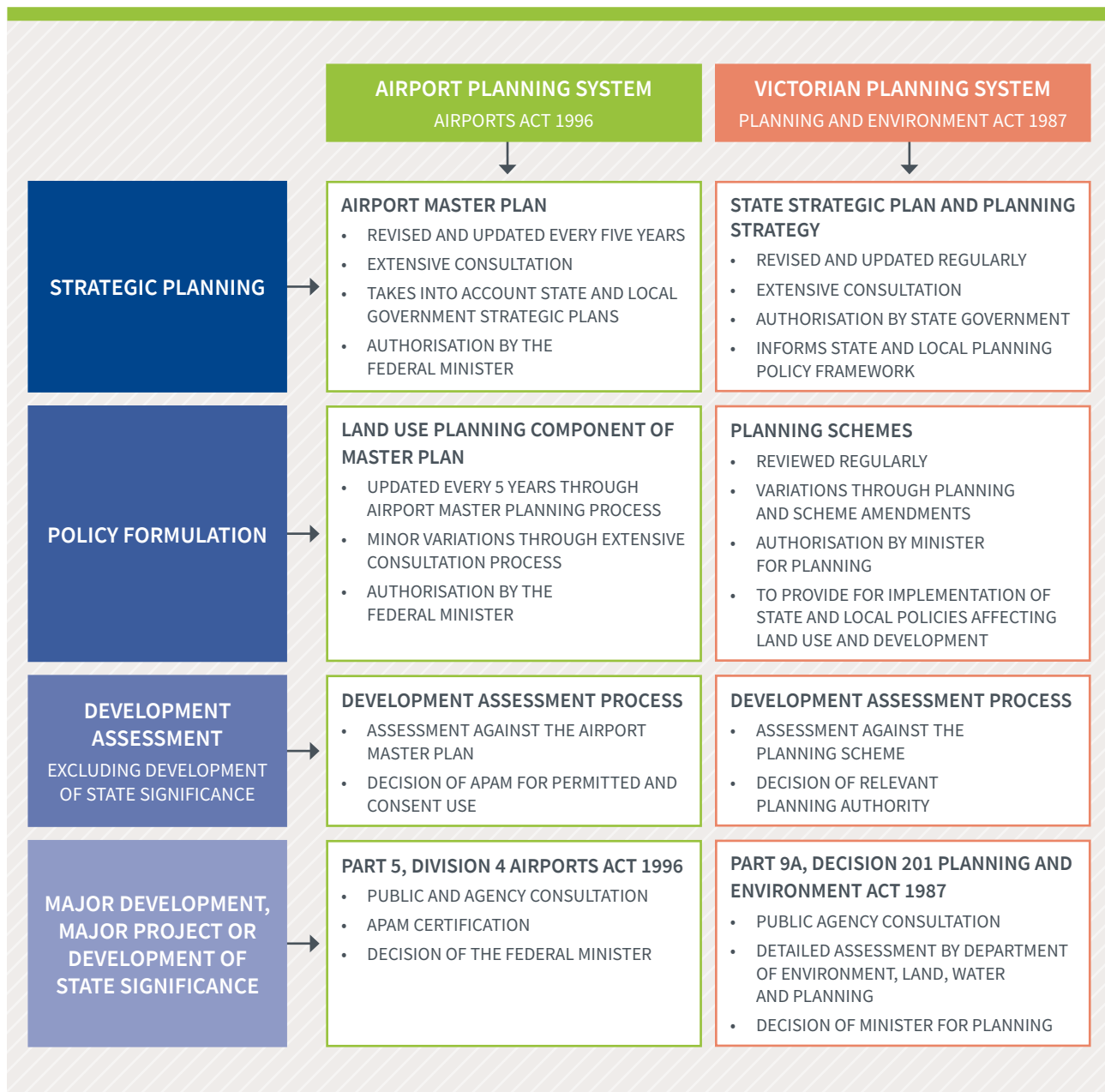
KEY ACTIVITY CENTRE

Recognising and developing Melbourne Airport as one of the state's key activity centres

## 10.1 Overview and objectives

Land-use planning at Melbourne Airport is administered under the Airports Act (s. 71), and the Master Plan uses terminology consistent with the Victorian planning system. The Master Plan accordingly has used zones, overlays and planning provisions derived from the Victoria Planning Provisions (VPP) (Figure 10-1).





**Figure 10-1: Comparison of airport and state/local government planning**

The objectives of the Land Use Plan are to:

- facilitate land use and development in accordance with the Master Plan
- advance Melbourne Airport as one of the state's key activity centres
- maintain Melbourne Airport as a transport gateway for metropolitan Melbourne, particularly the northwest region
- provide for long-term aviation growth requirements
- support uses complementary to aviation such as business, retail, employment, hotels, leisure, transport and community facilities
- encourage sustainable outcomes that optimise infrastructure
- create an attractive, pleasant, safe, secure and stimulating environment implementing good urban design
- support good environmental practice to minimise impacts and protect sensitive areas including heritage sites.

## 10.2 Land Use Strategy

The Land Use Strategy for Melbourne Airport described in this Master Plan is consistent with previous Master Plans. It comprises five land use precincts (Figure 10-2):

- Airside Operations
- Airport Expansion
- Terminals
- Landside Main
- Landside Business.

The land use precincts have been developed reflecting the categorisation of Melbourne Airport as a Transport Gateway in Plan Melbourne and the Hume Planning Scheme (see sections 6.3.4 and 6.3.7 for further detail).

## 10.3 Land use precincts

### 10.3.1 Airside Operations Precinct

The Airside Operations Precinct is situated to the north, west and south of the Terminals Precinct. This precinct is critical to the operation and function of Melbourne Airport and is a restricted airside area.

The precinct accommodates airfield facilities including the two runways, taxiways, aprons, navigational aids and the aviation fire station.

The role of the Airside Operations Precinct is to provide for:

- safe, secure, efficient airfield activities including aircraft take-off, landing, taxiing, handling and parking
- aircraft navigation aids, aviation rescue and firefighting services and other facilities that are essential to aircraft operations
- 24-hour-a-day, seven-day-a-week aircraft operations.

This precinct will continue to be used and developed for aircraft operations and support services as described above. It will not be used or developed for any purpose that may conflict or interfere with safe and secure airport and aircraft operations.

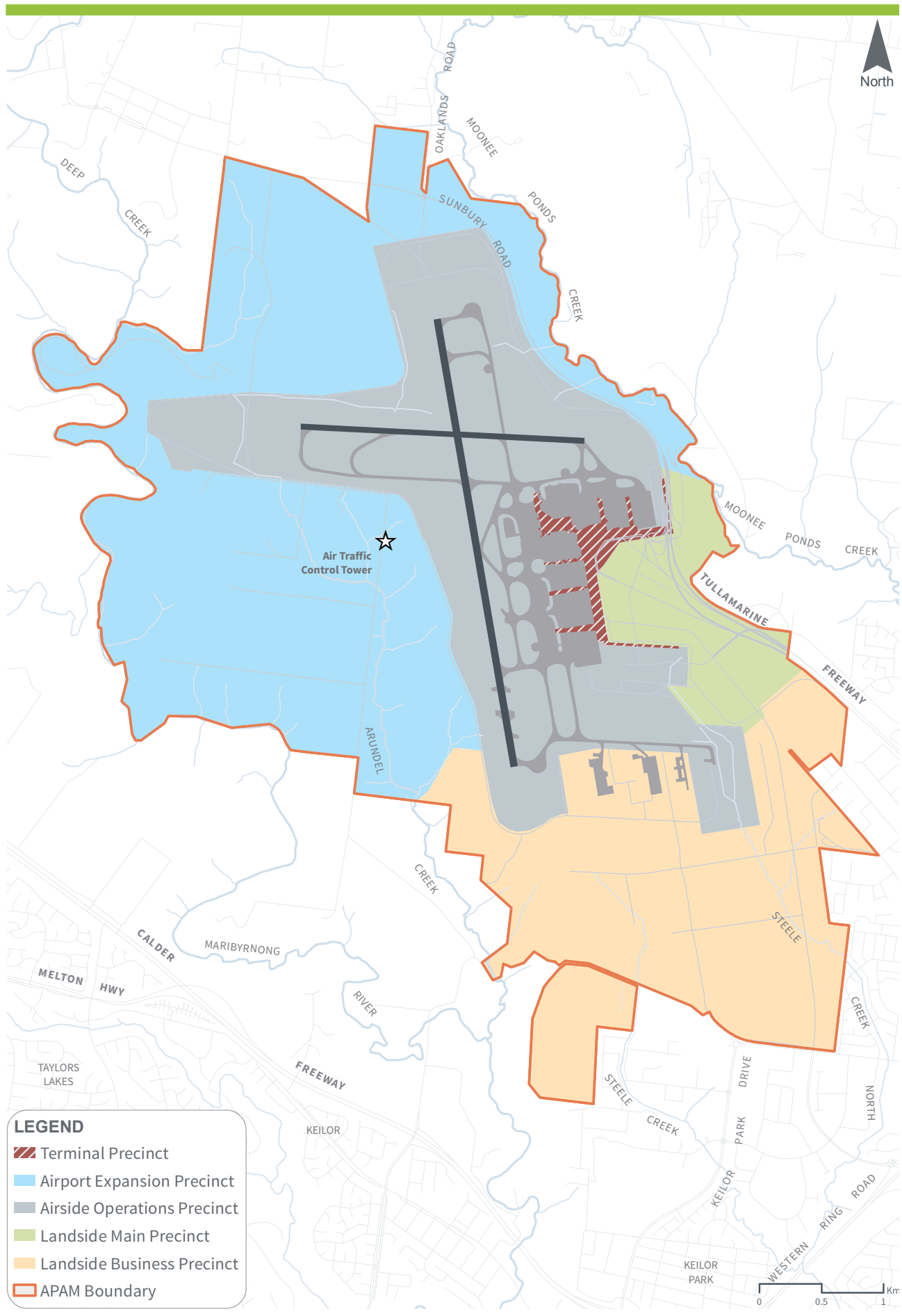


Figure 10-2: Melbourne Airport land use precincts

### 10.3.2 Airport Expansion Precinct

The Airport Expansion Precinct adjoins the Airside Operations Precinct to the north and west. It comprises land that will be required for future airport operations. The precinct includes Airservices facilities such as the air traffic control tower located on Operations Road. This precinct includes land that will be required in the future for the airport's third and fourth runways.

The precinct includes sections of the Tullamarine Freeway and Sunbury Road, as well as conservation land around the precinct perimeter. It includes land adjacent to Deep Creek and the Maribyrnong River, which forms the western boundary of the precinct, and Moonee Ponds Creek, which forms the northeast boundary. The Grey Box Woodland is situated in the north of the precinct, and Arundel Creek traverses through the precinct from north to south.

The role of the Airport Expansion Precinct is to:

- provide for the airport's future expansion, including future runways, taxiways and terminal and aviation support facilities
- support the ongoing operation and growth of aviation-related organisations including Airservices services and facilities (air traffic control tower and Hot Fire Training Ground)
- conserve environmentally significant land where such land is not required for future airport operations.

The precinct will not be used or developed for any purpose that may prejudice or conflict with its objectives or with safe and secure airport and aircraft operations in the Airside Operations Precinct. The existing Tullamarine Freeway and Sunbury Road reserve will be maintained to allow for their safe, secure and long-term transport functionality and enable potential connections between Melbourne Airport and the Outer Metropolitan Ring Road.

### 10.3.3 Terminals Precinct

The Terminals Precinct comprises the T1, T2, T3 and T4 passenger terminals and land for future passenger terminal expansion. The existing terminals are integrated under one roof in a multi-level building combining domestic and international terminal facilities and associated commercial activities such as restaurants and shops.

The role of the Terminals Precinct is to:

- provide for the operation, use and development of land for passenger and baggage processing, enabling the terminal facilities to operate safely, securely, efficiently and cost-effectively

- provide best practice facilities for airlines and passengers, including efficient terminal facilities with sufficient supporting commercial areas
- provide integrated terminals with commercial and retail uses
- provide for the flexible expansion of passenger terminal facilities to meet forecast demand.

The precinct's future use and development will focus on enhancing and expanding the terminals to ensure ongoing essential passenger services. The Terminals Precinct will not be used or developed for any purpose that may interfere or conflict with safe and secure airport and aircraft operations in the Airside Operations Precinct or Airport Expansion Precinct.

### 10.3.4 Landside Main Precinct

The Landside Main Precinct adjoins the eastern boundary of the Airside Operations and Terminals Precincts. It provides for services and facilities relating to operations and terminals including freight facilities, ground transport, car rental facilities, hotels and offices. To the north, the precinct accommodates the joint user hydrant installation.

The role of the Landside Main Precinct is to provide for:

- airport support activities, services and facilities for use by airlines, passengers, government agencies, freight businesses and transport providers
- integrated car parking, hotel accommodation and commercial and retail uses that support the airport
- an attractive and functional gateway to the airport
- ground transport facilities and services for efficient access to the airport
- future expansion of passenger terminal facilities to meet forecast demand.

The precinct's future use and development will optimise its prime location, including enhancing passenger drop-off and pick-up facilities, freight transport, car parking, hotel accommodation, offices, commercial uses and retail premises.

The precinct must provide for safe, secure and efficient ground transport access with a high level of visual amenity. It will not be used or developed for any purpose that may interfere or conflict with safe and secure airport and aircraft operations. The existing Tullamarine Freeway and Sunbury Road reserve will be maintained to allow for their safe, secure and long-term transport functionality, and enable potential connections between Melbourne Airport and the Outer Metropolitan Ring Road.



### 10.3.5 Landside Business Precinct

The Landside Business Precinct is situated to the south of the Airside Operations and Landside Main Precincts. It extends from the Tullamarine Freeway and Mercer Drive in the north to Annandale Road and Sharps Road in the south. This precinct lends itself to a mix of uses, although many are non-aviation-related activities. The Melbourne Airport Business Park is situated within this precinct.

The role of the Landside Business Precinct is to provide for:

- land for aviation and non-aviation uses
- aviation-related services including aircraft maintenance and servicing and freight and freight terminals
- non-aviation uses including industrial, commercial, retail, office, recreational, manufacturing, warehousing and associated activities.

The Landside Business Precinct's future use will remain focused on mixed-use development. Its proximity to residential areas means future development will be carefully considered for compliance with the Airports Act and impact on the community. This precinct will not be used or developed for any purpose that may interfere or conflict with safe and secure airport and aircraft operations in the Airside Operations or Airport Expansion Precincts.

## 10.4 Planning zones

Melbourne Airport has adopted the use of the VPP where applicable, and they are considered in all airport developments. The provisions utilised are for car parking, signage and vehicle loading and unloading. They are referenced in the Melbourne Airport Planning and Urban Design Strategy and in the provisions of the Activity Centre Zone.

The planning zones in this Master Plan are derived from the VPP and are depicted in Figure 10-3 and are further outlined in Appendix D.

### 10.4.1 Activity Centre Zone

The purpose of the Activity Centre Zone, as it relates to Melbourne Airport, is to establish activity centres as a focus for high-quality development and community activity. The Activity Centre Zone requires a structure plan to be in place, and this Master Plan satisfies this requirement for the Melbourne Airport Activity Centre.

The purpose of the Activity Centre Zone as it relates to the airport presented in the VPP is to:

- encourage a mix of uses and the intensive development of the activity centre
- provide a focus for business, shopping, working, leisure, transport and community facilities
- support sustainable urban outcomes that maximise the infrastructure and public transport use
- deliver a diversity of housing at higher densities to make optimum use of the facilities and services *(This purpose is not appropriate for Melbourne Airport as no housing would be permissible within its boundaries.)*
- create through good urban design an attractive, pleasant, walkable, safe and stimulating environment
- facilitate land use and development in accordance with the Development Framework for the activity centre.

The Activity Centre Zone is the most applicable zone to apply to the Terminals, Landside Main and Landside Business precincts for the following reasons.

- It is a standard zone in the VPP specifically designed for activity centres, including Specialised Activity Centres.
- It is designed to simplify activity centre planning, to be facilitative and flexible, to provide a one-stop shop encompassing almost all planning approval aspects, and its use provides clear and consolidated planning controls.
- This Master Plan contains the details needed to be considered as a Structure Plan/Framework Plan, and as such can form the basis of the zone.

### 10.4.2 Road Zone

The zoning plan (Figure 10-3) shows the Road Zone applicable to the section of Sunbury Road and the Tullamarine Freeway that traverses the airport boundary. The section of Road Zone to the north of the Terminals Precinct is currently being planned for the future connection to the Outer Metropolitan Ring Road. This upgraded road, to be named Melbourne Airport Link, will provide access to the airport through the widening and extension of that reservation.

### 10.4.3 Special Use Zone

The Special Use Zone has been applied to the Airside Operations and Airport Expansion precincts to reflect the distinct nature of these areas and their critical role in the operation of the airport.

There are two schedules to the Special Use Zone:

- Schedule 1 – Airside Operations Precinct
- Schedule 2 – Airport Expansion Precinct.

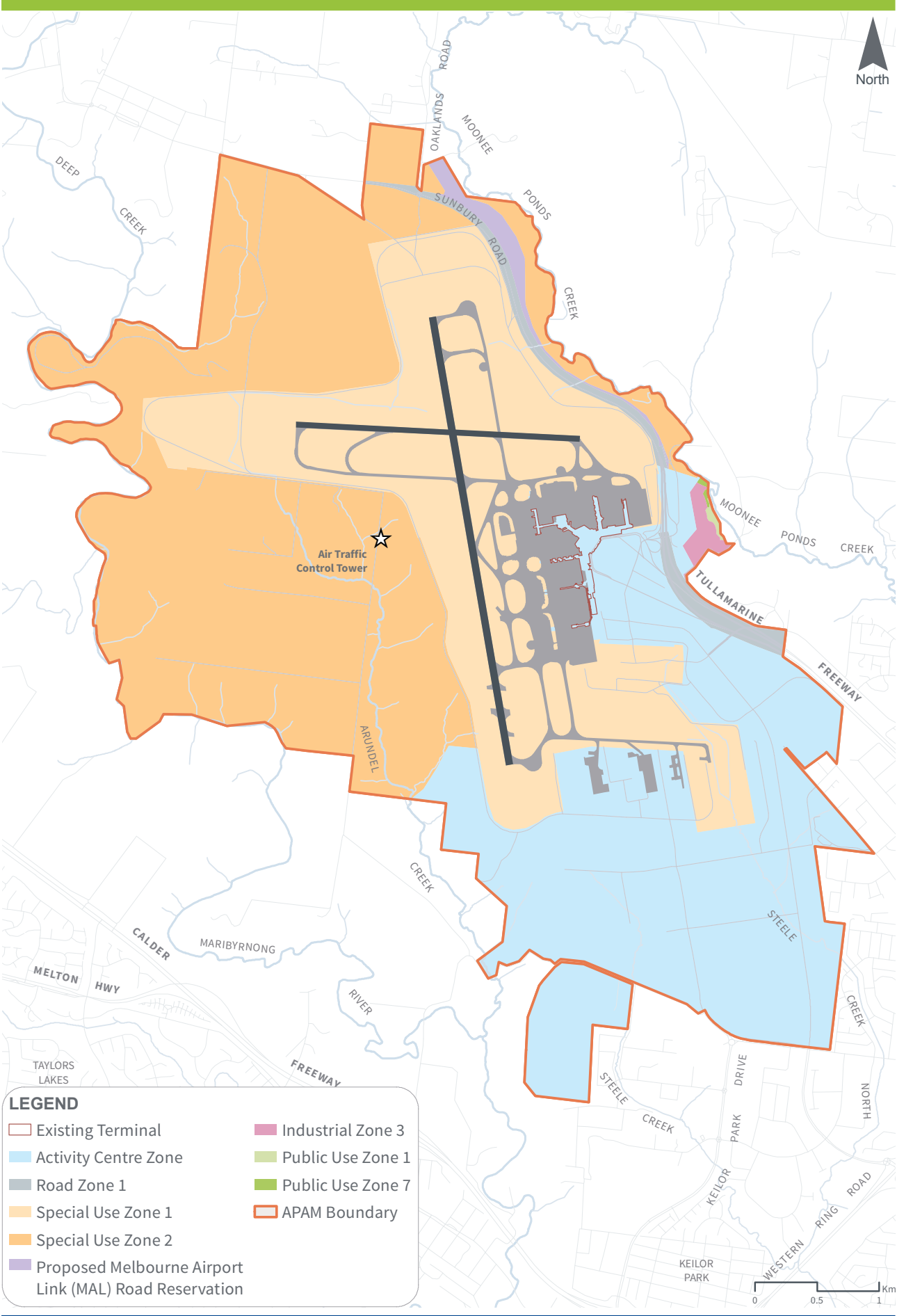


Figure 10-3: Zoning plan for Melbourne Airport

#### 10.4.4 Industrial 3 Zone

The Industrial 3 Zone has been applied to the Landside Main Precinct to provide for industries and associated uses where special consideration of the nature and impacts of industrial uses is required and to avoid inter-industry conflict.

#### 10.4.5 Public Use Zone

The Public Use Zone has been applied to the Landside Main Precinct to recognise or provide for the use and development of land for specific purposes as identified in the schedules to the Public Use Zone:

- Schedule 1 to the Public Use Zone: Service and Utility
- Schedule 7 to the Public Use Zone: Other Public Use.

### 10.5 Overlays

To reflect particular on-airport conditions, Melbourne Airport has applied a number of the VPP overlays (Figure 10-4), namely the:

- Environmental Significance Overlay
- Heritage Overlay
- MAEO – see section 6.3.5.

The application of the overlays has strategic justification and is linked to the policies and development objectives described in the Master Plan. They are largely similar to those in the VPP. The Environmental Significance Overlay and Heritage Overlay are shown in Figure 10-4.

#### 10.5.1 Environmental Significance Overlay

The Environmental Significance Overlay applies to:

- Deep Creek
- Maribyrnong River
- Moonee Ponds Creek
- Melbourne Airport Golf Course
- Grey Box Woodland.

The overlay ensures development in these areas considers the natural environment including flora and fauna habitats. It is consistent with the VPP but does not reflect the definition of environmental significance under the Airports Act.

#### 10.5.2 Heritage Overlay

The Heritage Overlay applies to sites that have heritage significance as identified in the Victorian Heritage Register, which are as follows:

- the former St Mary's Church
- Grey Box Woodland
- Keilor archaeological site.

### 10.6 Sensitive developments

Section 71A of the Airports Act requires the Master Plan to identify any proposed 'sensitive developments', which is defined as development or redevelopment that increases the capacity of a:

- residential dwelling
- community care facility
- preschool
- primary, secondary, tertiary or other education institution
- hospital.

A sensitive development does not include:

- an aviation educational facility
- accommodation for students studying at an aviation educational facility at the airport
- a facility with the primary purpose of providing emergency medical treatment that does not have inpatient facilities
- a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport.

Sensitive developments are prohibited on Commonwealth-leased airports except in exceptional circumstances, and require ministerial approval to prepare a Preliminary Draft MDP for the proposed development. The minister may approve the preparation of the Preliminary Draft MDP if satisfied there are exceptional circumstances that support its preparation.

There are no specific proposals for sensitive development in this Master Plan. Melbourne Airport has the flexibility in the Activity Centre Zone and Special Use Zone to enable a sensitive development to be considered, subject to the minister's approval to prepare a preliminary draft MDP.

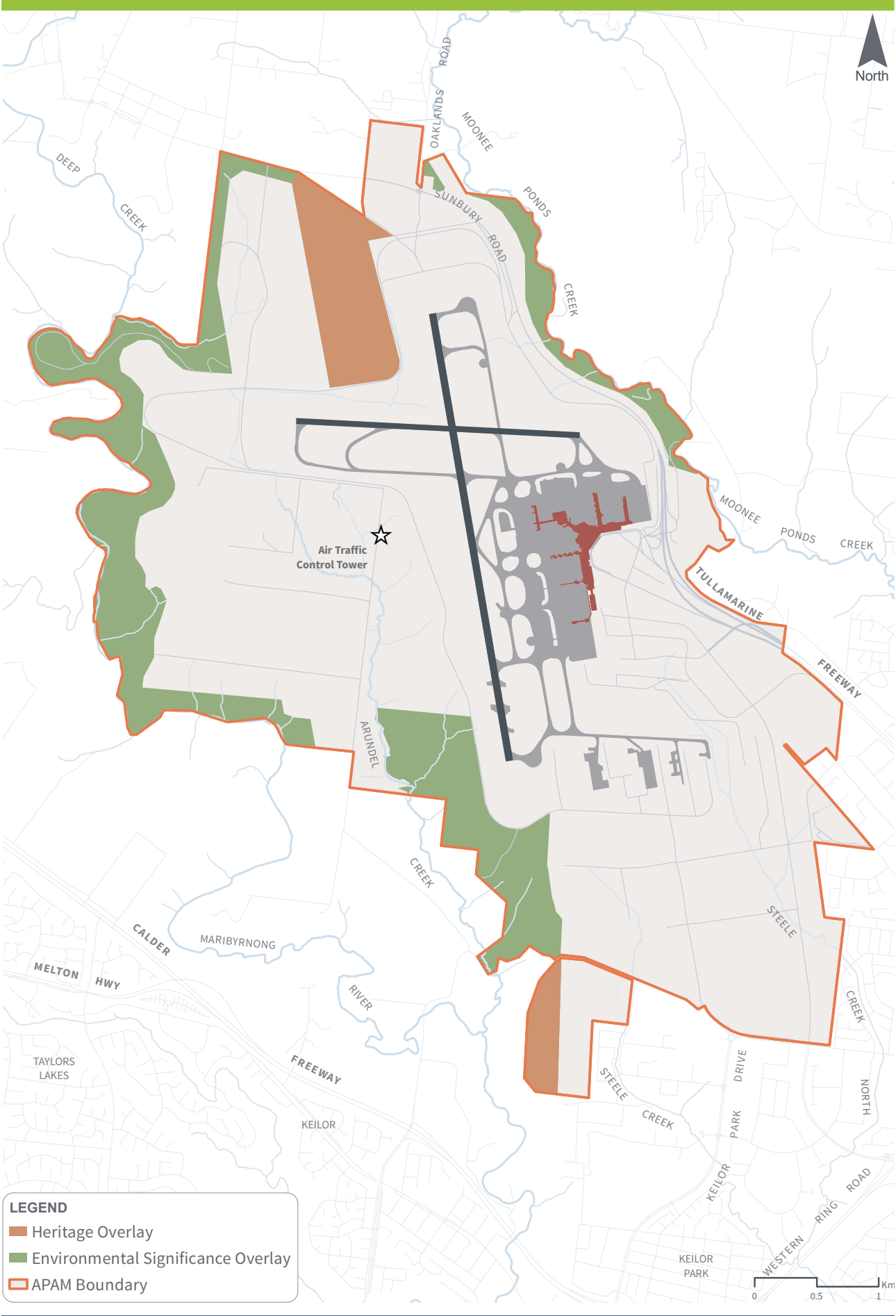


Figure 10-4: Overlay plan for Melbourne Airport



## 10.7 Pre-existing interests

This Master Plan was prepared with consideration of the interests that existed at the time the airport lease was created, including easements, licences, leases and sub-leases. There are no conflicts or inconsistencies between these interests and any proposals in the Master Plan. Melbourne Airport will ensure any airport development will not interfere with the rights granted under any pre-existing interest.

## 10.8 Consistency with Victorian planning schemes

Non-aviation development is complementary to the airport's operations and is consistent with planning regimes in the northwest of Melbourne including Plan Melbourne and the Hume Planning Scheme.

Under Plan Melbourne, Transport Gateways such as Melbourne Airport are recognised as places where complementary uses and employment-generating activities are encouraged. The Hume Planning Scheme recognises the airport as a Specialised Activity Centre – a place where there is a large supply of undeveloped land suitable for industrial and business use.

Melbourne Airport's status as a Transport Gateway and a Specialised Activity Centre supports the development of economic and employment-generating activities. Such activities also act as a physical buffer between the 24-hour airport operations and residential areas nearby. This pattern of development is complementary to other activity centres near the airport and utilises available infrastructure.

Applying the Activity Centre Zone and the Special Use Zone to the operational areas of the airport is consistent with the State Planning Policy Framework (see Figure 10-1) and the VPP. The specific developments proposed in this Master Plan are unlikely to conflict with surrounding planning schemes.

## 10.9 Development approval process

Any proposed use or development at Melbourne Airport is required to follow this process in accordance with the Airports Act:

- The proponent must obtain Melbourne Airport Planning and Design Approval in accordance with the provisions in the Master Plan
- If required, MDP approval from the minister must be obtained under the provisions of the Airports Act
- Building Activity Consent must be obtained from Melbourne Airport under the provisions of the Airports (Building Control) Regulations 1996
- A building permit must be obtained from the Airport Building Controller under the provisions of the Airports (Building Control) Regulations. The Airport Building Controller is advised by the Airport Environment Officer, both of whom are independent officers employed by the Commonwealth Government.

The Melbourne Airport Planning and Urban Design Strategy applies to on-airport developments that must be considered and addressed in addition to the Master Plan to obtain approval. The guidelines expect proponents to consider the following elements:

- building heights, acoustic treatments, safety and security, use of non-reflective materials, illumination levels, landscaping, signage and environment
- the National Airports Safeguarding Framework
- potential impacts of on-airport commercial and industrial developments on neighbouring properties
- the Contractors Guide to Working at Melbourne Airport as part of the Building Activity Consent process.

An MDP must be prepared for any major airport development or proposed sensitive development as defined in the Airports Act. A preliminary draft MDP must be placed on public exhibition and submitted to the minister for approval prior to obtaining Building Activity Consent. Planning and design approval (or MDP approval if required) are prerequisites for obtaining Building Activity Consent. A building permit cannot be obtained until Building Activity Consent has been granted.

The approvals process for development at the airport is shown in Figure 10-5 and Figure 10-6.

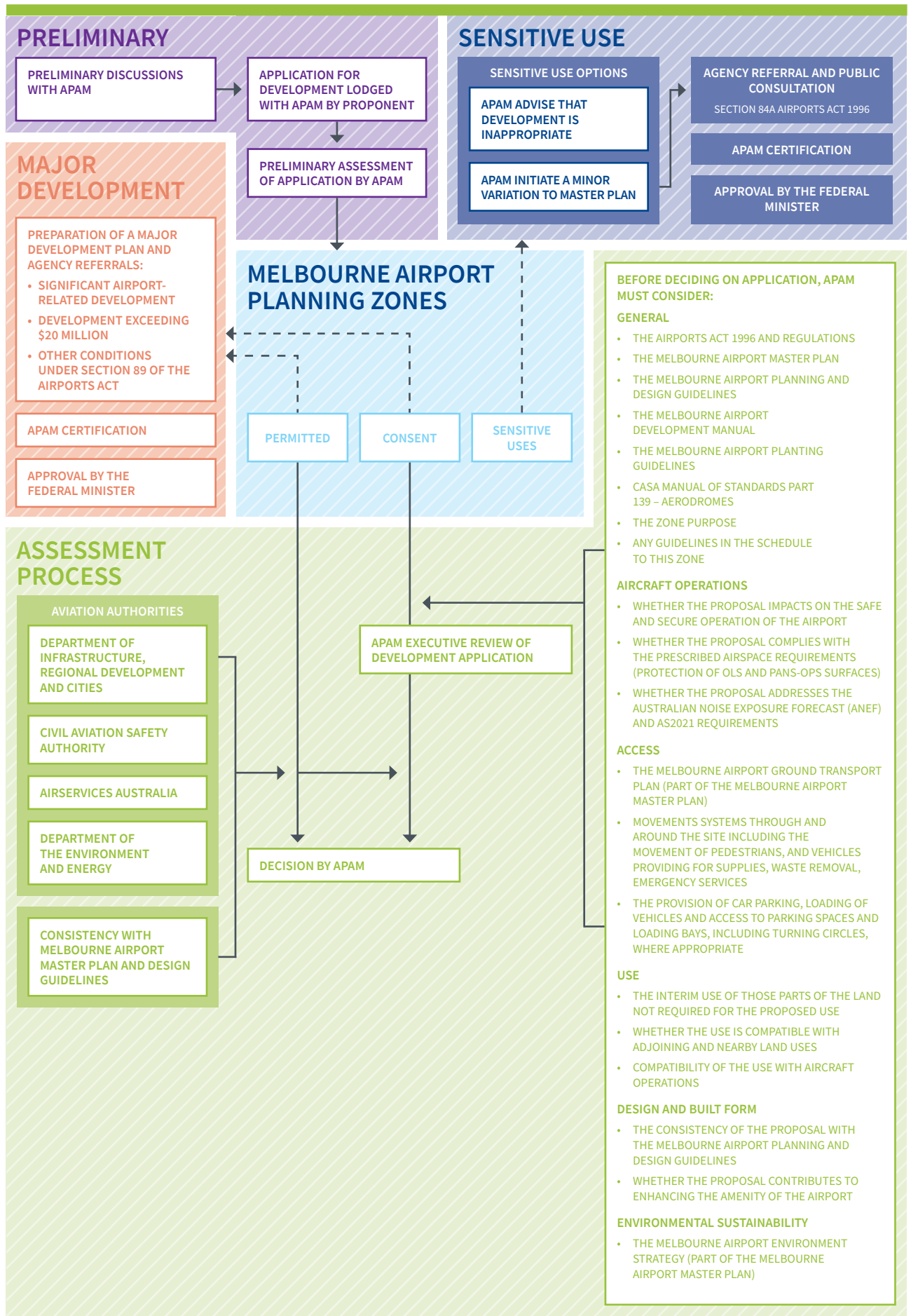


Figure 10-5: Development decision matrix for Melbourne Airport



Figure 10-6: Development approvals process diagram for Melbourne Airport

# 11.0

## Airside Development Plan

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*This section describes the Airside Development Plan for Melbourne Airport based on the key needs to cater for forecast aircraft movements.*



## 11.0 Airside Development Plan

### KEY FEATURES



#### MAXIMISING AIRFIELD CAPACITY

Reduction of existing airside constraints and maximising existing airfield capacity



#### DELIVER 3RD RUNWAY

Delivering the third (east-west) runway – 3,000 metres long



#### EXTEND EXISTING RUNWAY

Extending and widening the existing east-west runway – to 3,400 metres long



#### TAXIWAY IMPROVEMENTS

Improvements to taxiways and apron facilities



#### 4 RUNWAY CONFIGURATION

Plan for the long-term capacity of Melbourne Airport – four-runway configuration

### 11.1 Overview

Runway development represents the backbone of airport infrastructure. Runways come at significant cost and are primary enablers of the airport's overall capacity growth. Melbourne Airport's airside capacity is defined by its overall runway capacity. Future airside developments planned for Melbourne Airport ensure runway and associated taxiway capacity can accommodate forecast growth with a range of projects that:

- provide additional runway capacity
- maximise existing apron capacity within the current Terminals Precinct through shared use where appropriate
- continually improve safety for airside operations
- reduce operational airside roads and taxiway constraints
- enable efficient flow for all aircraft sizes with unrestricted dual taxiways around the precinct

- appropriately deliver rapid exit and entry taxiways to and from runway infrastructure to maximise runway capacity.

As these projects move towards implementation, consultation with relevant stakeholders on specific design and construction elements will be undertaken in accordance with appropriate design standards, with consideration given to safety, security and environmental and statutory requirements.

A key principle of the Airside Development Plan is to maximise the use and efficiency of existing airfield capacity assets within reasonable delay/congestion tolerances while maintaining operational safety at all times.

Airside infrastructure upgrades to the airfield are described below and illustrated on the 2023 Development Concept Plan (Figure 8-1) and the 2038 Development Concept Plan (Figure 8-2).

Many enhancements are planned for the next 10 years to support continuing growth and ensuring the existing Terminals Precinct is optimised over the 20-year Master Plan period.

## 11.2 Runway enhancements

### 11.2.1 Runway Development Program

Operational efficiencies have deferred the requirement for an additional runway by over ten years. Further potential changes in operations to enhance efficiency would provide limited runway capacity benefit only in the short term which would not sufficiently meet the increase in runway demand between now and the RDP being delivered.

A parallel east-west runway system was identified as the preferred orientation for the RDP after completion of technical assessments and consultation and agreed to as part of the 2013 Master Plan.

A parallel east-west runway system will provide at least 25 percent more runway capacity than an additional north-south runway, provide a material safety benefit by reducing the need to cross live runways, reduce the distance aircraft need to travel to land.

Refinement of the RDP design and development footprint since 2014 has reduced the impact on the environment and community and is subject to a separate Major Development Plan (MDP) approval process.

#### 11.2.1.1 Introduction

Since the 1960s long-term plans for Melbourne Airport have envisioned a future four-runway configuration to cater for increases in air traffic movements. From 1990, these plans have identified parallel east-west and north-south runway systems as the preferred layout.

Current modelling indicates that demand for runway movements at Melbourne Airport will exceed the practical capacity of the current runway system by 2020. Aircraft movement demand is forecast to grow and without increased runway system capacity, this growth will create unacceptable delays and disruption to travellers and suppress market demand for travel to and from Melbourne. By 2022 it is estimated that the cost of delays to the airline industry alone will outweigh the cost to invest in the runway infrastructure proposed.

Melbourne Airport formalised the need for a third runway in the 2013 Master Plan and identified the preferred orientation for the next (third) runway as east-west. A number of factors were considered when selecting the preferred orientation including capacity, safety, community, environment, financial considerations and growth. The key advantage of the east-west parallel runway layout is that the existing Terminals Precinct will be located between the runways, facilitating efficient and safe aircraft movements without the 'live' runway crossings that would be necessary with a north-south parallel layout.

Following approval of the 2013 Master Plan, Melbourne Airport began the feasibility and early design work for the RDP (Figure 11-1). The RDP is proposed to comprise:

- a new 3,000-metre-long-parallel east-west runway (09R/27L) and associated taxiway network. The runway works have been designed to avoid encroachment into the escarpment of the Maribyrnong River to the west and south. Arundel Creek will be diverted under the new runway through a culvert
- a western and an eastern extension of the existing east-west runway (09L/27R) to increase the total length from 2,286 metres to approximately 3,378 metres, and associated taxiways. The eastern extension (27R) and associated safety area will avoid impacts on the current operation of Sunbury Road. The western extension (09L) will avoid encroachment into Deep Creek
- lighting and navigational aids, Runway 27L and 27R are planned to be CAT III capable
- alternate access to the Airservices' Air Traffic Control compound

- development of a temporary construction area between the future parallel runways to support the works, including construction access roads from the north and south. Once the new runway is operational, this area will be within Melbourne Airport's secure airside boundary
- provision for a new emergency access road for aviation rescue fire-fighting or a new station to comply with the emergency response times required by the new runway
- site works, including the installation of a new stormwater drainage network and installation of new services (water, electricity, sewerage, gas and communications) to support operations.

The parallel runway system proposed in the RDP can efficiently facilitate approximately 418,000 aircraft movements per annum as demand requires. Building an east-west parallel runway as the third runway defers the need for a fourth runway till after 2038.

The RDP is proposed to be constructed on Commonwealth land leased by APAM. As a 'major airport development' under the Airports Act, the project requires the preparation of a MDP to support the assessment and approval process. The MDP will address the requirements of the EPBC Act and other relevant environmental requirements. The MDP will be subject to approval by the Commonwealth Minister for Infrastructure and Transport pursuant to the Airports Act.

The final design of the RDP is subject to detailed design development, consultation with airlines and key stakeholders and construction feasibility. While the positioning of the new runway and runway extensions will be consistent with the location identified in this Master Plan, there may be some minor changes to the design and location of some elements such as taxiways and access to the Airservices' compound in order to optimise the airport's efficiency and functionality.

Construction is expected to take three to four years, with the runway system intended to be operational by 2023, subject to approvals, airspace changes and ongoing engagement with airlines.

### 11.2.1.2 Capacity Assessment

Melbourne Airport currently has two intersecting runways: a north-south runway (16/34) and an east-west runway (09/27). These runways are predominately operated in one of three mode groups:

**Table 11-1: Existing Runway Modes**

| Crossing Modes (preferred)   | High Capacity Arrival Mode (Land And Hold Short Operations LAHSO)  | Single Runway Modes  |
|--|--|--|
| Aircraft either land from the north on runway 16, and take-off to the west on runway 27 (when winds are south westerly) or arrive from the east on runway 27 and take off both to the north on runway 34 and to the west on runway 27 (when winds are north-westerly). | <p>Aircraft arrive simultaneously from the east on runway 27 and from the south on runway 34. While this mode is in operation aircraft depart to the west on runway 27.</p> <p>This is the highest capacity mode available today and is only used when there is a high arrival demand. The effectiveness of this mode is diminishing as the balance between arrival and departure demand in peak periods is becoming more even and the number of aircraft that are not approved to use this mode (predominately international aircraft) is increasing.</p> | All aircraft arrive and depart on the same runway. These modes are used when winds are too strong to allow crossing runways to be used. Any of the four runway directions may be used, depending on the prevailing weather conditions. |

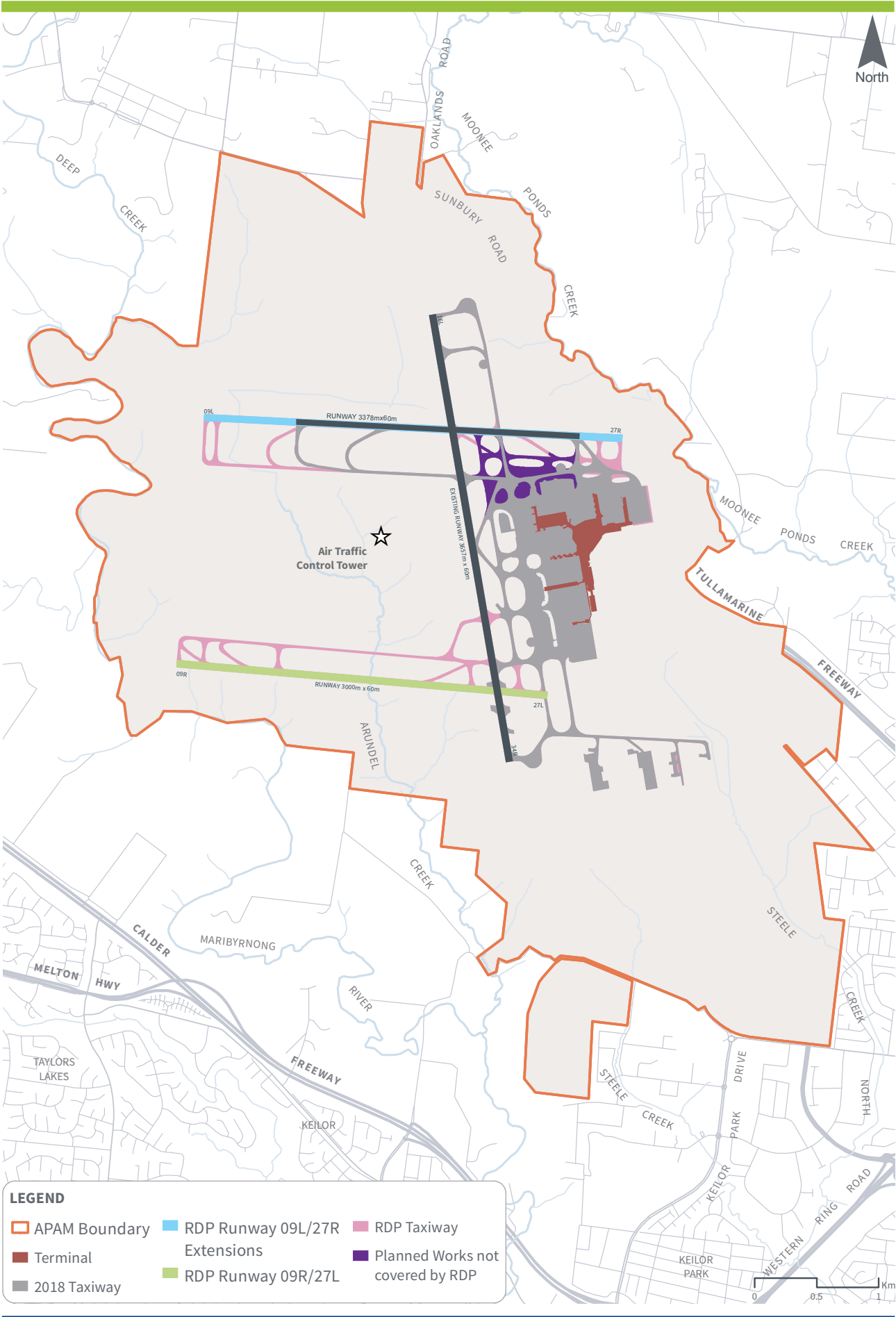


Figure 11-1: Runway Development Program



The existing crossing runway system at Melbourne Airport has been progressively optimised through a range of runway capacity enhancements, deferring the need for additional investment in the third runway.

The existing runway operating mode groups have theoretical capacities for total aircraft movement rates of between 48 and 60 per hour in good weather conditions. Runway capacity is significantly lower (between 18 – 40 movements per hour) in unfavourable weather conditions due to the additional separation required between aircraft. Figure 11-2 below indicates the current and proposed runway capacity increases for the key operating mode groups.

Scheduled demand consistently exceeds average runway capacity during busy weekday morning and afternoon peaks. The imbalance between peak demand and runway capacity results in delays, which are managed between airlines and Airservices Australia using a system (known as Metron) of planned ground delays, airborne holding and flight consolidation/cancellations. Action taken is tailored to daily scheduled movement demand, weather conditions and runway modes, both at Melbourne Airport and at other Australian ports.

The existing runway system is reaching practical capacity which results in delays and cancellations today as on-time performance (OTP) deteriorates and is expected to significantly worsen as demand increases. By 2023 the demand on the existing runway system is forecast to exceed capacity for the entire morning between 7am–12pm as well as most of the afternoon and evening peak periods.

### 11.2.1.2 Options Assessment

The Melbourne Airport site was originally selected because of the opportunity it provided for long term growth. The airport's long term plans have consistently documented the vision for a dual parallel runway system as part of the ultimate development concept for a four runway airport.

The assessment of runway capacity options and alternatives has also considered alternative approaches to meeting the forecast aircraft movement growth and demand at Melbourne Airport.

In the Melbourne Basin there are three other airports that could potentially be expanded to meet the future growth requirements, Essendon Fields Airport, Moorabbin Airport and Avalon Airport.

Essendon Fields Airport and Moorabbin Airport are domestic airports that play an important role in servicing regional point-to-point passengers, freight, general aviation and emergency services aviation activity which complements Melbourne Airport's role as an international and domestic hub.

These airports do not have comparable demand, capacity or infrastructure to Melbourne Airport. Melbourne Airport can provide the required infrastructure and additional capacity (particularly for international services) to meet demand relatively easily in comparison to alternative airports. As noted by the Australian Airports Association in their report on secondary airports in Australian cities (which includes Essendon Fields Airport and Moorabbin Airport), *Securing the Future of Australia's Metropolitan Airports* (AAA, 2014), the vast majority (87 percent) of Australia's Regular Public Transport (RPT) is through primary capital city airports, such as Melbourne Airport. As such, to transform these airports to provide the additional capacity to meet projected demand would require significant investment to finance the associated extensive works and supporting infrastructure, in turn potentially creating major adverse community impacts.

The expanded use of other airports is not considered an appropriate alternative as it would not meet aviation industry needs, particularly for domestic and international airline passenger expectations.

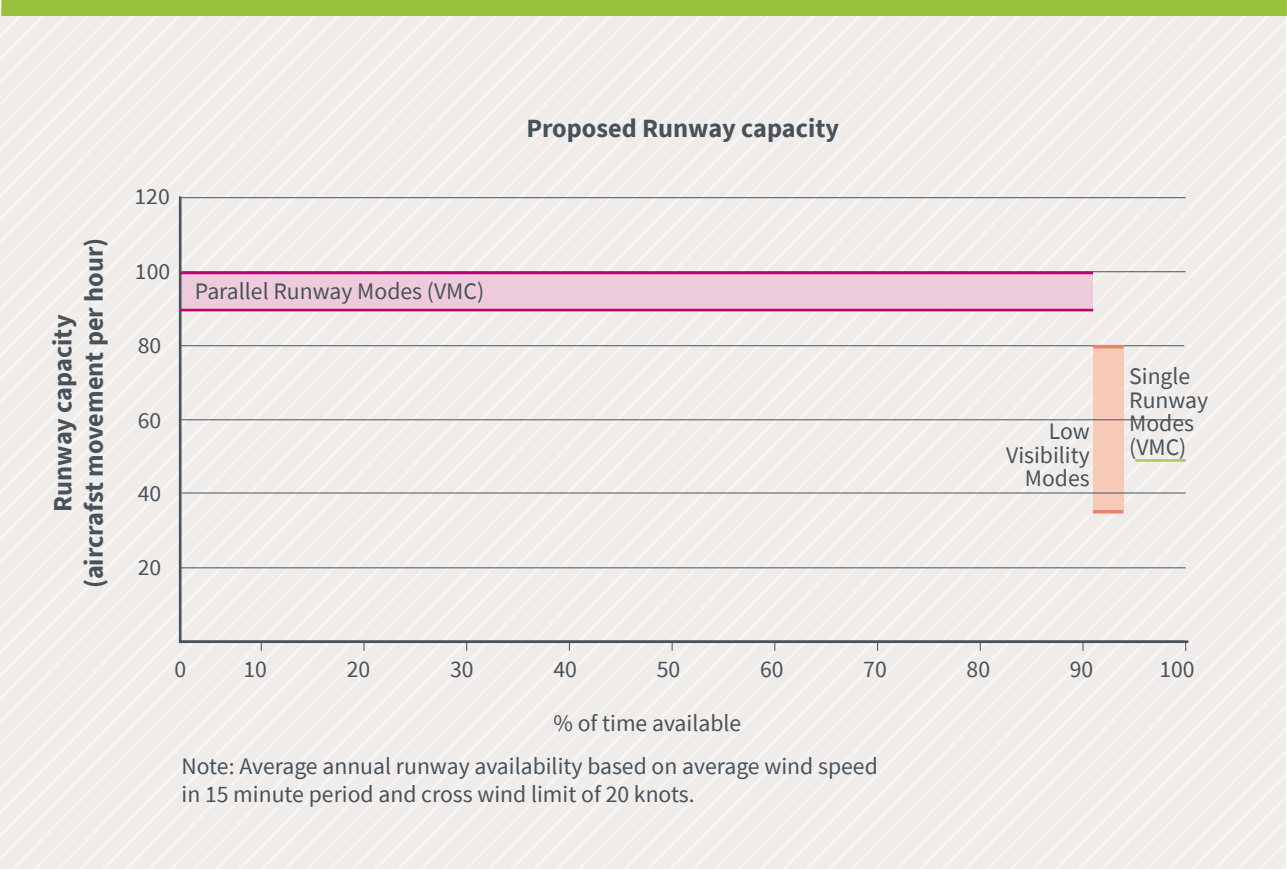
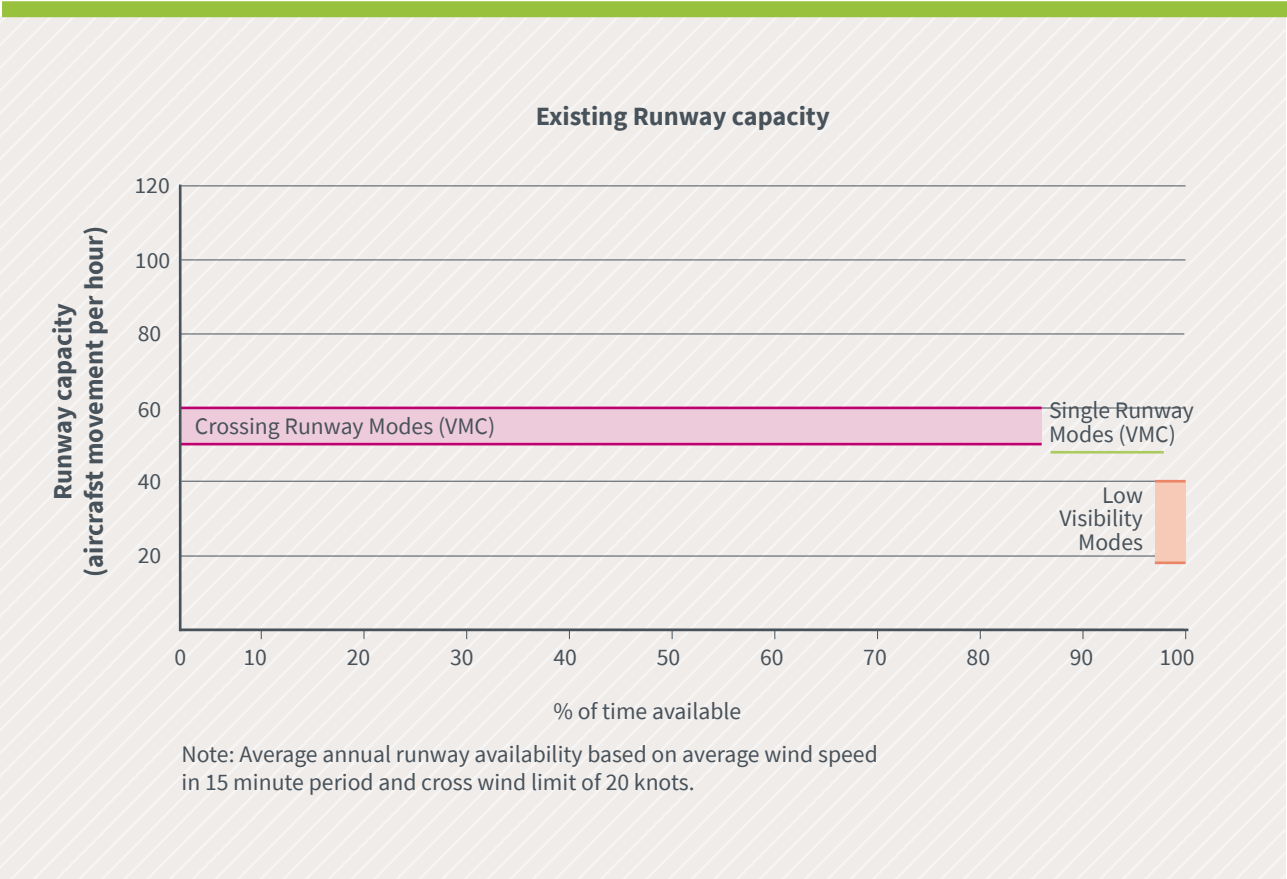


Figure 11-2: Increase in modelled runway capacity and availability

### 11.2.1.3 Orientation

The 2013 Master Plan identified the preferred orientation for the third runway as east-west. A number of factors were considered when selecting the preferred orientation such as capacity, safety, community, environment, financial considerations and growth. Since the 2013 Master Plan, Melbourne Airport has undertaken further analysis with air navigation service providers that has reinforced the advantages of the east-west orientation compared to the north-south.

A parallel north-south runway configuration would require aircraft using a new (western) north-south runway to cross the existing (eastern) north-south runway to access the terminal complex. This creates a high number of live runway crossings across the existing (eastern) north-south runway which introduces significant safety risks and reduces the capacity and efficiency of the north-south parallel runway system.

The principal advantages of the parallel east-west runway orientation are:

- It provides for greater capacity, approximately 25 percent more when compared with the north-south runway. The north-south runway system is projected to achieve approximately 72 movements per hour (reduced by runway crossings), compared to the 90 to 100 movements per hour for the east-west runway system.
- The east-west parallel runway system is forecast to reach capacity at least 20 years post opening. The north-south runway system is forecast to reach capacity approximately 10 years sooner.
- It is a safer runway system, due to the removal of live runway crossings (over 120,000 crossings per annum from opening year with a north-south parallel runway system) significantly reducing risk of aircraft runway incursions.
- There is greater compatibility with the existing terminal precinct, supporting the airport's growth over the next 20 years and beyond.
- Less supporting taxiway infrastructure will be required to facilitate aircraft traffic movement from opening day, reducing the cost of investment to the airline community.
- The runway resolves existing airfield bottlenecks and there is reduced taxi time, which in turn reduces greenhouse gas emissions, air emissions and ground based noise, compared with a north-south runway system. Taxiing time is approximately 25 percent more with a north-south runway system due to live runway crossing delays and associated runway departure queues.

- There is a significant reduction in impact on the Grey Box Woodland, which is a nationally listed endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)* and the Victorian Temperate Woodland Bird Community, which is listed as threatened under the *Flora and Fauna Guarantee Act 1988 (Vic) (FFG Act)*.
- Reduced greenhouse gas and emissions impacting air quality, due to less track miles and fuel burn associated with the east-west parallel runway system compared to the north-south runway system.
- The benefit cost ratio of the east-west runway system is higher than for the north-south runway system. The superior benefits for the east-west runway system are derived from lower delays to the airlines associated with a longer investment life. The cost to build the east-west runway system is also less than the north-south runway system.

As part of further assessment undertaken by Melbourne Airport and Airservices Australia, consideration was given to the comparative interaction for both parallel runway systems with Essendon Fields Airport. Essendon Fields Airport's main runway is its east-west 08/26 as this runway is its longest runway and has an instrument landing system. A north-south parallel runway system will cut across the flight track from 08/26, making Melbourne Airport and Essendon Airport operations more dependent than the east-west parallel runway system.

### 11.2.1.4 Benefits

In order to address the accessibility and growth requirements for Melbourne Airport and the national aviation network, and provide reliable and affordable air travel that gets passengers to their destinations when they want, the new parallel runway system is required between 2020 and 2022. Melbourne Airport is planning for an opening year for the RDP by 2023. This is based on a combined assessment of demand, capacity, delay, delivery timeframes and the cost benefit analysis.

The RDP will allow Melbourne Airport to meet growing demand for air travel to and from Melbourne, Victoria and Australia, as well as supporting the Australian aviation network's efficient operation. Benefits include:

- more reliable capacity to meet demand including during unfavourable conditions. Parallel operations will be available up to 95 percent of the year with up to 100 movements per hour achievable (compared to crossing runway availability today of 85 percent with an average achievable rate of 50 movements per hour)

- meeting demand for air travel across the Australian aviation network and international passenger demand
- open access for all services providing more destinations and greater frequency of services
- enhanced passenger choices, competition and affordable air travel
- better on time performance, less cancellations, better service and significantly reduced runway delay
- reduced airline costs caused by delays
- reduced fuel burn and emissions

Building the RDP will benefit the Victorian and Australian economies by enabling an additional 17.7 million passengers to use the airport every year by 2043. This will contribute an additional 51,200 jobs in Victoria and an additional \$15.9 billion per annum to Gross State Product over this period.

### 11.2.1.5 Implementation Plan

Four phasing options were identified for the delivery of the new east-west runway (09R/27L) and extension of the existing east-west runway (09L/27R). The options are summarised in Table 11-2.

It is noted that none of the phasing options considered just an extension to the existing east-west runway (09L/27R) as this would maintain the existing crossing runway system. Melbourne Airport is reaching the practical capacity of the current crossing system and a parallel system is required to address the current and future growth in passenger demand.

The options were assessed against eight criteria to inform the assessment of the preferred option. These are defined in Table 11-3, with the last two relating to community and environmental aspects.

Based on this assessment Option 4 resulted in the preferred solution to proceed for planning approval. Melbourne Airport will continue to work with industry stakeholders and airline customers to optimise the design and reduce the costs for delivering the required increase in runway capacity at the right time.

**Table 11-2: Runway design alternative options**

| Option   | Summary  | New east-west runway (09R/27L) | Existing east-west runway (09L/27R) |
|----------|--|--------------------------------|-------------------------------------|
| Option 1 | Minimum development consisting of a new east-west runway (09R/27L)   | 2,400m                         | No change – 2,286m                  |
| Option 2 | Minimum development of a new east-west runway (09R/27L) and extension of existing east-west runway (09L/27R)               | 2,400m                         | 3,378m                              |
| Option 3 | Extended development of a new east-west runway (09R/27L)   | 3,000m                         | No change – 2,286m                  |
| Option 4 | Full build - extended development of a new east-west runway (09R/27L) and extension of existing east-west runway (09L/27R) | 3,000m                         | 3,378m                              |



**Table 11-3: Runway phasing assessment criteria**

| Criteria  | Description   |
|---|---|
| 1. Add airfield capacity at the right time                | To provide additional capacity at the right time to meet forecast demand requirements and minimise delays   |
| 2. Maintain and enhance safety compliance and performance | To maintain and where possible enhance safety compliance and performance across delivery, airspace management and airfield operations and maintenance |
| 3. Ensure efficient airspace management                   | To ensure efficiency in the airspace management   |
| 4. Improve interdependencies with local airports          | To improve management of interdependencies with local airports, Airservices and CASA  |
| 5. Provide certainty of delivery and cost                 | To allow certainty of delivery timeframe and whole-of-life cost   |
| 6. Balance disruption with cost                           | To balance disruption to existing traffic against delivery cost   |
| 7. Strengthen relationships with community                | To strengthen APAM's relationship with the community, business and government   |
| 8. Environmental responsibility                           | To manage impacts on land, noise, emissions, water in a responsible way   |

#### 11.2.1.6 Planning Approval

A MDP is being prepared to support the assessment and approval process for the development of the RDP comprising the parallel runway system, new third runway, extensions to the existing east-west runway and associated infrastructure.

Matters that must be addressed in an MDP are set out in section 91 of the Airports Act and section 5.04 of the Airports Regulations 1997 (Cth) (Airports Regulations). The RDP MDP provides further detail about environmental impacts, aircraft noise and flight path procedures for the proposed new parallel runway system.

The MDP is structured to address the requirements of the Airports Act and DoEE RDP MDP Guidance Notes.

This structure is shown in Figure 11-3 and summarised below:

- Part A of the MDP provides the background and context of the RDP
- Parts B and C present the technical assessments undertaken to support the MDP, focusing on land-based impacts (airport) and air-based impacts (airspace)
- Part D presents technical assessments focussing on impacts to the community (economic, health and social)
- Part E details the management framework to be implemented and summarises the RDP impacts and commitments made in the MDP to mitigate these impacts.

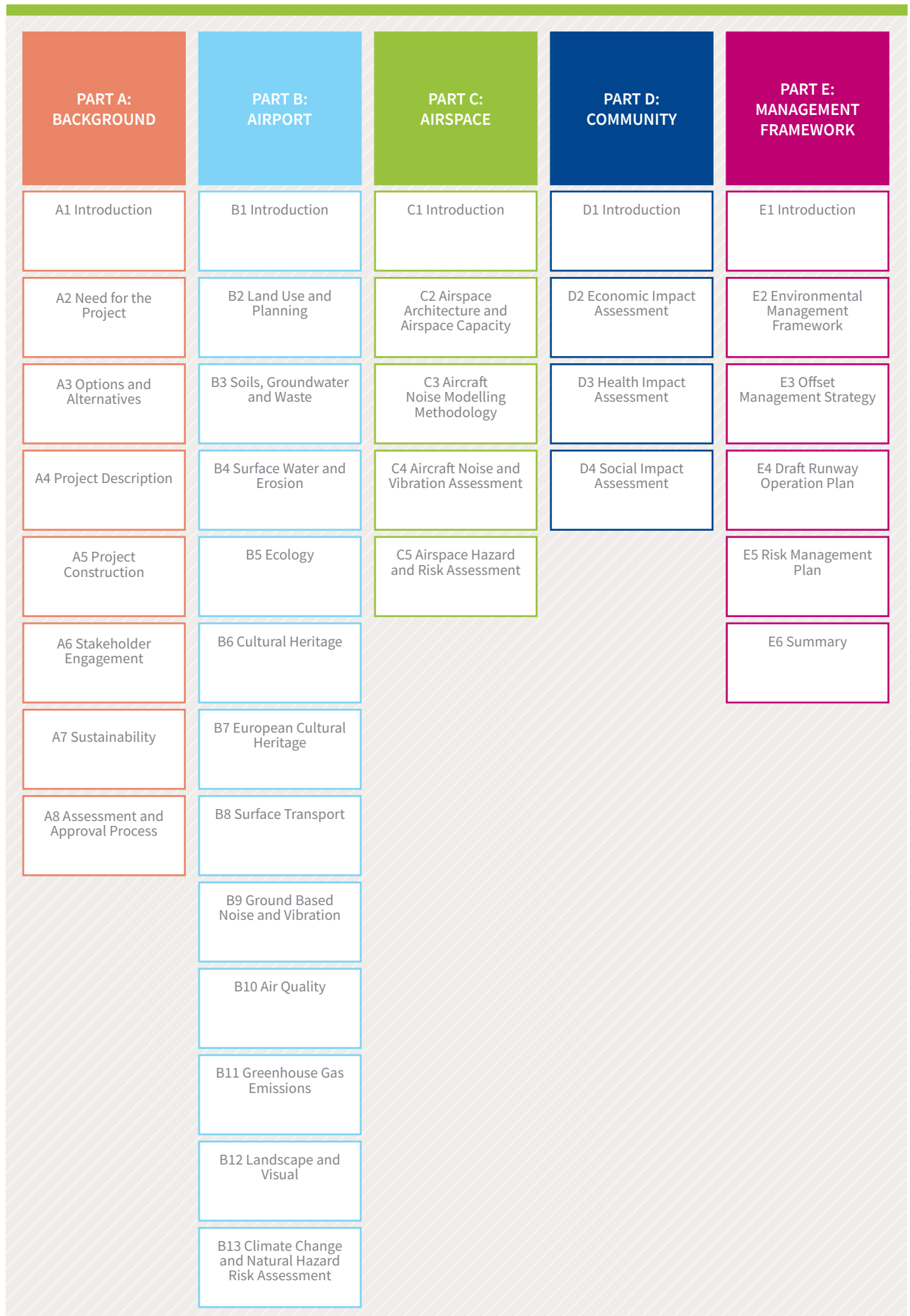


Figure 11-3: Runway Development Program MDP structure

The introduction and operation of the RDP within the five-year planning period has been taken into consideration in the development of the ANEF and other noise contours. Chapter 9 provides a detailed assessment of aircraft noise and flight paths, including a new ANEF for the airport.

It is important to note that most of the existing flight paths will remain and continue to be used from all runways. Indicative flight paths for the new runway have been developed in conjunction with Airservices and these will be progressively developed during detailed design processes over the coming years prior to runway operation. There will be times when high wind and certain aircraft operations (such as heavy aircraft flying to ultra-long-haul destinations and/or heavy freight operations) will require the existing north-south Runway 16/34.

### 11.2.2 Further runway enhancements

The Master Plan protects for a future extension to the northern end of Runway 16/34 to increase its length to 4,500 metres (Figure 11-4) and provides additional taxiway infrastructure on both sides of the runway to access apron areas both in the future midfield and current Terminals Precinct. An extension to this runway would allow aircraft to access ultra-long-haul destinations beyond the current distance capability of today's aircraft, which is approximately 14,000–15,000 kilometres.

The Master Plan proposes two extensions to the western and eastern ends of the existing Runway 09/27 in addition to runway widening to 60 metres. The RDP proposes a 746-metre western extension and 346-metre eastern extension that will result in a runway of 3,378 metres in length. The eastern extension (27R) and associated safety area will avoid impacts on the current operation of Sunbury Road. It will be safeguarded for a further extension to the east to allow a full runway length of 3,500 metres, which would require a relocation of Sunbury Road.

This runway will support the proposed parallel runway system, with capability to accommodate Code E and Code F operations. The efficiency of the extended and widened Runway 09/27 will be enhanced with new RETs in both directions to minimise runway occupancy time, enabling high-capacity parallel operations.

The Master Plan includes the proposed new Runway 09R/27L. The RDP proposes a 3,000-metre-long and 60-metre-wide runway. The new runway will include RETs to minimise runway occupancy time, enabling high-capacity parallel operations.

## 11.3 Apron and taxiway infrastructure enhancements

Various enhancements to existing apron and taxiway infrastructure will be required to support the additional capacity provided by the RDP. These include providing unrestricted dual apron perimeter taxiways, additional GSE apron areas and additional taxiway connections to the runway system.

Aircraft throughput and runway capacity can be optimised by decreasing runway occupancy time. Strategically located runway exit and entry taxiways will be sited to optimise access points for each type of aircraft and to reduce runway occupancy time below the ideal target average of 50 seconds per aircraft. By consistently meeting this target, the runway can operate with a higher level of predictability and throughput, which can facilitate additional arrivals and departures, thus enhancing overall runway capacity and reducing delays.

Adequate taxiway capacity and flexibility has a significant impact on the operation and flow of the airfield in multiple operating modes. Provision of taxiways with minimal aircraft size restrictions and capacity to allow two-way flow around the Terminals Precinct not only ensures safer operations for aircraft but also flexibility during periods of high demand or construction activity on the airfield.

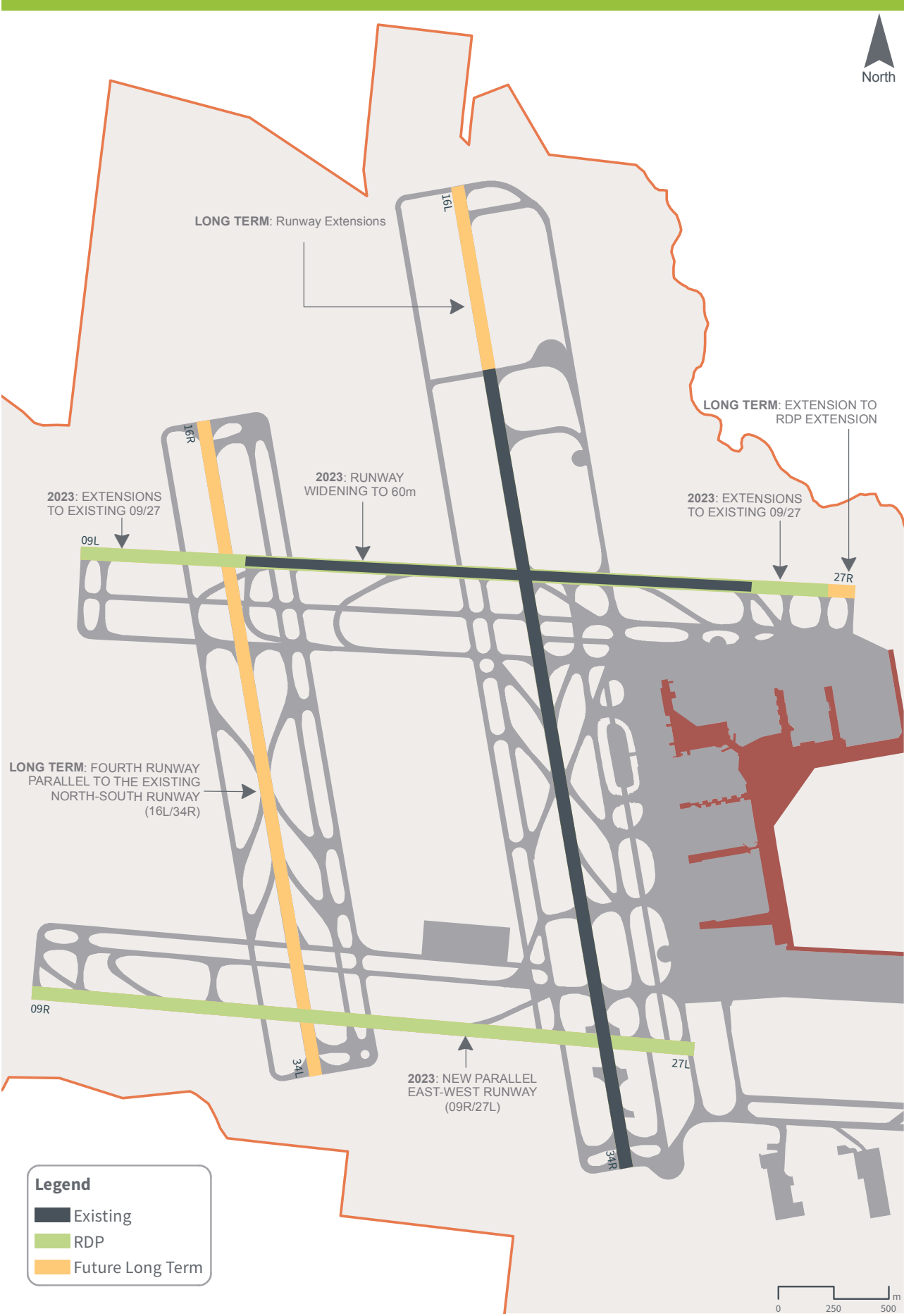


Figure 11-4: Long-term runway layout concept plan for Melbourne Airport





Figure 11-5: 2023 Development Concept Plan (extract) for Melbourne Airport

### 11.3.1 General taxiway improvements

The taxiway configuration at the airport will be enhanced as part of the RDP and other key taxiway projects by extending the existing taxiways, constructing new perimeter taxiways around the Terminals Precinct and RETs supporting runway capacity.

Taxiway Victor (north–south) was completed in 2017. In addition, Taxiway Zulu (east–west) is planned to be completed before the implementation of parallel runway operations, supporting long-term taxiway flows around the existing Terminal Apron Precinct. These critical developments will allow aircraft parking aprons and terminal concourses to be expanded as illustrated in the 2023 Development Concept Plan (Figure 11-5).

### 11.3.2 Taxiway Yankee

Taxiway Yankee will be extended to provide an additional arrival exit for Runway 16 or departure entry to Runway 34. Located before Taxiway Juliet, this Runway 16 exit taxiway will reduce runway occupancy time for large aircraft, increasing runway throughput. Taxiway Yankee can also serve as a potential intersection departure point for Runway 34 during north and north–west flow operations, particularly for aircraft located within the T3 and T4 terminal precincts. Taxiway Yankee will be an important access taxiway for aircraft movements to and from the proposed Runway 09R/27L.

Taxiway Yankee will be developed as part of the RDP and is expected to be operational within the Runway Development Program timeframes.

#### 11.3.2.1 Rapid Exit Taxiways

RETs aim to improve capacity during periods of peak runway demand. They help enable the majority of arriving aircraft exit the runway within the ideal 50-second target, allowing optimal separation of incoming aircraft.

The timing and benefits of RETs to support existing Runway 16/34 operational efficiency have been reviewed due to reduced runway capacity during construction activities. The RET implementation should ideally follow the proposed east–west parallel runway system to minimise existing capacity constraints.

The timing for future RET construction will be assessed and monitored based on demand triggers between five and 20 years. Their use will be limited to periods when wind conditions or operational procedures dictate the use of Runway 16/34.

## 11.4 Air traffic control operational enhancements

Melbourne Airport works closely with Airservices and airline operators as part of the Melbourne Airport Capacity Enhancement Working Group, which pursues local and national operational improvement priorities by optimising:

- runway occupancy time by collaborating with airlines on protocols for runway exit and departure procedures
- aircraft separation distances
- predictability of network system delays due to weather
- arrival and departure rates for runway operating modes.

By optimising arrival and departure rates, the working group has successfully increased capability in runway movements per hour between four percent and nine percent (i.e. three to four movements per hour) depending on the operating mode.

Additionally, the working group has overseen reductions of between two and 15 percent in arrival runway occupancy times. The working group has also implemented new runway separation and surveillance standards and continues to seek out initiatives and efficiencies to improve runway capacity in a collaborative manner.

The collective effect of taxiway and operational enhancements outlined is designed to minimise congestion and aircraft delays on the two-crossing runway system, with a view to supporting a future efficient parallel runway system. If the RDP MDP is approved, the operation of the airfield will transform into a parallel runway system, replicating the most efficient airport systems around the world.

While the efforts are essential to optimise the efficiency of existing runways, they ultimately cannot negate the need for new runways once certain levels of activity are reached, as expected in 2020/21.

## 11.5 Apron capacity enhancements

A strategic principle underpinning the Airside Development Plan is to progressively provide additional aircraft parking apron capacity to support airline growth and associated terminal development plans. This apron infrastructure requires additional taxiways to accommodate increasing aircraft movements as efficiently as possible and without significant congestion points.

This strategic approach will:

- optimise the efficiency of construction activity by consolidating works
- minimise operational impacts by taking advantage of taxiway closures to undertake concurrent works
- sever original taxiways to support terminal expansion in accordance with future demand triggers
- establish parallel taxiway infrastructure in the Northern Precinct by developing Taxiway Zulu and realigning Taxiway Echo.

This will enable expansion of the T1 and T2 terminal piers and apron areas by providing adequate aircraft access within and around the Terminals Precinct.

The apron developments within the five- and 20-year periods are shown in Figure 11-5 and Figure 11-6 respectively.

### 11.5.1 Pier Foxtrot apron works

This project is located at T3 Pier Foxtrot and is a combination of new and existing apron pavement of approximately 21,000 square metres. The apron will provide additional capacity capable of serving three Code E or five Code C sized aircraft concurrently. The project continues to safeguard the pavement for the planned extension of Pier Foxtrot.

The new apron severs Taxiway Sierra permanently in this location, an action made possible by the implementation of Taxiway Victor in late 2017, keeping dual taxiway flows north-south along the Terminals Precinct. The new aircraft parking area will be provided with fuel hydrants to enable high utilisation by international and domestic operations during their respective peak periods.

### 11.5.2 Apron infill north of Taxiway Tango

This apron development project will deliver three wide-body-sized aircraft stands. The apron will comprise 30,000 square metres between existing Taxiways Tango and Echo, directly north of the T2 Delta concourse. This apron expansion will support international operations with close proximity to the T2 precinct, enabling hydrant-fuelled aircraft stands capable of bussing operations.

These aircraft stands are anticipated to be delivered within the next five to 10 years and are positioned to enable future expansion of the T2 Delta concourse with minimal modification to apron infrastructure.



Figure 11-6: 2038 Development Concept Plan (extract) for Melbourne Airport



### 11.5.3 Existing Terminals Precinct apron expansion

Melbourne Airport has a range of long-term opportunities to expand apron area for adjacent terminal facilities. Any further expansion of apron areas should enable capacity and flexibility for long-haul, wide-body Code E/F aircraft as well as short-haul, narrow-body Code C aircraft through multiple-aircraft ramp system gates.

The current concept for the T2 apron expansion extends north from the existing Delta concourse, as previously envisaged in the 2013 Master Plan. The concept is one of a number of opportunities providing flexible gate infrastructure to service growth in aircraft parking demand. The completion of this concept for a T2 apron expansion in addition to the apron infill north of Taxiway Tango would result in a net increase of five wide-bodied aircraft stands over the next five to 10 years, with four of these capable of accommodating A380 (Code F) aircraft.

Within T1 there are several existing aircraft stands that could be upgraded to cater for wide-body Code E aircraft with the potential for connectivity to T2 for flexibility. Additional developments within the 20-year planning period will include expanding the T1 apron area to the east of Pier B. Access to the apron will be enhanced by developing the link from Taxiway Zulu through to Taxiway Romeo.

The apron development within the T1 precinct will add more parking capacity for several narrow-bodied (Code C) and wide-bodied (Code E and F) aircraft. This could be supported by a walk-out pier or the full development of Pier A with aerobridge contact stands. Planning for this development will be undertaken at an appropriate point in time, subject to monitoring and assessment of demand triggers.

The Airside Development Plan includes provision for an expanded GSE storage area adjacent to the T2 precinct. Since 2013 there has been a significant increase in GSE storage area, particularly in the Southern Terminal Precinct. A further expansion of GSE storage area will be provided in the Northern Precinct Delta GSE storage area to support the expansion of additional aircraft parking in the Northern Precinct.

### 11.5.4 Southern Terminal apron expansion

To accommodate long-term future aircraft demand, Melbourne Airport anticipates developing an apron expansion south of the existing Terminals Precinct. This apron will provide 13 new Code C aircraft parking stands with the opportunity to connect with a single-sided terminal pier. This opportunity maximises the use of the existing precinct with connectivity to the T4 ground transport hub. The apron expansion will require multiple taxiway realignments to provide for dual Code C taxi lanes and a progressive relocation of existing landside freight operations towards a future southern freight apron.

### 11.5.5 Midfield apron

To cater for the growth in aircraft activity forecast in the next 20 years, Melbourne Airport anticipates developing a further aircraft parking apron and associated support areas in the midfield. The midfield area is west of the existing north-south runway and between the proposed parallel east-west runways.

The midfield apron is expected to cater for approximately five Code E or 10 Code C aircraft parking stands for overnight parking for international and domestic aircraft.

### 11.5.6 Southern freight apron

Within the 20-year Master Plan period, a new freight apron will be developed in the south-eastern corner of the airfield. This significant precinct will ultimately provide up to 15 Code F sized aircraft parking positions, supporting Melbourne Airport's ability to handle approximately 30 percent of Australia's air freight.

Landside and commercial development has already begun in this area, with an element of the Melbourne Airport Business Park being established adjacent to the future apron area.

The southern freight apron will be developed specifically for freight operations, ensuring appropriate areas and aircraft parking stand depths are provided for staging and movement of large freight for nose-loading or belly-loading of aircraft. The planned first stage of the new freight apron will provide up to seven Code F sized aircraft stands and will be developed in accordance with appropriate freight demand triggers.

## 11.6 Long-term four-runway airside configuration

The long-term airfield layout allows for a fourth runway in a north–south orientation. The proposed fourth runway (approximately 3,000 metres long and 60 metres wide), designated 16R/34L, would lie west of the existing north–south runway (as shown in Figure 11-4). When the fourth runway is developed, it will operate in parallel with the existing full-length runway for ultra-long-haul departures.

In addition, this Master Plan protects a possible 843-metre extension of the northern end of the existing north–south runway (16/34) to provide a long-term runway length of 4,500 metres and a further eastern extension of the existing runway 09/27 to 3,500 metres.

The four-runway configuration will deliver greater annual capacity than a three-runway configuration. This assumption is based on an analysis of the current operating methods, long-term forecasts and assumed daily average delay of six to 10 minutes per aircraft.

When excessive crosswinds occur that preclude parallel east–west runway operations (during the three-runway configuration), the airport will operate on a single runway. The greatest benefit of the four-runway configuration is that parallel runway operations will be possible at all times, maximising operational flexibility for air traffic control. This will be critical to avoid significant delays in future years as traffic grows.

This four-runway configuration, with parallel east–west and parallel north–south runways, is currently foreseen to be implemented beyond 2040 (based on current forecasts) to support the long-term capacity of Melbourne Airport.

It is important to note that, in coming decades, operating procedures, navigational technology and aircraft will continue to change and improve. This could result in better operational throughput on the runways and ultimately higher capacity than currently envisaged.

Future Master Plans will continue to reassess and report on runway capacity, runway geometry and the long-term capacity of the current and future runway configurations planned for the airport.

## 11.7 Future navigation facilities and services

### 11.7.1 Air Traffic Service Centre

Airservices, as part of the OneSKY program, is investing in the Air Traffic Service Centre Extension and Equipment Room Project. The project includes the extension of the existing Air Traffic Service Centre and associated supporting infrastructure and the development of a new equipment room at the existing compound, which Airservices subleases from Melbourne Airport.

The project represents a significant part of the OneSKY program to improve air traffic management capabilities across Australia. The main objective of the project is to prepare the Melbourne Air Traffic Service Centre buildings and infrastructure to enable installation and operation of the Civil and Military Air Traffic Control System and to extend the design life of supporting infrastructure to meet current and future capability requirements as well as current building codes and standards.

#### 11.7.1.1 Precision approach ground-based augmentation system

The Ground-Based Augmentation System, a satellite-based precision landing system, is likely to replace existing instrument landing system technology in the future as more aircraft rely on global positioning system (GPS) technology over legacy radio wave systems.

The system is a critical component of Australia's next-generation air traffic management infrastructure and uses GPS signals to provide aircraft with precise guidance during the final stages of an approach to land. This technology allows for a safer, more efficient descent and landing for aircraft.

While the Ground-Based Augmentation System was operational in 2017, it is expected in future to support additional functions to improve airport capacity with simultaneous operations on parallel runways and in all weather conditions, which will reduce runway occupancy times and increase overall system capacity.

# 12.0

## Terminals and Aviation Development Plan

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*This section describes the Terminals and Aviation Development Plan for Melbourne Airport, highlighting the key investments needed for the terminals and surrounding infrastructure to cater for forecast passenger growth.*

## 12.0 Terminals and Aviation Development Plan

### KEY FEATURES



#### ADDITIONAL INTERNATIONAL TERMINAL CAPACITY

- plan for additional international terminal capacity
- expanded Arrivals Hall
- extended piers



#### EXPANSION OF EXISTING TERMINAL FACILITIES

- enhanced passenger facilities and experience
- improved check-in and bag drop-off facilities
- improved and expanded security and immigration facilities
- new lounges

### 12.1 Overview

Well-planned terminals and associated support facilities are the foundation of the successful future growth for Melbourne Airport. From its inception, Melbourne Airport has been granted a competitive advantage with a single integrated Terminals Precinct (Figure 12-1). With carefully planned, incremental enhancements of terminal facilities, Melbourne Airport has been able to offer its customers improved operating efficiencies and an exceptional airport experience for its passengers throughout the Terminals Precinct.





Figure 12-1: Melbourne Airport Terminals Precinct in 2038

## 12.2 International terminal

International traffic growth has been outpacing domestic growth, and in the next five years T2 will develop additional capacity to meet the continued forecast increase in demand and maintain acceptable levels of passenger and airline service.

By 2038 Melbourne Airport is expected to accommodate more than 20 million international passengers and more than 81,000 international aircraft movements per year. The international one-way peak passenger volumes are expected to increase from approximately 2,900 to approximately 4,900 passengers per hour, or more than 60,000 arriving and departing passengers during a typical busy day in 2038.

T2 developments in the next five years are planned to include:

- new international capacity through developing four Code E domestic-international swing gates, utilising latent capacity at nearby domestic piers by repurposing infrastructure to serve peak international operations
- additional hydrant-fuelled remote Code E aircraft parking stands for international operations
- more international bussing facilities to cater for peak demand
- next-generation automated self-service kiosk and bag-drop check-in facilities that are more self-sufficient
- additional self-service outbound immigration facilities
- expansion of the existing outbound security processing area with next-generation security screening technology
- additional baggage make-up and baggage reclaim facilities
- more airline lounges
- expansion of the ground-level Arrivals Hall, improving the traveller experience and journey
- enhancement of the general passenger experience through continual upgrades of retail offerings, the departures lounge and airline lounges.

Beyond the expansion projects outlined over the next five years, T2 will require further significant expansion. It is estimated that the international terminal footprint will double to accommodate international passenger demand by 2038. Based on the 2038 Development Concept Plan (Figure 8-2), T2 will increase overall capacity through the following developments:

- extension of the existing Pier D to provide five additional Code E/F contact stands
- the delivery of remote Code E/F aircraft parking stands in the midfield to accommodate international aircraft on the ground during international peak periods
- expansion of retail and passenger lounge facilities
- expansion of Australian Border Force secondary examination facilities
- further expansion into adjacent terminal piers to enable:
  - » improved utilisation and shared use of key assets during different peak periods
  - » increased availability of contact aircraft parking stands during peak periods
  - » improved passenger facilities and amenity.

## 12.3 Domestic terminals

Expansion and further development of the domestic terminals at Melbourne Airport over the next five-year period will continue to focus on utilising latent airside capacity and improvements to operational efficiencies within T1, T3 and T4, both on the airside and terminal processes. The following projects will support the near-term domestic passenger growth:

- improved and realigned self-service check-in facilities in T3
- a new T3–T4 landside connection before security to facilitate improved flow of passengers between terminals
- reconfiguration of vertical transport and straight-line security processing within T3
- redevelopment of Pier F to provide an improved passenger experience through additional aerobridge aircraft parking stands as well as additional retail facilities.

In the long-term view to 2038, domestic terminal facilities will be required to accommodate more than 45 million domestic passengers and more than 294,000 aircraft operations per year.

Additionally, the number of daily domestic aircraft movements is expected to grow from approximately 600 to more than 900 on a typical busy day.

Based on the 2038 Development Concept Plan (Figure 8-2), the domestic terminals will increase capacity through the following key developments:

- continued integration of swing domestic–international aircraft parking facilities at Pier C (T1) and Pier E (T3)
- expansion of T4 or addition of a T5 to the south, maintaining the integrated terminal concept with extensive passenger processing facilities, landside connectivity through the T4 ground transport hub and new commercial developments integrating with the Terminals Precinct
- provision of an inter-terminals mode of transport, such as travellerator and/or automated passenger mover, to enable seamless integration and accessibility of the Terminals Precinct
- a new single-sided pier in the south of the Terminals Precinct with an additional 13 Code C aircraft parking positions
- extension of Pier B in T1 and the provision of aerobridge aircraft parking stands and associated passenger facilities
- extension of aerobridge aircraft parking stands at Pier E in T3
- redevelopment of Pier G in T4 to expand the terminal's footprint and passenger processing facilities
- expansion of aircraft parking apron areas into the midfield to support increased overnight aircraft parking demands.

## 12.4 Freight terminal

The Master Plan proposes that the dedicated freight facilities are relocated and redeveloped in the south-eastern precinct of the airfield. The relocation of the freight terminal is to accommodate passenger terminal expansion (future T5 and Pier H) and a third runway.

The overall freight movement is expected to reach 900,000 tonnes per annum by 2038. Applying planning parameters, this translates to a requirement for a minimum of 10 (four Code C, four Code E and two Code F) dedicated freighter stands to be developed by 2038. The minimum associated warehouse and handling facilities required to support this operation amounts to approximately 140,000 square metres.

Freight operators' support facilities will be allocated within Melbourne Airport Business Park, where an airside and landside access can be accommodated. Refer to section 13.3 for further detail.

## 12.5 General aviation facilities

In 2018 the Melbourne Aviation Precinct will begin operating a VIP private jet base. Located in the south-eastern corner of Melbourne Airport precinct, it will cover a gross footprint of 35,000 square metres. This private jet base will service the important private jet market at Melbourne Airport by offering world-class customer service and security and privacy to VIP customers.

The proposed jet base will comprise a hangar to accommodate 17 long-distance jets at any one time, basement car park, a small museum, an exclusive boutique hotel with business and conference facilities and aviation support facilities.



## 12.6 Aircraft maintenance facilities

Globally, airlines focus heavy aircraft maintenance at dedicated maintenance centres. Depending on the aircraft's maintenance schedule, these activities can take place at the overnight parking stands close to the terminals, or in the aircraft maintenance (hangar) areas.

A verification of the need for future maintenance, repair and overhaul facilities, based on forecast traffic, has confirmed that the safeguarding and land uses earmarked for it in the previous Master Plan is sufficient for this planning period. Local maintenance is likely to be a requirement for many years to come, and Melbourne Airport will continue safeguarding such activities to ensure general maintenance and aviation support facilities.

## 12.7 Other aviation support facilities

The Master Plan makes provision for space to service a range of aviation support and ancillary activities that need to be located appropriately, as per their service function. Adequacy of the land-use reserve for the future has been established for these facilities, which include:

- aviation rescue and firefighting stations
- GSE and unit load devices storage areas and associated workshop facilities
- flight catering facilities
- independent freight forwarders and logistical integrators warehouses
- terminal and airport maintenance facilities
- joint user hydrant installation and associated aviation fuel storage and handling facilities.

## 12.8 Aviation fuel facilities

Aviation fuel storage facilities at Melbourne Airport must meet increased fuel demands and ensure the airport retains sufficient on-site storage. Melbourne Airport currently has a daily fuel demand of six million litres, with on-site storage capacity of 6.8 million litres. The industry benchmark for on-site storage capacity is three days' storage, meaning that up to five 10-million litre tanks are required to meet 2038 forecast demand of 67.8 million passengers. The requirements of this infrastructure and associated land of 16 hectares are shown in the airport Land Use Plan, classified as aviation support.



# 13.0

## Non-Aviation Development Plan

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*This section describes the Non-Aviation Development Plan for Melbourne Airport based on the key commercial investments considered appropriate on the airport site to support economic activity and allow expansion of key support industries for the aviation, freight and logistics sectors.*

## 13.0 Non-Aviation Development Plan

### KEY FEATURES



#### EMPLOYMENT & ACTIVITY CENTRE

Continue to develop Melbourne Airport as an important employment and activity centre



#### DEVELOP THE SURROUNDING 265 HECTARES

Further develop the 265 hectares of vacant land for commercial and complementary development

### 13.1 Overview and objectives

Non-aviation development plays a vital role in Melbourne Airport's economic vitality and complements its key functions. It supports the airport's growth and diversifies business risk, enhancing the contribution it makes to the broader community and underlining its importance as an activity centre.

The airport occupies 2,663 hectares of leasehold land, which offers ample opportunity for commercial developments that complement current aviation activities and support aviation-related growth.

More than 134 hectares have been developed for non-aviation use in the Landside Business Precinct at the southern end of the airport. Non-aviation development has focused on industrial warehousing, reflecting the airport's location in the northwest of Melbourne, its strong freeway connections and the land size available for development.

The airport has approximately 265 hectares of vacant land available for commercial development (land that will not be required for aviation purposes).

Non-aviation development will be undertaken in accordance with the airport's Planning and Design Guidelines. The objectives of non-aviation development are to:

- protect the airport's long-term viability
- plan and make provision for constructing world-class facilities that will benefit airport stakeholders
- encourage developments that achieve the highest standards in sustainable environmental development, safety and security
- encourage developments that complement the airport's key functions and can support aviation activities.

The remainder of this section will describe current non-aviation developments and outline the airport's vision for non-aviation development. It is supported by the airport growth forecasts, airport land use plan and ground transport development chapters. The airport has defined a number of areas within the two landside precincts where non-aviation development will be undertaken (Figure 13-1).

## 13.2 Landside Main Precinct

The Landside Main Precinct is the gateway to the airport for most people. It provides access to the terminal facilities via the freeway and road networks.

### 13.2.1 The Forefront (previously known as Gowrie Park)

This area of the airport is the most visible because it is bounded by the main entry and exit points to the Tullamarine Freeway. Given the high exposure of this area and its road access, the airport ultimately proposes a number of high-value and high-density commercial uses for the site such as offices, hotels, retail showrooms, petrol stations and car parking. The majority of these developments would be for mixed use, with buildings of between three and nine levels, and various uses occurring across those levels.

Over the next five years, development will focus on expanding the existing facilities and lower density commercial uses, ensuring The Forefront exploits its high exposure characteristics while providing amenity to the airport and its customers. As ground transport access improves and the characteristics of the north-west of Melbourne change, increased demand for the high-density development is anticipated, with facilities such as hotel and office accommodation needed to support the growing population of the region.

### 13.2.2 The Hive (previously known as The Square)

The Hive is located along the western side of Centre Road in the southern half of the Landside Main Precinct. The 2.3-hectare site houses 10,160 square metres of office accommodation in various buildings and formats. The site can support approximately 43,840 square metres of accommodation in office and hotel formats, mainly for aviation-related occupiers (given its proximity to the terminals).

Over the next five years the airport plans to build additional facilities, with 15,730 square metres of hotel accommodation in two buildings (supported by ground floor amenity such as cafés, bars and restaurants) and 8,092 square metres of office space. These developments will support the airport's customer and business community, providing additional space to support the increasing passenger traffic flows and demand for accommodation at the airport.

### 13.2.3 Car rental back-up area

The car rental back-up area totals some 11.5 hectares and is located north and south of Francis Briggs Road in the southern area of the Main Precinct. The area currently provides 100,000 square metres of at-grade parking facilities, shared by car rental, valet and bussing operators.

The area is completely developed and, given the need to provide back-up facilities for car rental, valet and bussing operators, the airport anticipates the need for an area such as this to continue and possibly even grow. As the area is completely built out, these facilities may need to be expanded through higher density usage (such as multi-deck parking) and supported by ancillary facilities (such as petrol and car wash facilities and limited retailing operations). Over the next five years this area will be consolidated to improve the efficient use of the site.

## 13.3 Landside Business Precinct

The Landside Business Precinct occupies the southern part of the airport and adjoins the southern part of the airfield area (Figure 10-2). This precinct houses the aviation maintenance areas as well as other non-aviation-related activities.

### 13.3.1 Melbourne Airport Business Park

The Business Park is located in the southern area of the airport. It is an established area of around 311.8 hectares, including the area previously referred to as the Melbourne Airport Cargo Estate (MACE). Although more than 122 hectares of land has already been developed, there are still 190 hectares of vacant land available for development.

Within the main area of the Business Park, the airport intends to continue development focusing on large industrial warehouses (of 10,000 to 100,000 square metres), taking advantage of its strong road network connectivity. At the northern end of the Business Park, in the former MACE area, the focus will be on smaller scale warehouse units, providing industrial and office facilities for aviation and non-aviation-related uses. The location and design of these buildings is such that aviation-related operators, such as air freight operators, can be provided with facilities that have an airside and landside boundary (i.e. air freight industry).

Trunk infrastructure (roads, water, sewerage, electricity) is a critical element to the success of the airport, and within the Business Park significant additions have occurred over the past five years. The construction of Airport Drive resulted in a four-lane road linking the Western Ring Road to the airport that is capable of carrying B-triple vehicles. The development of Airport Drive facilitated a number of additional infrastructure stages – the realignment and expansion of Link Road, the extension of Sky Road East, the expansion of the middle section of South Centre Road, a new connection into the airport off Melrose Drive (via a new road, Watson Drive) and the extension of MACE Way (connecting it into the realigned Link Road).

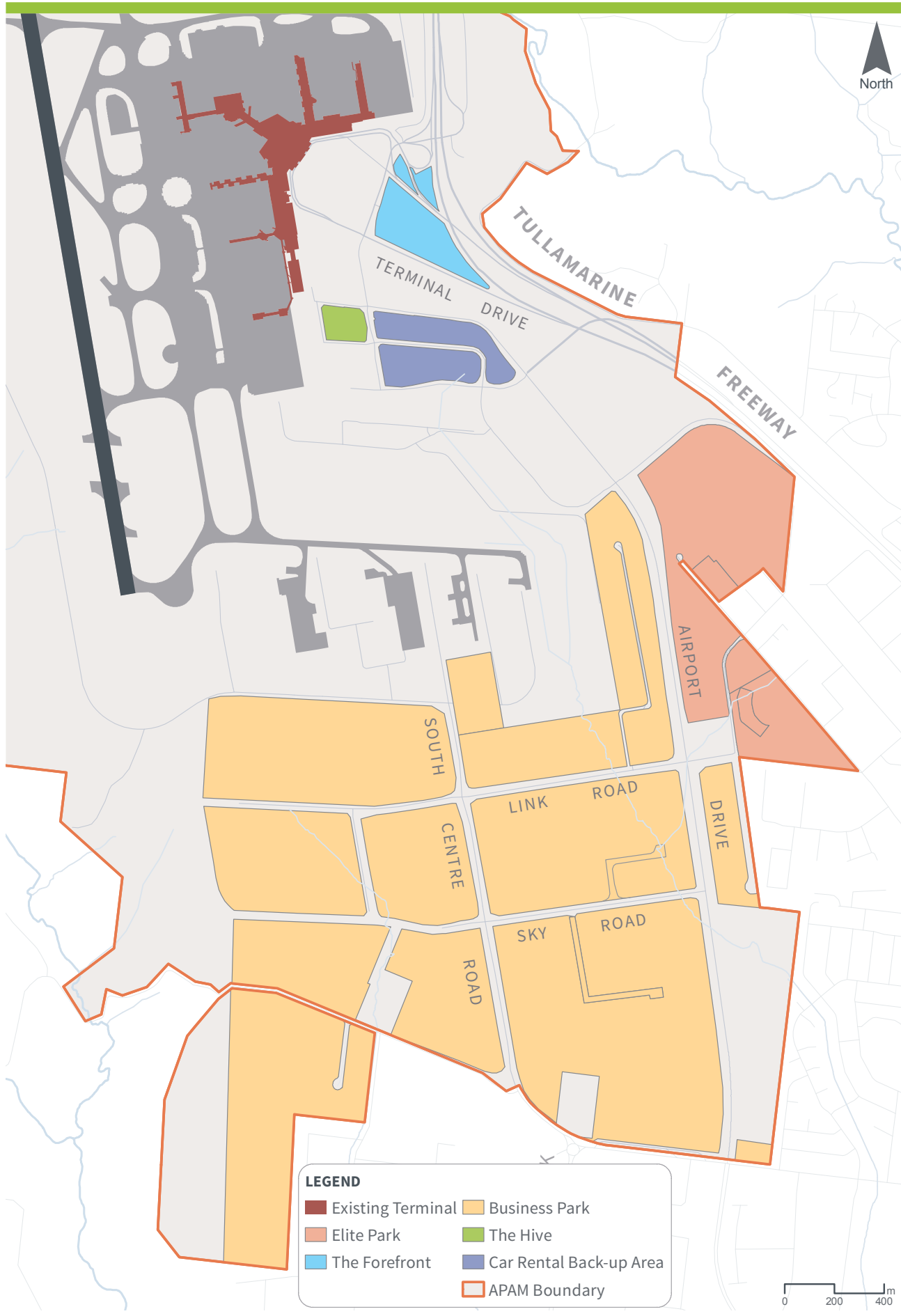


Figure 13-1: Non-aviation development areas at Melbourne Airport



Developments within the Business Park itself stimulated the addition of road infrastructure, with Steele Way constructed to support the development of the Toll Ipec and Bollore warehouse facilities. These additions to the airport's road network were necessary to support its continued growth, and further infrastructure will be added to support the Business Park's growth. Within the next five years it is expected that Sky Road will be extended in a westerly direction, adding a further 800 metres of road and trunk infrastructure assets.

Ultimately, the airport expects to develop the full 311.8 hectares, providing freight and industrial warehouse facilities totalling some 1,415,000 square metres (including supporting developments and small-scale retail amenities). Over the next five years the airport is targeting additional development (within the Business Park) of 76,000 square metres of land per annum, but this will depend on the state of the property market at the time. In addition to industrial warehousing, the airport expects to add supporting and complementary developments such as small-scale retail amenities (e.g. cafés), offices, additional hotels and petrol stations.

### 13.3.2 Elite Park (previously known as the Gateway site)

The 54.3-hectare Elite Park occupies a visible position along both the Tullamarine Freeway and Airport Drive. Due to its high exposure, the airport has planned the site for high-value commercial developments focused on sporting, leisure and customer experiences in addition to the more traditional urban commercial developments such as low-density offices and ancillary retail.

The site is currently home to three occupiers:

- the Qantas Joey Club Childcare Centre (a facility providing childcare facilities for Qantas and Airservices staff)
- the Hanrob Pet Hotel (a 1,700 square metre warehouse providing first-class pet hotel facilities)
- Essendon Football Club's training and community facility (providing 10,000 square metres of administration and indoor training areas, two full-sized football ovals and five hectares of landscaped environment).

It is anticipated that Elite Park will evolve over time, initially (over the next five years) with leisure and customer experience facilities (that build off the existing facilities and tenants), and ultimately as a mixed-use environment with the addition of higher value, higher density developments to support the existing facilities.

As with the other estates, trunk infrastructure will need to be added to facilitate the growth of the site and ensure its use does not impact upon the local environment.

## 13.4 Impacts of non-aviation development

Non-aviation development at Melbourne Airport is consistent with general urban planning arrangements in the northwest of Melbourne, including Plan Melbourne, the Hume Planning Scheme and also the National Airports Safeguarding Framework. Within the Hume Municipal Strategic Statement (MSS) (under Clause 21.01-1) Melbourne Airport is designated as a Transport Gateway and is recognised as 'one of Victoria's key strategic assets and economic drivers...' and 'is one of the largest employment generators in Melbourne.' Further, the Hume MSS also seeks (at Clause 21.02-2 Strategy 7.1) to 'support land-use and development within the airport precinct that is consistent with its specialist function as a Transport Gateway.'

The Hume MSS (Clause 21.03) recognises 'the importance that Melbourne Airport has as an employment generator and hub for associated business investment'. Significantly the Hume MSS (Clause 21.03-5) states that 'limited potential exists for new industrial and transport-related development beyond land that has already been zoned in Gladstone Park/ Tullamarine for this purpose. However, a large supply of undeveloped land suitable for industrial and business use is available within Melbourne Airport.'

The Master Plan and Activity Centre Zone provide for complementary retail and commercial development to occur on land not required for aviation uses. There are no specific developments proposed in this Master Plan that are likely to adversely affect the local or regional economy or conflict with the objectives of surrounding planning schemes. In addition, the non-aviation landside precincts provide an important physical buffer between the 24-hour airport operations and residential areas. This pattern of development is complementary to other activity centres near the airport, making good use of available infrastructure.



# 14.0

## Ground Transport Plan

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*This section describes the Ground Transport Plan for Melbourne Airport based on the investments needed to cater for increased travel to the airport from passengers, employees and freight vehicles.*

## 14.0 Ground Transport Plan

### KEY FEATURES



#### INTERNAL ROADS

Continue to extend and expand the capacity of the internal road network



#### ENHANCE SAFETY

Enhance the safety and capacity of the forecourt and parking areas



#### EXTERNAL ROADS

Work with the Victorian Government and private operators to improve the external road network to Melbourne Airport



#### FUTURE RAIL LINK

Work with the Victorian and Commonwealth governments to plan for a future rail link to Melbourne Airport

### 14.1 Overview

The Ground Transport Plan sets out the actions required to address the forecast increases in passenger, employee and commercial vehicle travel to Melbourne Airport.

In particular, the plan continues the development of a long-term solution to address congestion in the peak periods and details opportunities to increase the use of mass transit and to manage travel demand through infrastructure and non-infrastructure solutions. By delivering these actions, transport access to the airport over the Master Plan period will significantly improve.

The first five years of this Master Plan will see significant investment in Melbourne Airport's internal road network. This period will also see Melbourne Airport take a proactive role in planning medium-term and long-term infrastructure initiatives (including a rail link to the airport) and developing travel demand measures.

Beyond the five-year period, Melbourne Airport will build on the initiatives identified in the five-year plan to realise its vision for an interconnected ground transport system that supports safe, efficient and reliable journeys for all modes of transport and airport users.

The Ground Transport Plan focuses on Melbourne Airport's strategy for moving people and freight at the airport, and access to and from the airport based on the aviation and non-aviation developments identified in this Master Plan. It does not consider the construction traffic impacts of any specific project during construction (e.g. the RDP) as these impacts will be considered as part of the Major Development Plan approval process.

## 14.2 2023 Ground Transport Plan

Melbourne Airport's five-year Ground Transport Plan is structured around delivering on five strategic objectives:

- increase terminal access and egress capacity to accommodate the forecast passenger demand
- expand forecourt capacity to meet forecast passenger demand
- improve the safety and experience of passengers by reducing vehicle–pedestrian conflicts in the forecourt and increasing the separation distance between vehicles and the terminal building
- accommodate increases in freight movements in and around the cargo estate and the Melbourne Airport Business Park
- manage travel demand, particularly for employee travel.

Melbourne Airport's plan to deliver on these strategic objectives is described below.

### 14.2.1 External road network

Road access to Melbourne Airport is provided from the north (Sunbury Road), south (Airport Drive, South Centre Road, Watson Drive) and the southeast (Tullamarine Freeway). The Tullamarine Freeway carries approximately two-thirds of all airport traffic, leading to congestion in peak periods.

Since 2013 the external road network has been extensively upgraded, with the CityLink Tulla Widening project adding northbound and southbound lanes between Melbourne Airport and the city. This project is expected to significantly reduce congestion and travel times for peak-hour trips to and from the airport. With the project due for completion in 2018, no further system improvements in the vicinity of the airport are expected to be required within the next five years.

Nevertheless, there is an ongoing opportunity to improve the use of network infrastructure. Through improved static and dynamic wayfinding, and additional travel time information on the Western Ring Road and surrounding arterial road network, Melbourne Airport hopes to encourage a redistribution of traffic away from the Tullamarine Freeway to Airport Drive (particularly for traffic from the west). Melbourne Airport has been working with VicRoads to deliver these changes as part of the M80 Ring Road upgrades.

### 14.2.2 Internal road network

An expansion of the on-airport road network is required to address existing peak-hour congestion issues and to accommodate future growth.

Within the next five years, access improvements will focus on targeting critical congestion points on the network leading into the airport, in particular Departure Drive and the intersection of Centre Road and Terminal Drive. This will be achieved through an extension of elevated road concept first proposed in the 2013 Master Plan.

Figure 14-1 shows the details of these road improvements.

Key segments of the network to be progressively delivered in this Master Plan period include:

- a new, direct connection from the Tullamarine Freeway into the T4 ground transport hub
- the construction of a one-way elevated road, connecting the existing T4 ramp into a reconfigured T123 ground transport hub, allowing intersection-free access to all terminal precincts
- an elevated connection from the reconfigured T123 ground transport hub directly into Departure Drive (for drop-off traffic)
- an elevated connection from the reconfigured T123 ground transport hub directly into Melbourne Drive (for pick-up traffic).

The new infrastructure will be supported by intersection upgrades to accommodate the changed travel patterns, as well as the implementation of intelligent transport technology (e.g. lane-use management systems and variable messaging signs) to improve passenger wayfinding and better manage the operation of the network.

It is intended that the new elevated network will be used for drop-off, pick-up and some parking functions and will provide the opportunity to remove all traffic off Departure Drive. This will reduce pedestrian–vehicle conflict, provide greater pedestrian priority at the departures level of T1, T2 and T3, and increase the separation distance from the terminal building. These actions build on the approach that was successfully applied in the T4 ground transport hub.

The at-grade network will continue to be used as the primary circulation network for commercial passenger vehicles (e.g. shuttle buses, coaches, rideshare and taxi), public transport vehicles, employees and freight traffic. The reconfigured access arrangements will remove a significant volume of traffic off the current at-grade road network, thereby improving the level of service for other airport users, including employees and commercial traffic.

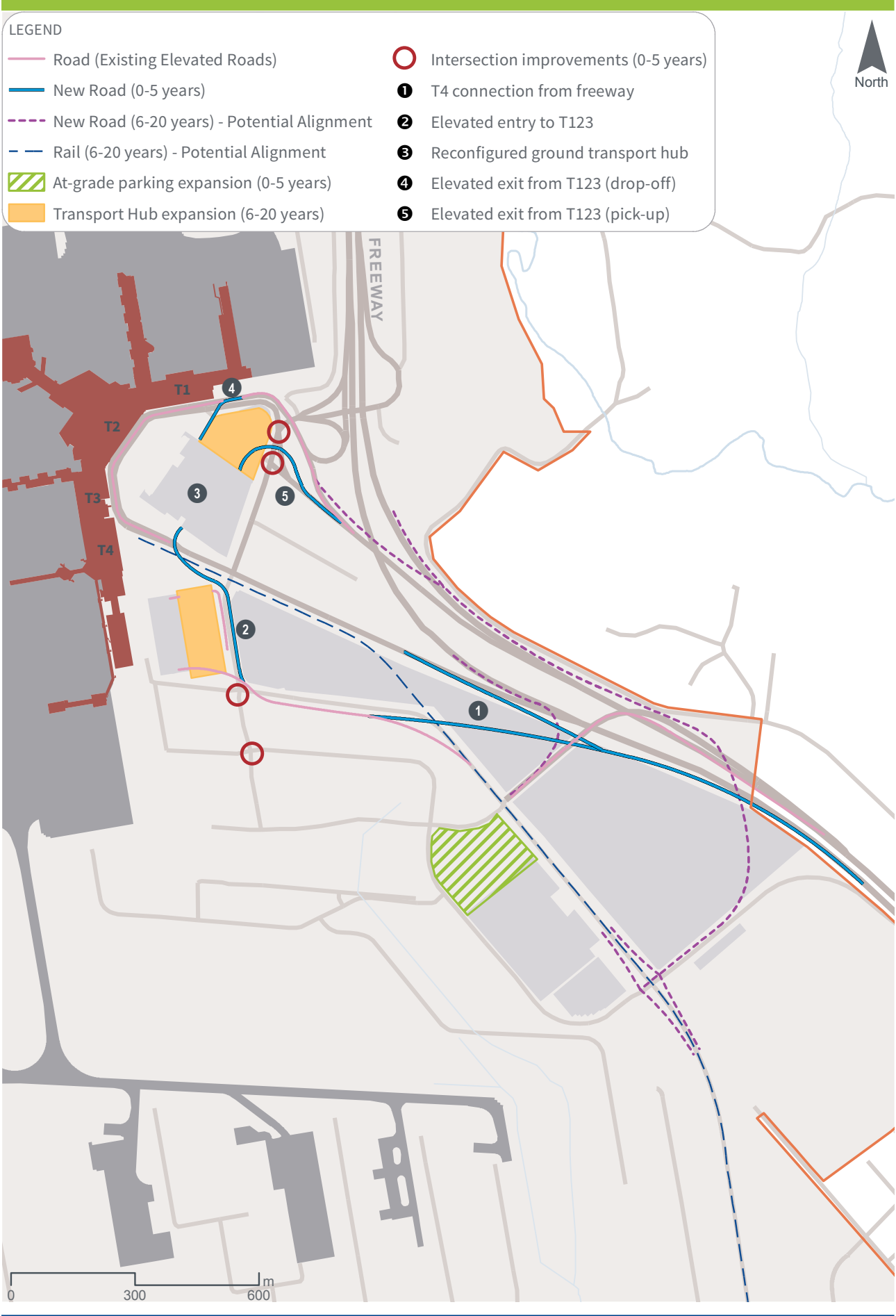


Figure 14-1: Melbourne Airport – 2023 Road Network Plan

Elsewhere within the Landside Main Precinct, short-term capacity enhancements will focus on the road network in the southern half of the precinct to increase throughput on the taxi feeder system and reduce delays to vehicles accessing freight and terminal support services in this location.

Outside of the Landside Main Precinct, only minor changes to the road network are proposed within the next five years. Since 2013 Melbourne Airport has made significant investments in the road network within the Business Park. These earlier network investments will facilitate further development of the Business Park with only minor local road extensions.

As part of the RDP, a new road into the airport site is proposed to be constructed off Sunbury Road. Post-construction, this road is likely to be retained as an access-controlled route for Airservices and other authorised vehicles; no public access will be provided.

### 14.2.3 Ground transport facilities

Over the next five years, the expansion of ground transport facilities will primarily focus on the reconfiguration of the existing forecourt and multi-level car park at T123 into a new ground transport hub to increase capacity for passenger pick-up and drop-off.

Under the proposal, drop-off would be relocated to the front of Level 3 of the transport hub, while public pick-up (currently located in the forecourt and at the rear of the ground-level car park) would be relocated to the rear of Level 3. Additional vertical transport would be provided to transfer passengers to Level 2 to access the existing and proposed pedestrian bridges.

An artist's impression of the proposed drop-off configuration (including entry and exit points) is shown in Figure 14-2.

The T4 ground transport hub (completed in 2015) significantly increased Melbourne Airport's car parking capacity. Car park expansions over the next five years will focus on minor extensions to existing at-grade car parks to accommodate increased staff and long-term parking demand.



Figure 14-2: Proposed drop-off access and egress arrangements





## 14.2.4 Public transport

To meet its future passenger and employment forecasts (as well as reduce the impact of non-airport trips), Melbourne Airport encourages a shift towards mass transit. In the short term, the express SkyBus service to the CBD will continue to be the primary public transport service for airport passengers, supplemented by other services to regional and suburban areas.

Melbourne Airport will support the planning and development of public transport infrastructure and service improvements by refining its transport modelling tools, including the development of a transport modelling tool suitable for assessing landside access mode choices and on-airport choices.

Developing Melbourne Airport's transport planning toolkit to a standard adopted at other international airports will ensure Melbourne Airport improves its investment decision-making capability and ensures the right investment decisions in landside infrastructure are made at the right time.

### 14.2.4.1 Rail

Melbourne Airport strongly supports the proposed Airport Rail Link to provide reliable travel times to existing public transport users, encourage a mode shift and facilitate future growth.

In 2013, the Victorian Government undertook a study into heavy rail alignment options between Melbourne Airport and the CBD. The study of alternative alignments resulted in a shortlist of the Albion East base case and three alternative potential routes for a Melbourne Airport rail link (Figure 14-3):

Albion East base case:

- a direct tunnel link with potential new stations
- a Craigieburn link, using Craigieburn line and new track through Westmeadows
- a Flemington link, using the existing Flemington line and rail tunnel.

An assessment of the shortlisted options found that the Albion East base case outperformed all of the alternative options.

This Master Plan makes provision for a rail link, including reserving land on-airport for a rail alignment. The extension of Airport Drive includes a wide median reservation to allow for construction of a rail connection into the terminal. This reservation is consistent with the 'Albion East' corridor set aside by the Victorian Government in 2001. This Master Plan also makes provision for a station to be located in close proximity to the terminal buildings, providing easy access for all passengers.

Melbourne Airport welcomes financial commitments from both the Commonwealth and Victorian governments to develop a business case for a rail link, as well as and the Commonwealth Government's \$5 billion commitment towards the project's cost. Melbourne Airport will work with relevant government agencies to ensure the needs of all airport users are appropriately considered.

The business case should also safeguard opportunities to extend the rail link beyond the main Terminals Precinct. An alignment to the west would safeguard the opportunity to connect a future midfield or western terminal by rail. An alignment to the north could potentially provide direct rail access to communities in regional Victoria or allow for a future high-speed rail connection, with Melbourne Airport being the high-speed rail station for Melbourne's north.

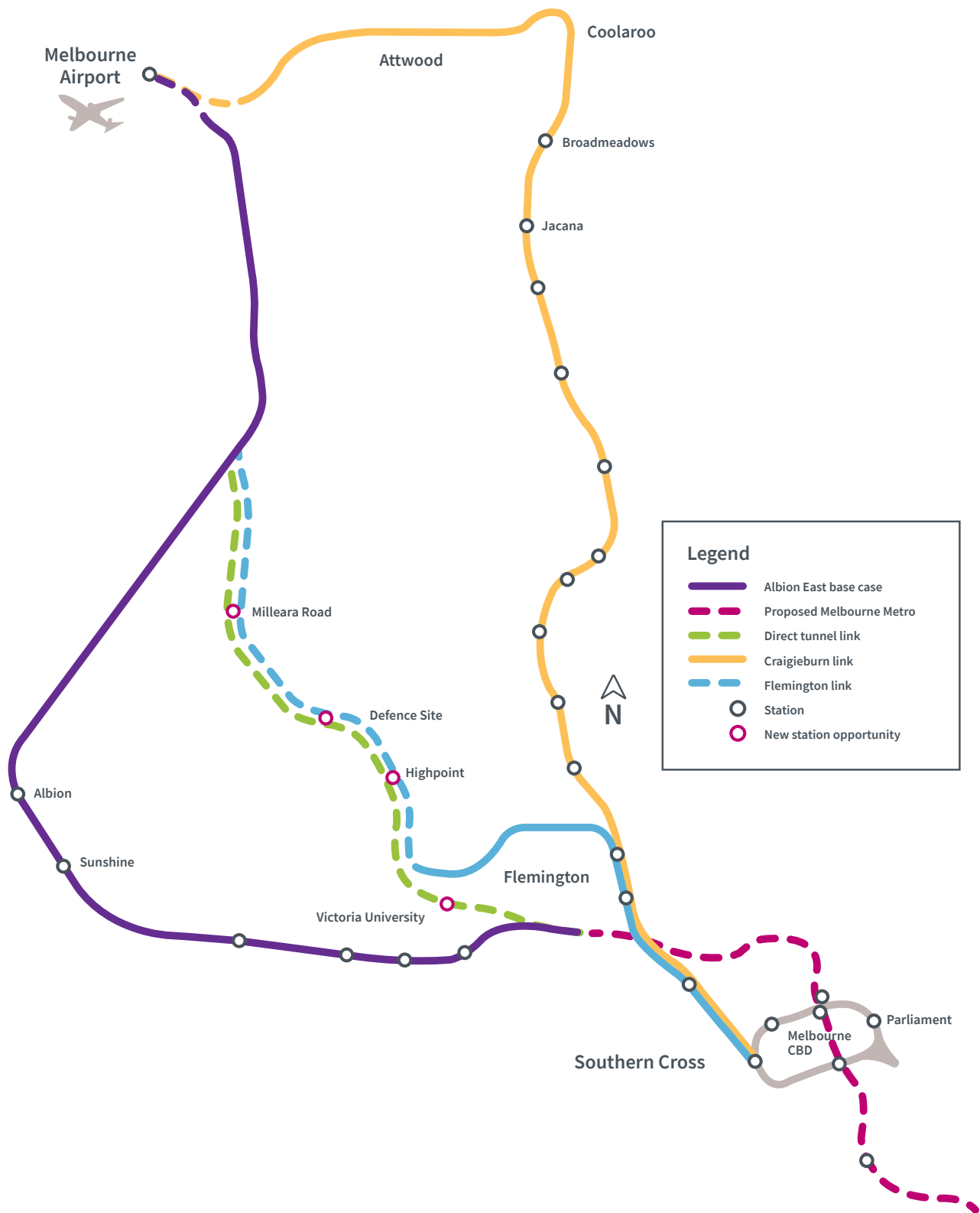


Figure 14-3: Shortlisted route options for an Airport rail link



Figure 14-4: Melbourne Airport – future public transport access



#### 14.2.4.2 Local public transport

While local bus services currently have a relatively small mode share, they are an important option for airport passengers and employees living in the northern and western suburbs of Melbourne and adjacent regional areas. However, public transport service levels and network coverage need to better match the operating environment of a 24/7 airport. For example, the frequency and hours of operation of existing bus services does not accommodate the needs of shift workers.

Furthermore, of the five localities with the highest number of airport-based employees, only one (Sunbury) has a direct bus service. Improving connectivity to nearby activity centres on the metropolitan rail and tram networks and providing reasonable levels of service on the routes will help improve travel options for passengers and employees in the local area. In the next five years, Melbourne Airport will work with PTV and Transport for Victoria to improve local public transport route services to Melbourne Airport. Figure 14-4 shows existing and potential future public transport connections to Melbourne Airport.

As demand for these services grow, there may be a need to upgrade some of these links to higher capacity public transport links over time. Melbourne Airport will work with PTV and Transport for Victoria to identify and safeguard future public transport corridors.

All local public transport routes (as well as most regional services) terminate in the T4 ground transport hub. The T4 ground transport hub has sufficient capacity to accommodate an increase in the number of bus services. The proposed expansion of the Terminals Precinct to the south means that over the life of this Master Plan, the T4 ground transport hub will be ideally located as a central pick-up and drop-off point for public transport passengers. Within Melbourne Airport's boundary, public transport access will benefit from the proposed expansion of the internal road network and its consequent reduction of traffic on the existing network. This may provide opportunities to increase the reliability of bus routes through dedicated bus lanes at intersections or on key roads.

#### 14.2.5 Active transport

Almost two-thirds of employees live within 15 kilometres of the airport, meaning that active transport is potentially a viable alternative if suitable cycling infrastructure and end-of-trip facilities are provided. The five-year ground transport plan involves implementing practical measures and continuing engagement with government agencies to encourage travel demand onto active transport modes.

Since 2013 Melbourne Airport has released its Planning and Urban Design Strategy for landside developments, which includes guidelines for the expansion of end-of-trip facilities when buildings are developed or expanded. These guidelines have been incorporated into Melbourne Airport's internal planning permit process.

Progressive expansion of the internal road network will present opportunities to further expand the at-grade cycling infrastructure. Melbourne Airport will use these opportunities to improve the connectivity of the internal path network to external walking and cycling networks.

#### 14.2.6 Travel demand management

Employee travel represents approximately 27 percent of weekday traffic demand to and from Melbourne Airport, with this proportion expected to decline only slightly over time. Melbourne Airport will seek to manage the demand for employee car travel by encouraging journey-to-work options other than by single-occupancy vehicle. Specifically, Melbourne Airport will work with airport-based employers and employees to better understand employee travel patterns. This will lead to an employee commuting strategy for airport workers.

As part of its management of future travel demand, Melbourne Airport will also review its Planning and Urban Design Strategy, in particular the provisions relating to minimum parking standards. Currently, the strategy sets out minimum parking standards based on the Hume Planning Scheme, which may be considered typical for outer-suburban industrial and commercial developments. With the proposed growth in employment at the airport, and proposed intensity of development in the Landside Main Precinct, the provision of minimum parking standards may not be appropriate – particularly if improvements are made to public transport alternatives.



## 14.3 Transport system capacity and demand

The proposed network improvements described in the five-year Ground Transport Plan will significantly increase the internal network's capacity.

This Master Plan has identified specific network constraints on Departure Drive and the Centre Road/Terminal Drive intersection.

Maximum throughput on Departure Drive is approximately 1,200 vehicles per hour. The proposed reconfiguration of the T123 car park is estimated to provide a capacity of approximately double the current Departure Drive throughput.

Access to the main forecourt is currently restricted to a single signalised intersection, which limits throughput along Terminal Drive to approximately 2,400 vehicles per hour. The proposed changes to terminal access is expected to approximately double the entry capacity into the forecourt. Forecourt exit capacity will also be increased by connecting the Level 3 pick-up area directly to Melbourne Drive.

An assessment of the likely effect of the proposed developments in the Master Plan on traffic flows at and surrounding the airport has been undertaken at both 2023 and 2028.

The assessment of future operating conditions on the external road network was undertaken using the Victorian Government's strategic transport model. The results of the analysis show that, by 2028, busy day demand on the Tulla Freeway network on the northbound approach to the airport (north of the M80 Ring Road) is expected to exceed the nominal three-lane capacity of the road. Congestion levels on this section of road are expected to worsen beyond 2028. As the southbound carriageway has been constructed with four lanes between Apac Drive and the M80 Ring Road/Mickleham Road exit, traffic demand is expected to fall within the nominal capacity of the road, but at busy times could be affected by weaving manoeuvres. Ramp metering on Apac Drive has been installed by VicRoads as part of the CityLink Tulla Widening project and can help manage this flow of traffic.

The assessment of the performance of the internal road network was based on an unconstrained demand scenario – that is, traffic demand grows with forecast passenger, employment and freight growth and without a consideration of external network constraints. While this approach is conservative, it helps highlight the location of potential on-airport network constraints going forward. Analysis shows that the capacity of the future network will be able to accommodate terminal access and egress demand.

## 14.4 Working with state and local authorities

Melbourne Airport recognises that providing ground transport access that meets the needs of airport users requires a collaborative approach with key state and local authorities. Melbourne Airport is committed to working with these parties to implement the Ground Transport Plan and to jointly improve transport outcomes.

The proposed direct connection from the Tullamarine Freeway into the T4 ground transport hub has been discussed and workshopped with VicRoads, with the new freeway exit configuration signed off by its Project Review Committee in 2015. This allowed for the exit to be designed into the current CityLink Tulla Widening project. Further consultation on this project will occur through the Major Development Plan process and other regular forums.

Other initiatives described in this section have been progressed through existing forums such as the Planning Coordination Forum and regular meetings with relevant government agencies.

## 14.5 20-year ground transport strategy

Over the 20-year life of this Master Plan, the demand for the ground transport network in and around Melbourne Airport is expected to grow as a result of continuing growth in airport activity, intensive residential development in the Sunbury Growth Corridor and Northern Growth Corridor, and a lack of public transport connectivity to regional employment centres (including Melbourne Airport).

The initiatives identified to address this demand will increase travel options for all users and provide shorter and more reliable journey times. This investment will need to be complemented by a strategy that ensures appropriate landside access to Melbourne Airport is maintained. Melbourne Airport will work with Commonwealth and Victorian government agencies to plan and safeguard for these enhancements.

### 14.5.1 External road network

Areas to the north of the airport are among the fastest growing regions in the country, with the combined population of the Sunbury Growth Corridor and Northern Growth Corridor expected to exceed 300,000 once fully built out. This growth will put increasing pressure on Sunbury Road and other freeway and arterial road corridors in the region.

To accommodate the future growth, a number of significant improvements to the off-airport road network are proposed to be delivered over the next 20 years (Figure 14-5). These projects include the Melbourne Airport Link, Bulla Bypass and Outer Metropolitan Ring Road. While the full Outer Metropolitan Ring Road is not expected to be constructed until after 2038, it is anticipated that the section between the Calder Freeway and the Hume Freeway will be considered a priority given the rapid development that is occurring in the Sunbury and Northern Growth Corridors.

While Melbourne Airport welcomes these potential investments in the surrounding transport network, it recognises that the arterial road and freeway upgrades are expected to generate a substantial increase in non-airport vehicles using the Tullamarine Freeway, particularly during commuter peaks. With no further expansion of the Tullamarine Freeway planned (beyond the current CityLink Tulla Widening works), modelling shows that future traffic demand in this corridor will exceed the capacity of the freeway, leading to significant delays. The section between the airport and the M80 Ring Road has been identified as an area of particular concern.

Melbourne Airport will work with Transport for Victoria to ensure the impact of both airport and non-airport traffic is appropriately considered in future network planning. This includes integrating the planning and design for the Melbourne Airport Link with airport entries and exits, particularly to and from the north.

As Melbourne Airport considers options in the future to develop a midfield or western terminal, access from the west and north may become increasingly important. Plans to widen the Calder Freeway west of Keilor Park Drive within the next 20 years will support this initiative.

### 14.5.2 Internal road network

Access improvements to and from the forecourt will be substantially completed during the first five years of this Master Plan. Improvements beyond the five-year timeframe will focus on refining operations to optimise the use of the infrastructure. For example, as demand grows, changes to operations are likely to be required (e.g. shifting additional traffic to the T4 transport hub, separating taxi drop-offs from private drop-offs) to ensure traffic volumes are distributed across all access and egress points.

Other enhancements to the internal network will be dependent on the timing of external projects. Melbourne Airport will work with relevant agencies to ensure these changes are incorporated into future plans.

Outside of the Landside Main Precinct, improvements will focus on the build out of the Business Park. One significant change proposed in this area is the relocation of the existing air freight terminals to accommodate the proposed expansion of passenger terminals. While this change is not expected to materially change the internal road network, it will improve operations by removing a large volume of freight traffic that currently conflicts with passenger and staff travel movements.

In addition to handling passenger, staff and general commercial traffic, the internal road network also accommodates the supply of aviation fuel to Melbourne Airport. Aviation fuel is currently delivered by both pipeline and road tankers. While a large proportion of fuel is piped to the site, pipe throughput is limited by its capacity and access to the pipe is not available to all fuel companies.

As aircraft numbers increase, daily fuel requirements will also increase. To facilitate the supply of the additional fuel, upgrades to pipelines and increased tanker capacities are likely to be required. The decision to upgrade pipeline infrastructure is a commercial decision that will be made by the fuel companies in consultation with Melbourne Airport and relevant government agencies.

While Melbourne Airport supports measures to reduce the amount of fuel received by tankers, it also recognises the commercial agreements in place and the need to meet current and future demands. Melbourne Airport will work with the owner of the fuel storage facility and relevant government agencies to manage the delivery of fuel to the airport.



Figure 14-5: Melbourne Airport – future road network access

### 14.5.3 Ground transport facilities

Over the 20-year Master Plan period, demand for the reconfigured T123 ground transport hub and the existing T4 ground transport hub are likely to be exceeded, triggering an expansion of both facilities. There will also be a need to further expand car parking capacity and to increase the number of car rental bays, potentially including the development of a consolidated, purpose-built facility.

Over time there may be opportunities to build future employee and public parking facilities either north or south of the Landside Main Precinct. In addition to providing more convenient parking options for passengers, visitors and employees coming from the north and west, siting car parks in these locations may have the added benefit of shifting traffic off the Tullamarine Freeway.

### 14.5.4 Public transport

The key public transport initiative to be delivered in the next 20 years will be the construction of the Melbourne Airport Rail Link. Planning and development of the project in the next five years will ensure that this project can be delivered in a timely manner. During this period Melbourne Airport will also work with Transport for Victoria and PTV to plan for public transport connections to future terminals.

### 14.5.5 Active transport

As part of the construction of the Melbourne Airport Link and Bulla Bypass, an extension of the off-road bicycle path network is proposed. This will improve safety for cyclists on the Sunbury Road corridor and provide a better connection to the wider metropolitan trail and cycle path network.

Melbourne Airport will work with relevant agencies to coordinate these network improvements to ensure safe connections to Melbourne Airport's internal path network.

## 14.6 Market disruptors and technological innovation

Since the 2013 Master Plan, the landside transport environment has significantly changed through both market disruption and technological change. In particular, the deregulation of the taxi and hire car industry to accommodate rideshare services, and the rapid advancement in recent years of connected and autonomous vehicle technology, provides Melbourne Airport with both opportunities and challenges that it will need to prepare for and respond to at the appropriate point in time.

The accommodation of new entrants into the ride-share market may require more kerbside space to be provided for pre-booked services. Melbourne Airport will monitor the impact on taxis (and other transport modes) from the entry into the market of new players, and continue to ensure passengers have access to as many transport choices as possible for their journeys to and from the airport.

Within the next 20 years it is expected that connected and autonomous vehicles will be present on the Melbourne road network. Given the relative infancy of the technology, the long-term operating capabilities of these vehicles and the legal framework under which they will be permitted to operate remains unclear. Accordingly, the impact on Melbourne Airport is likely to vary depending on how the technology develops and the level of acceptance and utilisation by the population.

Where appropriate, Melbourne Airport will explore opportunities to trial and integrate autonomous vehicle technology. In the early years autonomous vehicle technology may allow Melbourne Airport's fleet of car park buses to be progressively replaced with driverless buses. Some car manufacturers have also developed self-parking technology, allowing the driver to exit the vehicle and instruct the vehicle to park in a car park by itself. Both of these technologies could be adopted at the airport, with potentially only minor modifications to existing infrastructure.

As awareness about emissions and fuel costs has grown, the past five years has also seen a significant rise in the number of vehicles powered from non-traditional energy sources. This may provide an opportunity to incorporate recharging facilities for vehicles powered through non-traditional means as part of future car park upgrades.

In the longer term an autonomous vehicle network in which vehicles are programmed to return empty to the passenger's residential address, and/or in which there is a network of autonomous vehicles providing on-demand trips, could result in a significant change in passenger (and employee) trip patterns. Given the slow turnover rate of the vehicle fleet in Australia, the penetration of fully autonomous vehicles into the market (even assuming all the technological and legal hurdles are overcome) is expected to be relatively small within the life of this Master Plan. However, in delivering landside infrastructure with a life in excess of 20 years, Melbourne Airport will need to be cognisant of the potential implications of autonomous vehicles and safeguard accordingly.





# 15.0

## Utilities Infrastructure Development Plan

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*This section outlines the initiatives and investments that will be made to utilities infrastructure at Melbourne Airport to meet increased growth and development and to meet environmental strategies.*

# 15.0 Utilities Infrastructure Development Plan

## KEY FEATURES



### MANAGE AND MODERNISE UTILITY INFRASTRUCTURE

Manage and modernise utility infrastructure to ensure security, efficiency and reliability of supply for the planned growth of Melbourne Airport

## 15.1 Overview

Demand for utilities services at Melbourne Airport will increase with the following planned growth:

- aviation growth
  - » development across international and domestic terminals
  - » airfield developments including the third runway and the southern freight apron
  - » ground transport infrastructure expansion
  - » expected passenger growth
- commercial property growth
  - » significant developments within the Business Park, The Hive, Elite Park and The Forefront areas.

Key issues and opportunities for utilities infrastructure at Melbourne Airport are outlined in Table 15-1. These initiatives are further supported and enhanced within the Environment Strategy.

**Table 15-1: Summary of utilities infrastructure issues and opportunities for Melbourne Airport**

| Aspect        | Issues and opportunities   | Issue | Opportunity |
|---------------|--|-------|-------------|
| Smart systems | Enhance forecast models that enable more accurate capacity planning  |       | ✓           |
|               | Target demand management systems to flatten overall demand curves, reduce consumption and defer avoidable capital expenditure, with the overall goal of reducing utilities consumption per passenger and per square metre  |       | ✓           |
|               | Optimise asset performance through smart monitoring and controls such as supervisory control and data acquisition, building management systems and geographic information systems  |       | ✓           |
| Capacity      | Invest significantly to increase the available capacity of utilities infrastructure to support projected growth of the airport in a strategic and timely manner  | ✓     | ✓           |
|               | Safeguard services provisions – services tunnels under the road and the new runway to accommodate intended development (i.e. the midfield terminal and the third runway)   | ✓     |             |
| Resilience    | Mitigate the impacts of impermeable surfaces across the airport to reduce the heat island effect and manage stormwater run-off   | ✓     |             |
|               | Secure reliable and spare capacity through a review and enhancement of procurement contracts   |       | ✓           |
|               | Diversify and decentralise the central plant   | ✓     | ✓           |
|               | Significantly invest in reliability and redundancy through an end-of-life asset replacement program as well as through purposeful embedding of system ballasts and buffers   |       | ✓           |
|               | Avoid technology obsolescence with upgrades and new assets   | ✓     | ✓           |
|               | Optimise flexibility of the asset base and operations by prioritising adaptable, modular or scalable solutions   |       | ✓           |
|               | Plan for future changes in requirements arising from airport developments, passenger growth, regulatory shifts, volatility of global commodity prices, change in community expectations and the likely impacts of climate change   |       | ✓           |
|               | Respond to climate change through planning for an increase in maintenance costs, greater and last-minute disruption to services, greater transmission losses, and increases in cooling loads and in heat-related health risks for infrastructure personnel. To mitigate these risks, the Infrastructure Development Plan will aim to create effective heat sinks as well as enhance, where possible, infrastructure insulation | ✓     | ✓           |



| Aspect                 | Issues and opportunities   | Issue | Opportunity |
|------------------------|--|-------|-------------|
| Waste management       | Identify the type, amount and impact of all by-products of utilities operation, explore bio-treatment options, create resource loops and aim to eliminate the generation of harmful waste            | ✓     | ✓           |
|                        | Optimise the efficiency of utilities infrastructure through life-cycle management of the asset base  | ✓     |             |
|                        | Embrace the 'water balance' approach to water management   |       | ✓           |
| Value adding           | Prioritise clean or renewable energy sources when increasing capacity  |       | ✓           |
|                        | Support the Victorian Government's net-neutrality target   |       | ✓           |
|                        | Pursue opportunities across design, development, operations and decommissioning to contribute to the overall resilience, biodiversity, social and environmental wellbeing of the site and the region |       | ✓           |
| Frictionless operation | Optimise on-site generation and re-use   |       | ✓           |
|                        | Minimise transmission losses   | ✓     | ✓           |
|                        | Streamline supply chain arrangements and operations  |       | ✓           |

A range of strategies specific to the energy and water networks are proposed to be delivered within the five-year Master Plan period. These are further detailed in the following sections.



## 15.2 Energy network

Melbourne Airport continues to manage its energy network to guarantee essential services such as life safety systems and runway lighting during emergencies. Melbourne Airport runs a robust and regular diagnosis of the network's condition and relies on ongoing monitoring and smart systems to inform maintenance and asset renewal.

The airport remains committed to reducing energy consumption, even as the airport grows. All new construction and refurbishment will require a range of energy efficiency measures such as LED lighting, zoning and passive heating and cooling measures. Furthermore, Melbourne Airport is committed to ongoing tuning of energy-intensive uses such as air-conditioning systems and to prioritising clean or renewable energy sources when increasing capacity.

### 15.2.1 High-voltage electricity network

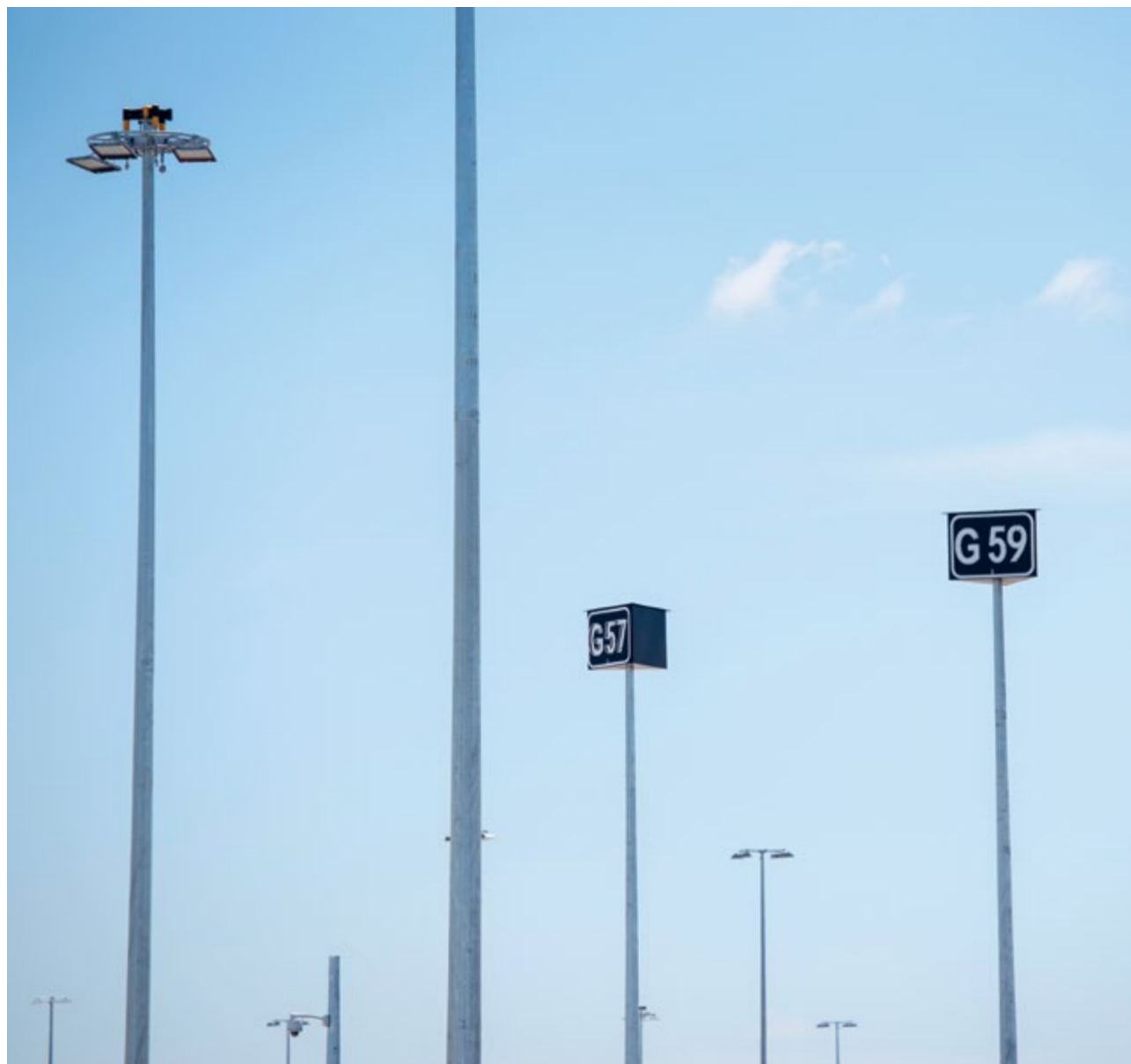
Strategies associated with the high-voltage electricity network are detailed in Figure 15-1.

### 15.2.2 Thermal energy network

The thermal energy network is detailed in the Thermal Network Master Plan. Refer to Figure 15-2 for key strategies associated with the thermal energy network.

### 15.2.3 Gas supply network

The gas supply network will be safeguarded in response to growing gas demand and global volatility in availability and pricing. Strategies are detailed in Figure 15-3.



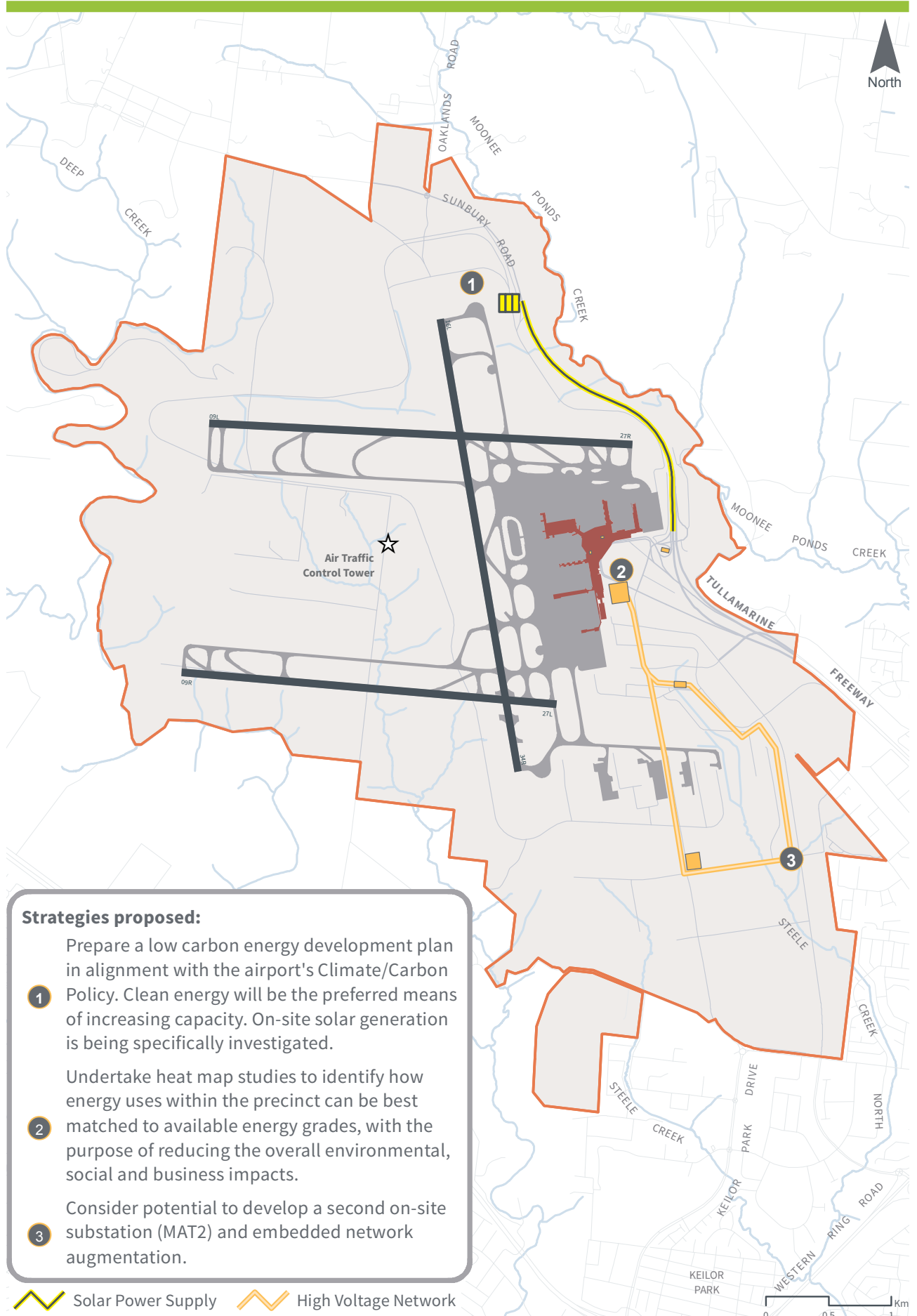


Figure 15-1: High-voltage network five-year strategy for Melbourne Airport

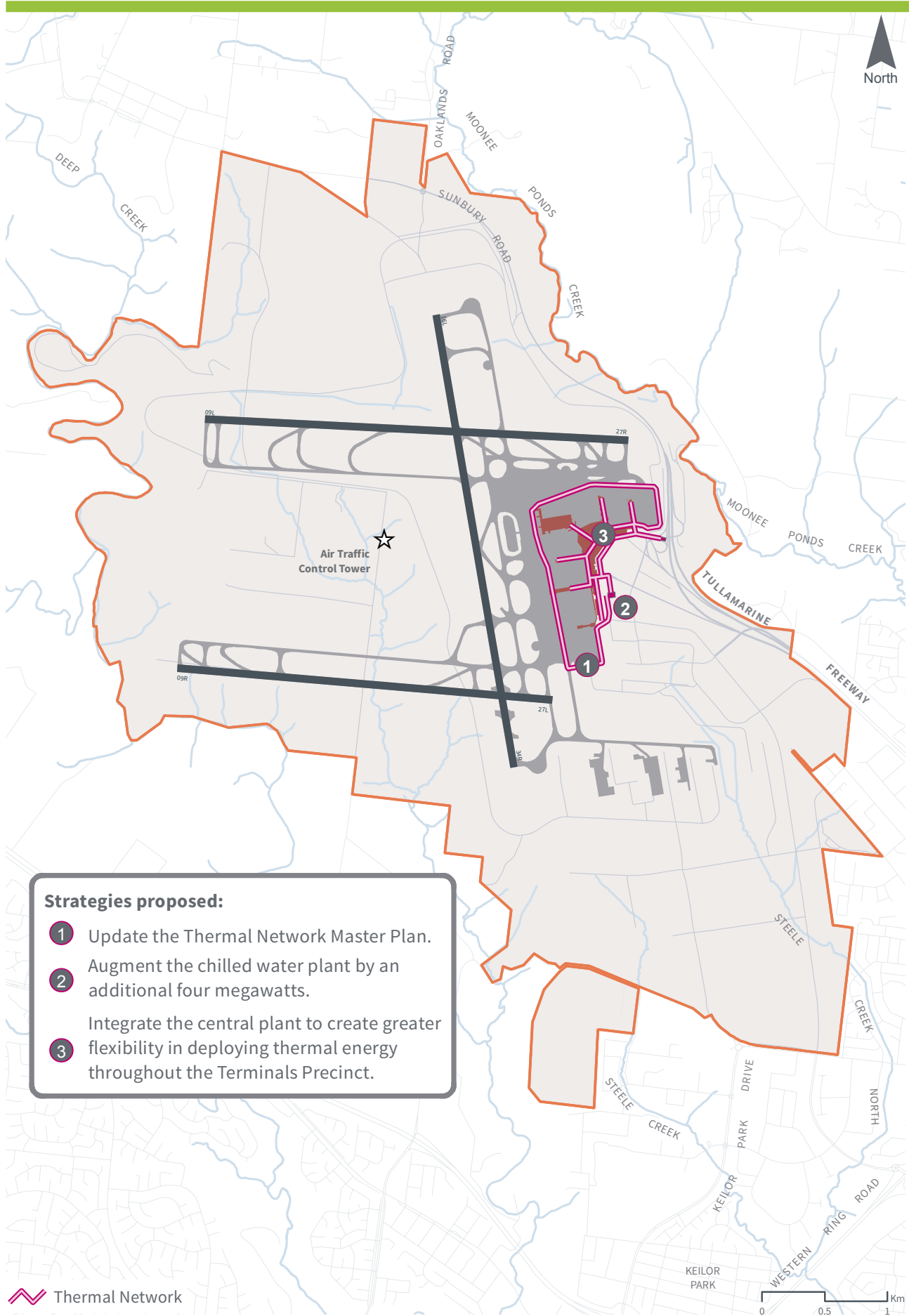


Figure 15-2: Thermal energy network five-year strategy for Melbourne Airport

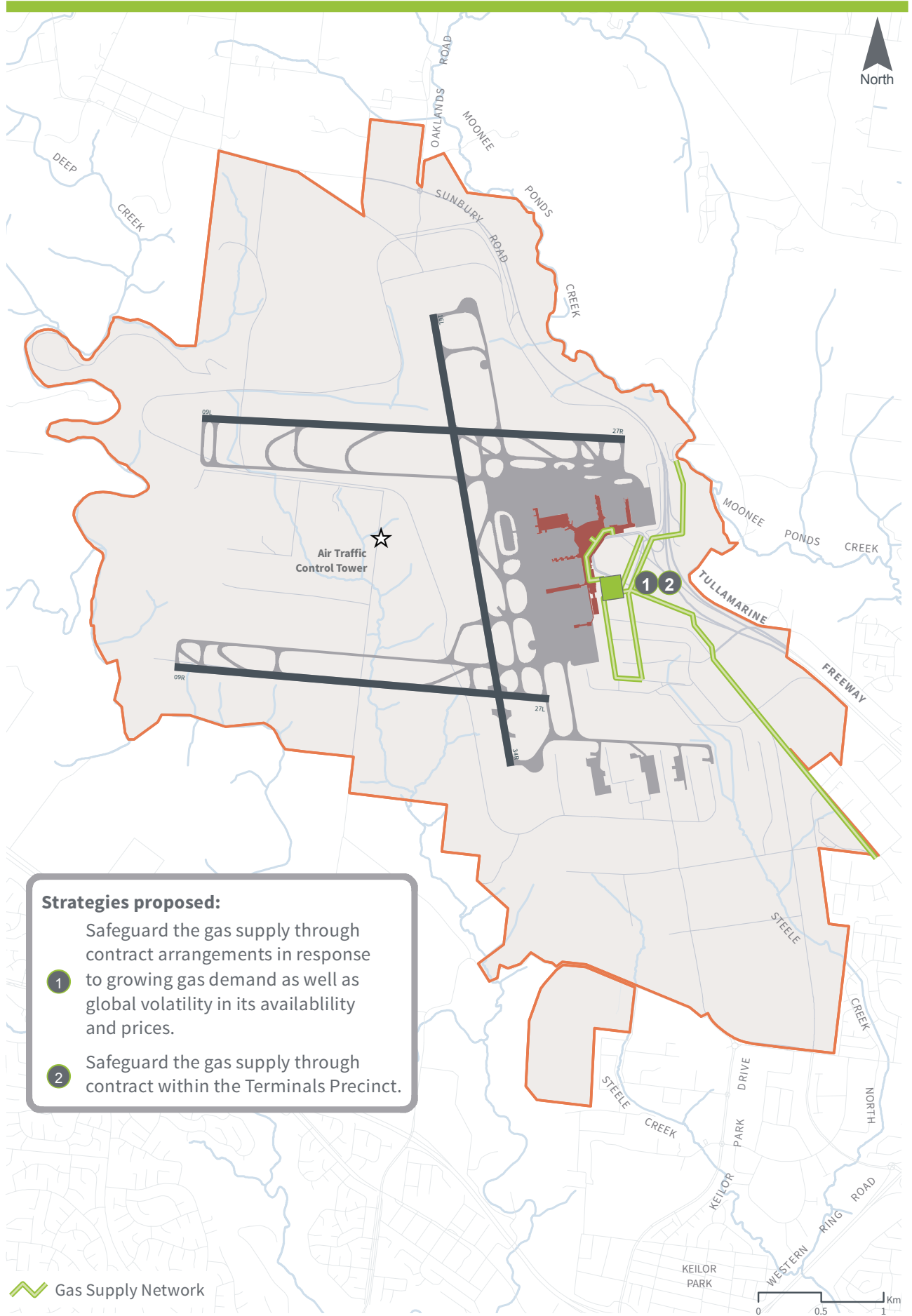


Figure 15-3: Gas supply network five-year strategy for Melbourne Airport

## 15.3 Water network

Melbourne Airport continues to manage its water system in accordance with Australian and City West Water standards. Melbourne Airport remains committed to reducing potable water consumption. All new construction and refurbishment stipulate water-efficient fixtures and fittings. Furthermore, Melbourne Airport is committed to ongoing monitoring and tuning of water-intensive cooling systems. Along with early notification enabled through smart metering, these measures will help moderate the demand growth associated with an increase in passenger numbers.

### 15.3.1 Potable water

The inaugural Integrated Water Plan will be implemented which includes the following benefits:

- more accurate, efficient and cost-effective operation of water utilities
- a water supply that is more reliable and of higher quality
- development of additional water re-use and treatment facilities
- secure sufficient water capacity for current operations and intended growth
- a reduction in the total potable water consumption of the airport precinct through efficiencies, demand reduction and water re-use
- feasibility analyses into further opportunities for water re-use and supply diversification.

Potable water supply strategies are detailed in Figure 15-4.

### 15.3.2 Stormwater drainage

Melbourne Airport is committed to reducing any waste, including that associated with its treatment of stormwater run-off. It is investigating the feasibility of eliminating these substances or neutralising their potential harmful impact within the site boundary and via biological processes.

Furthermore, Melbourne Airport will pursue opportunities to treat and then re-use stormwater for appropriate applications across the airport as part of the Integrated Water Plan. Stormwater drainage strategies are detailed in Figure 15-5.

### 15.3.3 Sewerage

The priorities for the airport's sewerage network are largely routine and focus on operations and maintenance. Sewerage treatment strategies are detailed in Figure 15-6.



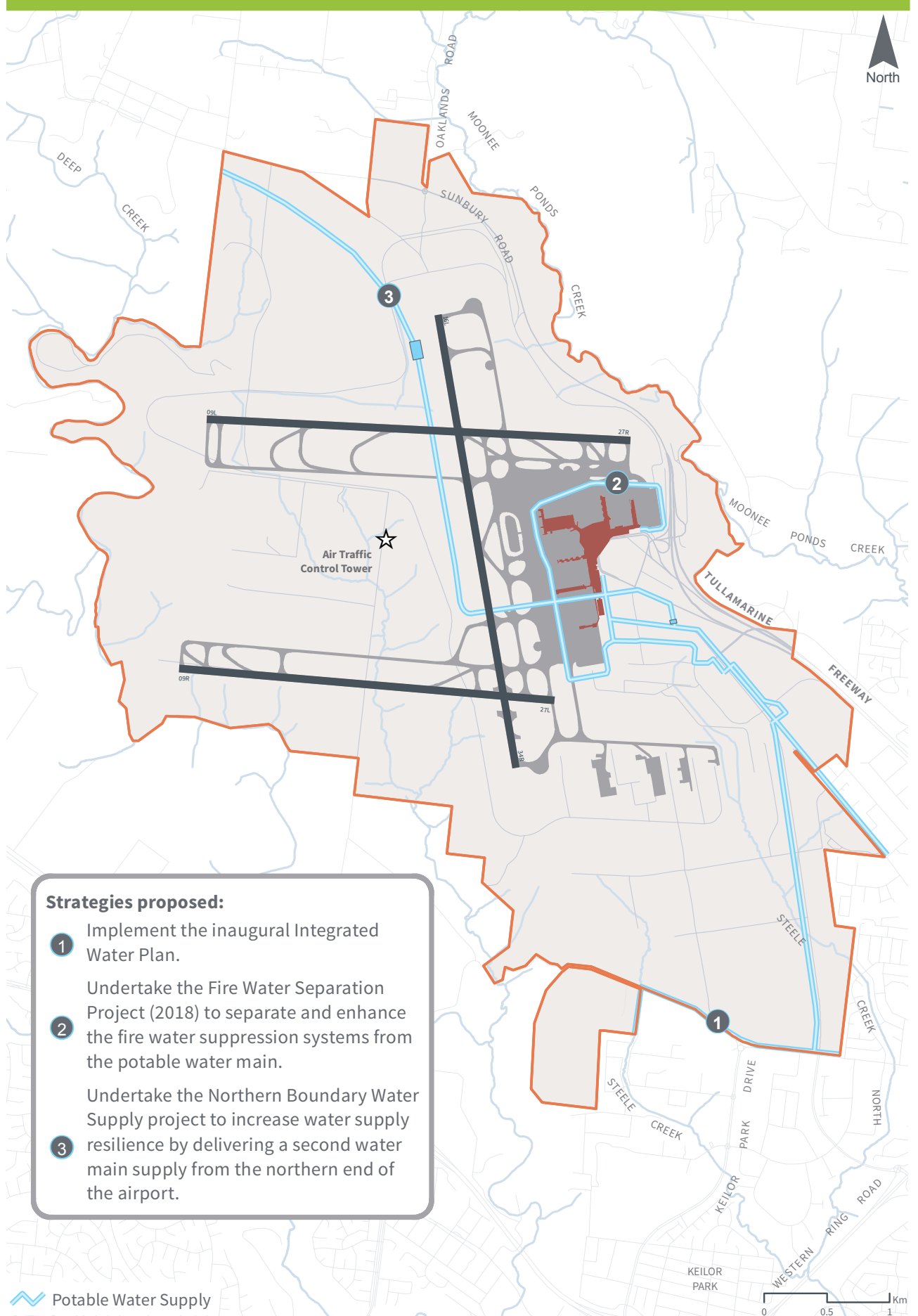


Figure 15-4: Potable water supply five-year strategy for Melbourne Airport

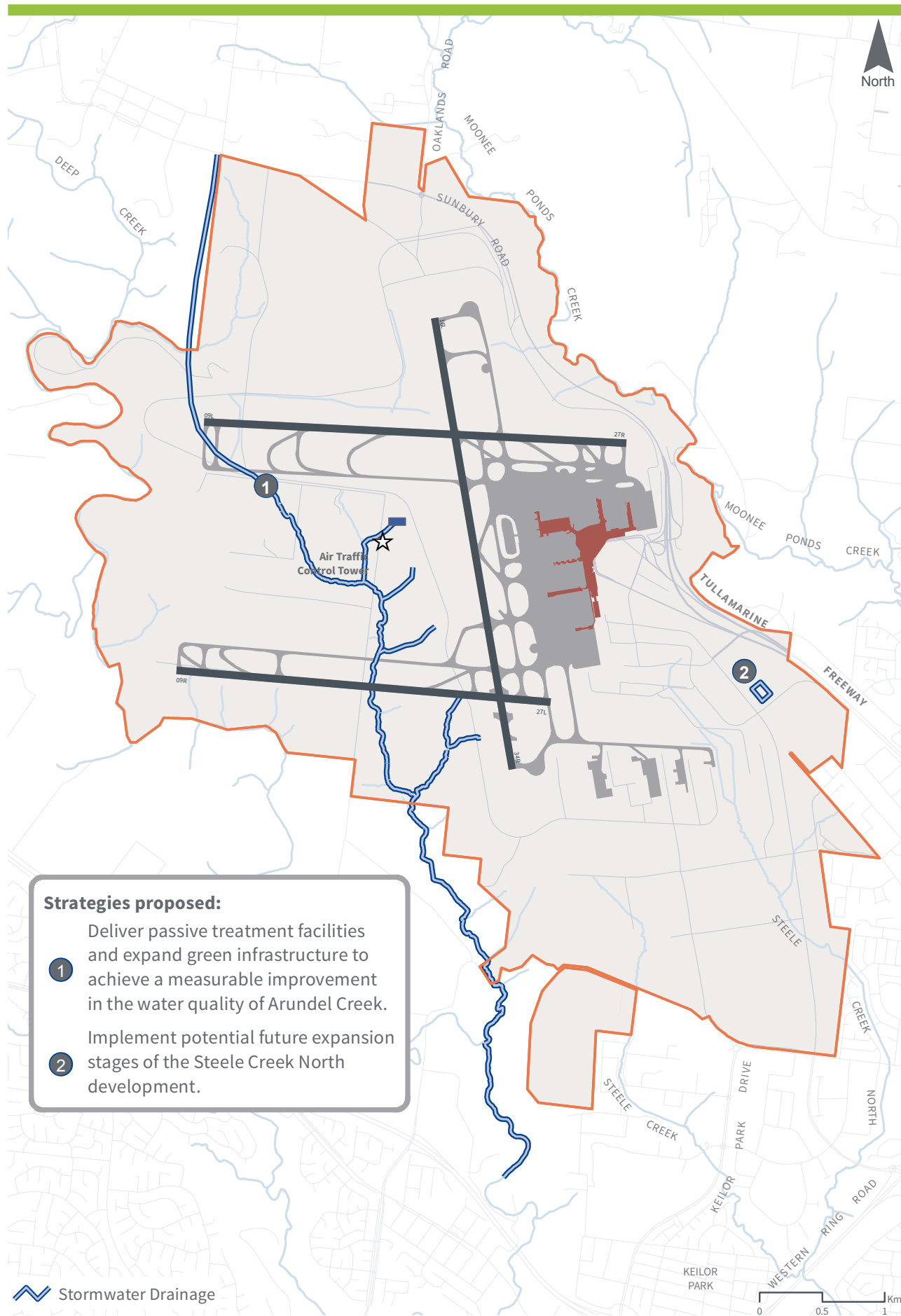


Figure 15-5: Stormwater drainage five-year strategy for Melbourne Airport

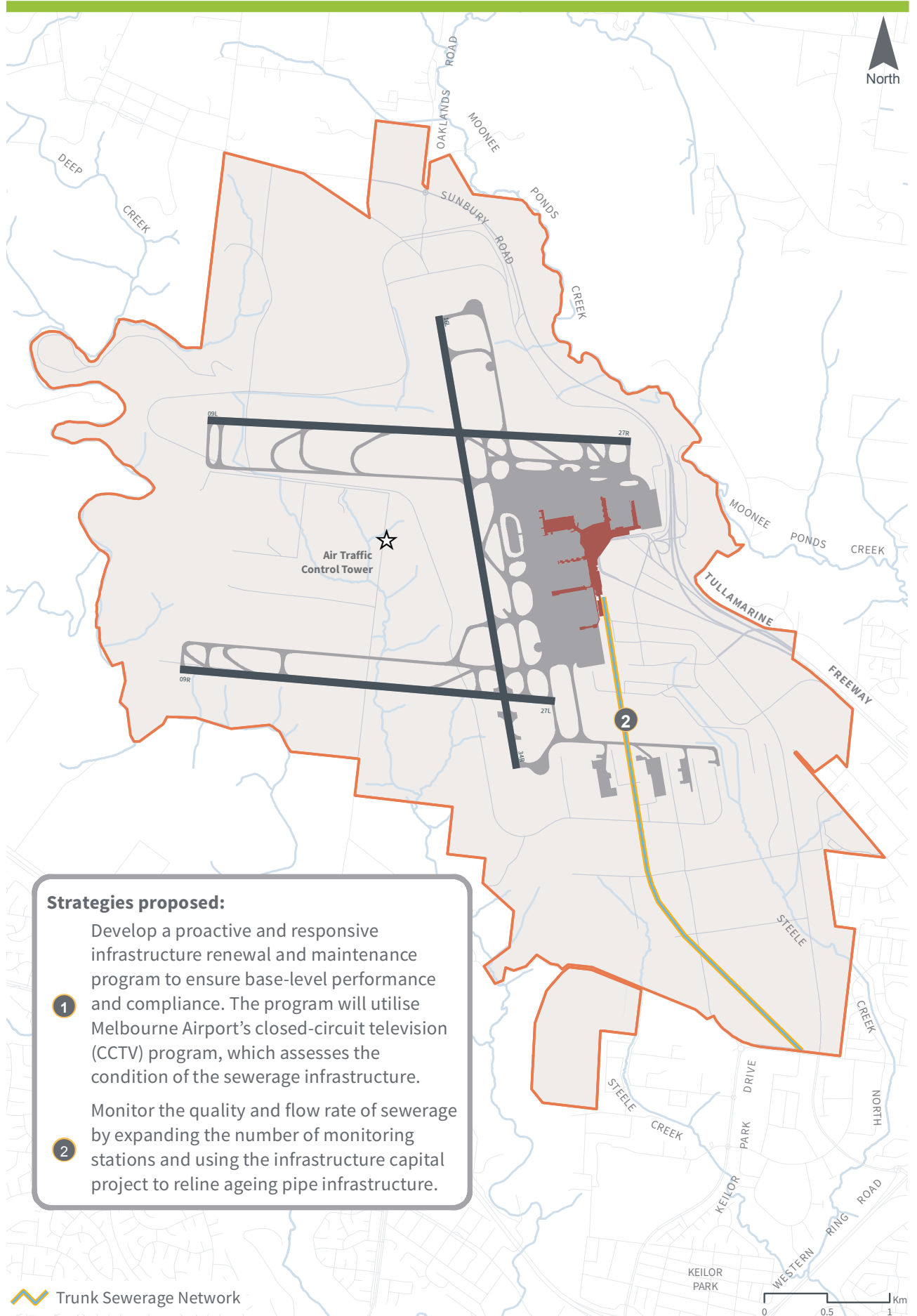


Figure 15-6: Sewerage treatment five-year strategy for Melbourne Airport

# 16.0

## Environment Strategy

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*This section forms the Environment Strategy for Melbourne Airport. It highlights how the environmental values of the airport will be protected and enhanced and how operations will be managed to ensure there are positive environmental outcomes that meet industry standards and community expectations.*

# 16.0 Environment Strategy



## 16.1 Overview and objectives

The goal of the Melbourne Airport Environment Policy is for the airport 'to be an environmental leader for transport and logistics sites in Australia'. This strategy details how this goal will be achieved.

Given the complex cultural heritage and environmental setting within which Melbourne Airport operates, achieving this goal will require continuous improvement and following a clear environment strategy.

This strategy has been developed to provide direction to Melbourne Airport in achieving its environmental policy goal and, in doing so, satisfy the relevant requirements of the Airports Act. Furthermore, this strategy has been written such that it forms an integrated component of the Master Plan and can also be read as a stand-alone document.



### 16.1.1 Melbourne Airport's legislative obligations and environment policy

The objectives of the Environment Strategy are to:

- continually improve environmental management practices
- ensure Indigenous and non-Indigenous (historical) cultural heritage sites are protected
- ensure strong stewardship of the physical environment
- meet all compliance obligations and maintain the goodwill of regulators, passengers and the community
- future-proof the environmental value of the airport site.

These objectives have been developed to provide overall direction to the strategy and encompass multiple environmental aspects over which the airport has an impact. Each environmental aspect represents a grouping of environmental management considerations with a common focus that are used to manage the airport's environmental impacts (Table 16-1). These aspect groupings are useful for day-to-day implementation of the strategy via the airport's Environmental Management Framework.



Table 16-1: Relationship between overall strategy objectives and environmental aspects

|   | Overall objectives                                     |   |   |   |  |
|---|--|---|---|---|--|
|   | Continually improve environmental management practices | Ensure Indigenous and non-Indigenous (historical) cultural heritage sites are protected | Ensure strong stewardship of the physical environment | Meet all compliance obligations and maintain goodwill | Future-proof the environmental value of the airport site |
| Environmental management                        | ✓  | ✓   | ✓   | ✓   | ✓  |
| Sustainability in planning and design           | ✓  | ✓   | ✓   |   | ✓  |
| Energy and carbon                               | ✓  |   |   | ✓   | ✓  |
| Hazardous materials                             | ✓  |   | ✓   | ✓   | ✓  |
| Cultural heritage                               | ✓  | ✓   |   | ✓   |  |
| Land and water management                       | ✓  |   | ✓   | ✓   | ✓  |
| Biodiversity and conservation                   | ✓  |   | ✓   | ✓   | ✓  |
| Air quality and ground-based noise <sup>1</sup> | ✓  |   | ✓   | ✓   | ✓  |
| Waste management                                | ✓  |   | ✓   | ✓   | ✓  |

Note<sup>1</sup>: that any air-quality impacts, noise impacts and greenhouse gas emissions that are directly attributable to aircraft are subject to different legislation and are outside of the airport's direct operational control. These aspects are therefore outside the scope of the Environment Strategy. However, Melbourne Airport recognises the significance of these aspects and works continuously with airlines and stakeholders to pursue positive environmental outcomes in relation to these matters.

## 16.2 Environment strategy context

### 16.2.1 Our operating context in relation to this strategy

This section provides an overview of Melbourne Airport's present operating context and how this could change into the future. More detailed discussion for the current and future operating context is provided for each environmental aspect in the 'Action plans' section of this strategy.

#### 16.2.1.1 Present day

##### Melbourne Airport has a unique cultural heritage and environmental setting.

The airport is located on a broad plateau on the land of the Wurundjeri people, the traditional owners. Our site encompasses several environmentally important areas (including one of Victoria's largest remaining stands of Grey Box Woodland) and provides potential habitat for a range of native fauna (such as the Australian grayling and the growling grass frog). There are 182 locations on or near the airport where artefacts of cultural significance have been found. Our site interacts with multiple natural surface water systems that support aquatic ecological communities and are used for irrigation and stock watering purposes. Figure 16-1 provides an overview of key environmental values at Melbourne Airport.

Operations at the Melbourne Airport site are expansive and are characterised by a large number of different organisations undertaking a variety of activities under varying degrees of control by the airport. There are a number of locations on site of known water and soil contamination, some of which have been caused by airport operations (e.g. firefighting foams and fuel storage) and some of which are likely due to historic or off-site activities (e.g. the use pesticides and herbicides).

##### Environmentally Significant Areas

With regard to the approved Melbourne Airport Environmental Impact Statement, and in accordance with the Airports Act 1996, Melbourne Airport has identified through site assessments, areas that are Environmentally Significant. These areas are mapped on Figures 10-4 and 16-1.

#### 16.2.1.2 Growth of operations and demand

##### The population of Melbourne is growing rapidly and, with it, demand for air travel is also growing.

Significant growth is forecast for the airport and this growth is set to occur within a context of evolving environmental and carbon regulation, increasing energy prices and a changing climate.

The 2023 airport development concept includes the Runway Development Program, which will involve a third runway and extensions to the existing east-west runway. The 2038 concept includes the expansion of the terminal buildings and new extended piers. These expansions are intended to meet a significant increase in demand for air travel. By 2038 Melbourne Airport is expected to cater for more than 65 million passengers per year (up from 34 million in FY16). Over this same period, aircraft movements are expected to increase from 238,000 to 384,000 movements per year and freight throughput is expected to almost double. Figures 16-2 and 16-3 show the environment and heritage values with the 2023 and 2038 development footprints.

Historically, growth of this magnitude for organisations has required increased consumption of natural resources. This increased consumption has both local and global risk implications for the airport's environment and heritage. Recognising these risks, Melbourne Airport is taking action by investing in renewable energy, energy efficiency, water efficiency, improved waste management and sustainable procurement. By implementing these actions Melbourne Airport will continually improve the resource efficiency of our operations and minimise our overall ecological footprint.



Figure 16-1: Key environmental values at Melbourne Airport – current

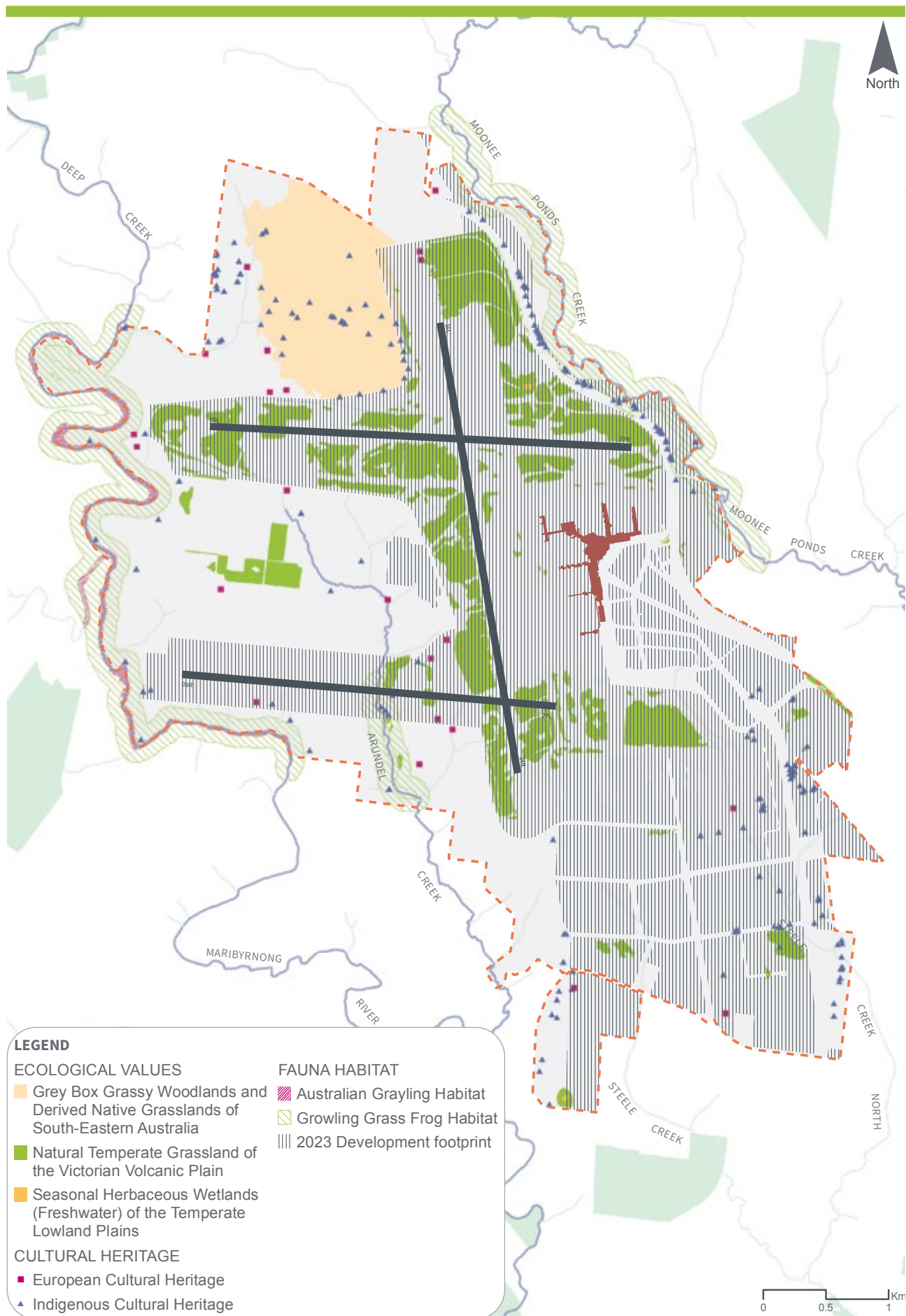


Figure 16-2: Key environmental values at Melbourne Airport 2023



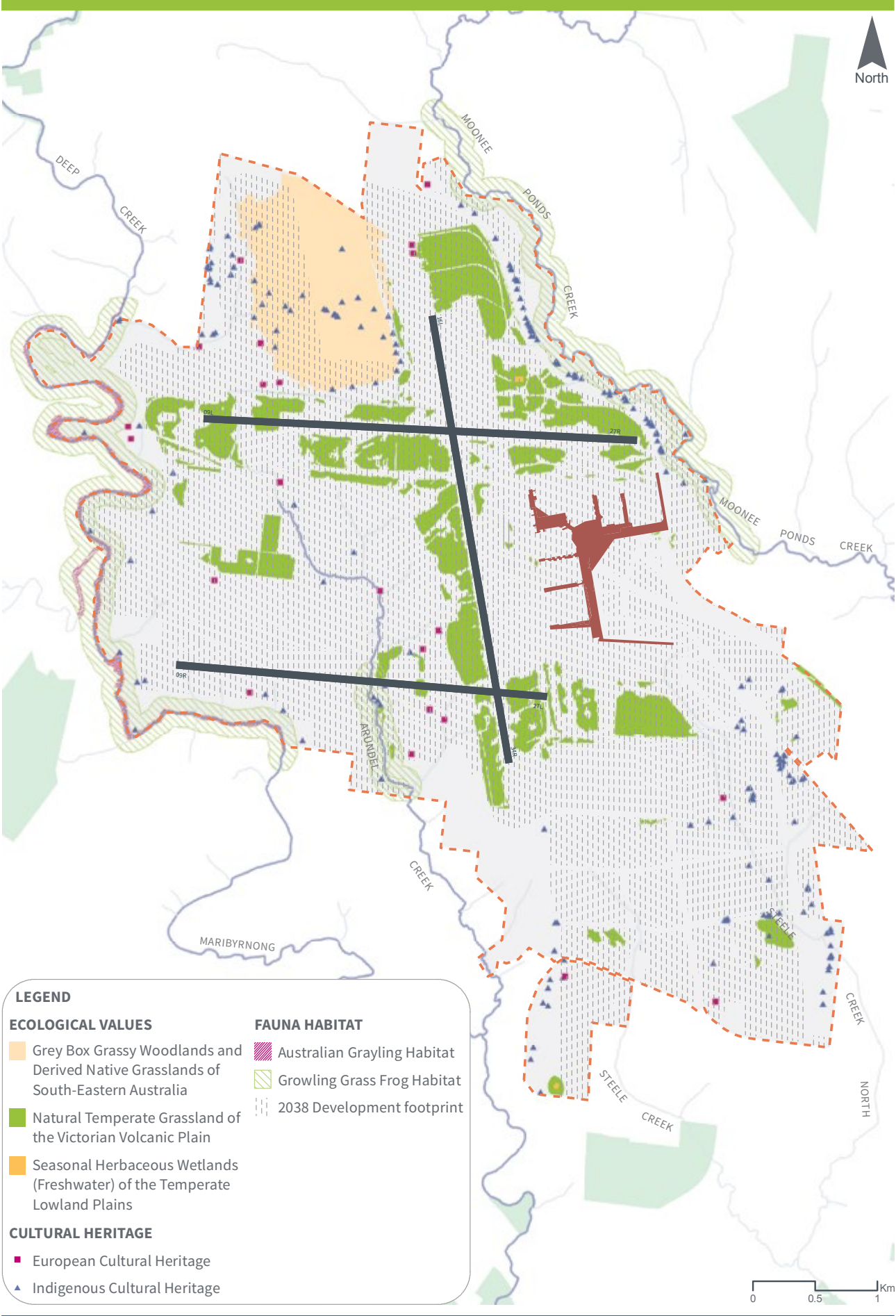


Figure 16-3: Key environmental values at Melbourne Airport 2038

### 16.2.1.3 Expanded physical footprint

**The potential impacts of future expansions will be assessed in advance. Risks will be mitigated through the implementation of pre-approved management and offsets plans.**

Figure 16-1 shows all areas that are environmentally and culturally significant within the airport's boundaries. As shown in Figures 16.2 and 16.3, the proposed Airport expansions will result in the disruption of known (or as yet undiscovered) areas of cultural and/or environmental value. Similarly, it is possible that works will intersect with areas of contamination or could result in emissions to air, land or water. Well-planned and proactive environmental management of expansion works will therefore be critical.

More specifically, for major development projects such as the Runway Development Program, thorough investigations and management programs for environmental and cultural impact are required prior to approvals being granted by the federal government, in accordance with the requirements of the Airports Act. For other development projects, Melbourne Airport requires that higher risk proponents prepare detailed Construction Environment Management Plans (CEMPs), which must be approved by the airport prior to works commencing. Similarly, higher risk tenants require approved Operational Environmental Management Plans (OEMPs). All lower risk projects and tenants are required to adhere to Melbourne Airport's Code of Environmental Practice as part of their approval and lease conditions.

Through these assessment, approval and management mechanisms, Melbourne Airport will ensure that the environmental values and performance of the airport is safeguarded into the future.

### 16.2.1.4 Evolving regulation and expectations

**The compliance environment within which Melbourne Airport operates will continue to evolve.**

Melbourne Airport maintains, as part of its Environmental Management System, a register of state and Commonwealth environmental and cultural heritage Acts, regulations and policies with which it must comply (Appendix E). Each of these documents is subject to ongoing changes (e.g. the Airports Act has been updated 30 times since it was released in 1996).

Changes to the regulatory environment are an inevitable result of continuous improvement in regulation as new science is integrated and community expectations shift. For example, the body of knowledge around the health risks of diesel exhaust particulates or PFAS (per- and poly-fluoroalkyl substances found in firefighting foams) has improved in recent years and this has been reflected in regulatory shifts.

Similarly, Melbourne Airport tracks the environmental management expectations of a broad range of stakeholders including its customers, tenants, airlines, neighbours, community groups and shareholders. Historically, these expectations have been focused on planning considerations, managing current risks, responding to incidents, maintaining compliance, providing guidance and reporting to regulators. These expectations will continue as our stakeholders become increasingly interested in the broader, long-term risks we manage. In particular, this interest relates to the airport's contribution to the sustainability of Melbourne (and Victoria) as a whole, and how the airport will manage risks and opportunities related to climate change.

### 16.2.1.5 Climate change

**Climate change will amplify a number of risks and opportunities already faced by Melbourne Airport, and could introduce some new ones. Melbourne Airport will work to build its resilience to a range of possible future scenarios.**

Melbourne Airport is located within a temperate climate, with warm to hot summers, mild springs and autumns and cool winters. The region is showery with fairly consistent rainfall throughout the year. The region is on the boundary of the hot inland areas and the cool Southern Ocean. This results in temperature differences that can cause strong cold fronts to form, which sometimes lead to severe weather conditions such as gales, thunderstorms and heavy rain. The region can also experience extreme heat in summer.

Historically, climatic events such as storms, high winds, fog, heatwaves and bushfires (smoke) have resulted in service disruptions, delays and temporary airport closures, each of which has had financial implications. Of these events, all (except fog) are expected to increase with climate change.

Melbourne Airport has undertaken a Climate Risk and Vulnerability Assessment, and a similar assessment has been undertaken as part of the Runway Development Program. The identified climate-related risks and opportunities can be categorised as being physical or transitional in nature.

Physical risks and opportunities result directly from the physical effects of climate change. For Melbourne Airport, projected changes in climate will exacerbate many existing climate-related risks, in particular those risks related to high temperatures, extreme rainfall, drought and fire weather are likely to increase in both likelihood and severity. The effect of climate change on other weather-driven risks such as those related to wind and lightning is less clear. These physical factors can impact airport operations as well as the health and resilience of the surrounding environment.

Transition risks and opportunities are not directly linked to climate-related events but relate to the regulatory and market transformation likely to result from governments and communities acting to curtail greenhouse gas emissions and/or adapt to climate change. These risks have been examined and have the potential to affect access to capital, reputation, investor concerns and regulatory pressure on the carbon-intensive aviation sector. The airport's current enterprise risk management system includes transition risks related to state and federal carbon policies and energy market volatility. Conversely, some of these factors also represent opportunities to drive projects in renewable energy and resource efficiency.

The magnitude of climate-related risks and opportunities will depend on:

- whether the world is successful in actively moving towards the goals set in the Paris Agreement to keep 'global average temperature to well below 2°C above pre-industrial levels'
- the degree to which the Australian and Victorian Regulatory environments align with these global aspirations.

Furthermore, the resilience of Melbourne Airport contributes directly to the resilience of Victoria as a whole. Therefore, in the interests of future-proofing its operations and environmental performance in the face of this uncertainty, Melbourne Airport will work to build its resilience to a range of possible future scenarios, through the development of a Climate Change Adaptation and Mitigation Framework.

## 16.2.2 Building on past strategies and stakeholder consultation

**This strategy builds on the successes of and lessons learned from the implementation of past strategies.**

Melbourne Airport maintained an Environment Strategy since the Airports Act first came into force in 1996. Since 2013, the Act has required that the Environment Strategy be prepared as an integral part of the five-yearly airport Master Plan. Over time, Melbourne Airport has established a culture of proactive environmental management and continuous improvement. This 2018 strategy represents the next iteration in this process. Key improvements in this strategy include:

- **Overarching objectives that span multiple environmental aspects.** In past strategies, objectives have been unique to each environmental aspect. By reframing our objectives at a higher level our subsequent actions will better address the inter-related nature of environmental impacts. Our Environment Team will also have greater flexibility in responding to new challenges that could arise.
- **Increased aspirations.** Melbourne Airport achieved 56 of the 58 targets detailed in the 2013 Environment Strategy (Appendix C). Many of these targets represent the maintenance of a high standard of ongoing environmental management and are now considered to be ongoing functions of the Environment Team. The new targets described in this 2018 strategy represent the next steps in continuous improvement.
- **Responsiveness to an evolving risk profile.** The growth of the airport forecast in the 2018 Master Plan will bring with it changes to the risks that airport operations pose for the surrounding environment. Similarly, the growth of the airport will also create opportunities for improved environmental management. The strategy has been developed to allow Melbourne Airport to mitigate these evolving risks and to realise new opportunities.

## 16.2.3 Stakeholder consultation

**The development of this strategy has been further guided by extensive engagement with our stakeholders.**

As part of the formal Master Planning process, Melbourne Airport has sought input directly from the following stakeholders in relation to the Airport Environment Strategy:

- the Department of Infrastructure, Regional Development and Cities, whose representative – the Airport Environment Officer – provided detailed feedback on an early exposure draft of this document and meets regularly with Melbourne Airport's Environment Team
- the Victorian Department of Environment, Land, Water and Planning, who have provided feedback on an early exposure draft of this document
- the Community Aviation Consultation Group
- community, state and Commonwealth agencies
- Essendon Airport P/L
- Victorian Planning Authority
- local government authorities
- Airservices and CASA.

Further, this strategy has drawn extensively on the ongoing stakeholder engagement that forms a vital component of the operation of Melbourne Airport's Environmental Management System (EMS). Specifically, this has involved:

- consultation with internal and external teams responsible for the Runway Development Program MDP
- consultation with Department of Infrastructure, Regional Development and Cities and the Department of Environment and Energy – in relation to managing approvals and referral processes
- regular discussions with EPA Victoria in relation to managing environmental impacts
- discussions with Heritage Victoria in relation to developing Cultural Heritage Management Plans and implementing recommendations
- consultation with contractors, tenants, monitoring professionals and technical advisors

More information about the overall consultation in the development of the Airport Master Plan is provided in section 3.3.

## 16.2.4 Risks and opportunities

**Changes to Melbourne Airport's operating context, and future uncertainties, present a range of risks and opportunities in relation to environmental management.**

The international risk management standard (ISO 31000) definition of risk is the 'effect of uncertainty on objectives'. The Environment Strategy has been developed to safeguard the achievement of the airport's environmental objectives in the face of existing contextual challenges and future uncertainty.

This Environment Strategy addresses the risks that the airport can pose to the environment in which it operates. It also addresses the risks that affect the effective operation and development of the airport.

Similarly, opportunities to improve the airport's environmental performance are identified. Melbourne Airport's Environmental Risk Register documents the specified control measures for more than 140 of these risks. However, the key environmental risks and opportunities can be grouped into five broad categories for the purpose of this strategic-level summary:

- ecological health
- cultural heritage
- pollution and contamination
- licence to operate
- climate risk.

These risk categories each interact with a number of environmental management aspects and each will therefore be managed through a combination of the action plans specified within this strategy (Table 16-2).

**Table 16-2: Relationship between overall strategy objectives and environmental aspects**

|  |   |
|--|---|
|  <p>ECOLOGICAL HEALTH</p>            | <p>Melbourne Airport supports a broad range of ecological communities, rare and threatened species and ecosystems. Threats to these significant assets include the continued growth of the airport, introduced plants and animals, contamination and climate change. Similarly, development works provide the opportunity to implement measures that further safeguard and improve ecological health.</p>   |
|  <p>CULTURAL HERITAGE</p>           | <p>There are many locations on or near the airport where artefacts of cultural significance have been found. The unique cultural heritage assets of the airport are also subject to the impacts of growth, infrastructure development and erosion. Similarly, development works will afford the opportunity to better understand the significance of our cultural heritage sites and ensure their ongoing management and protection.</p>  |
|  <p>POLLUTION AND CONTAMINATION</p> | <p>Melbourne Airport has historical land and groundwater contamination that must be effectively managed. Ongoing risks to the environment include surface and groundwater contamination, impacts on plants and animals and the cost of management and remediation. As the airport expands, it is likely that works will interact with areas of contamination and that the risk of new impacts will need to be minimised. This will also present opportunities for mitigating legacy contamination issues and improving ongoing management.</p>  |
|  <p>LICENCE TO OPERATE</p>          | <p>The airport's licence to operate relates not only to our regulatory compliance but to our reputation and the social responsibility we exercise in engaging with our stakeholders. These are all impacted by our environmental performance. Compliance with evolving regulation and community expectations is managed through our EMS, which includes a continuous improvement loop to ensure we retain control and oversight over dynamic day-to-day operations as the airport grows.</p>  |
|  <p>CLIMATE RISKS</p>               | <p>Climate change will amplify a number of risks and opportunities already faced by Melbourne Airport, and could introduce some new ones. Physical risks can affect airport operations, staff health and safety, and the surrounding environment. Such risks relate to high temperatures, extreme rainfall, drought and fire weather, which are likely to increase in both likelihood and severity. Transition risks relate to the regulatory and market transformation likely to result from governments and communities acting to curtail greenhouse gas emissions and/or adapt to climate change. The magnitude of these risks will depend on the rate of global decarbonisation and the related regulatory and market changes. Melbourne Airport will work to build its resilience and capitalise on opportunities across a range of possible future scenarios through the development of the Climate Change Adaptation and Mitigation Framework.</p> |



### 16.2.5 Strategy structure

**The structure of the strategy reflects the inter-related nature of objectives, environmental aspects, targets and actions.**

In summary, the structure of the Environment Strategy includes:

- overarching objectives that cover multiple environmental aspects
- targets defined against each environmental aspect
- action plans that support the achievement of targets and which, in application, represent a measurable set of performance indicators.

Note: action plans each serve to mitigate one or more environmental risks, or to realise one or more opportunities. This structure is represented in Figure 16-4.



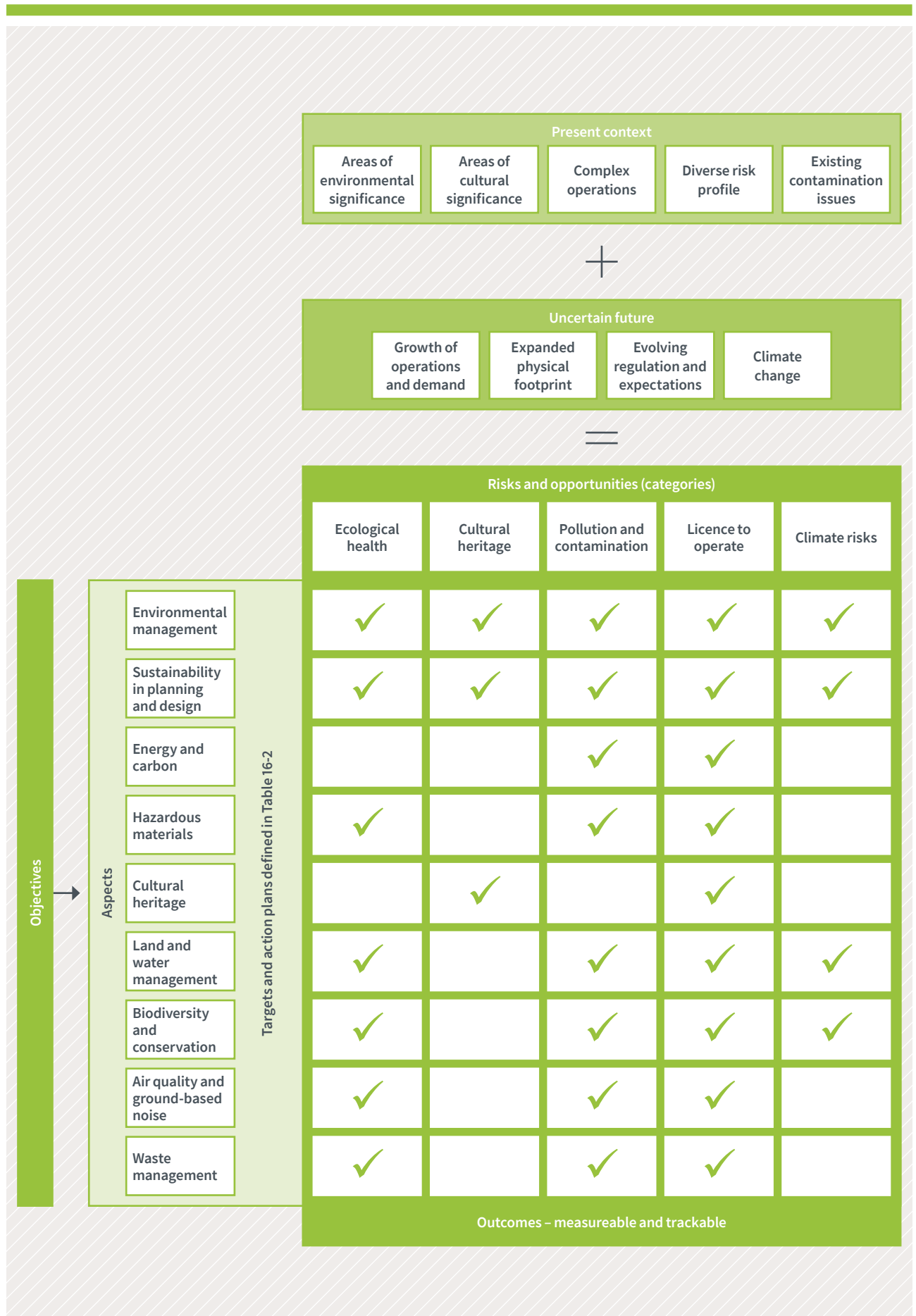


Figure 16-4: Airport Environment Strategy conceptual structure

## 16.2.6 Targets

Through the development of this Environment Strategy, Melbourne Airport has identified and committed to a number of targets within each environmental aspect. These targets serve two purposes:

1. To provide specific direction for environmental management activities
2. To allow for the tracking of environmental performance and the implementation of this strategy.

The targets are described in Table 16-3.

The achievement of each target is supported by defined action plans. The completion of the actions represent a measurable set of key performance indicators. Action plans for each environmental aspect are provided in section 16-4.

**Table 16-3: Environmental targets for Melbourne Airport**

| Aspect                                | Targets   |
|---------------------------------------|---|
| Environmental management              | 100% of scheduled inspections and audits completed  |
|                                       | 100% of follow-up actions from inspections and audits closed out  |
|                                       | 100% of Operational Environmental Management Plans received and reviewed  |
|                                       | 100% of Codes of Environmental Practice signed and returned   |
|                                       | 100% of new staff and contractors undertake Environmental Induction Training  |
|                                       | Maintain certified EMS to ISO 14001: 2015   |
| Sustainability in planning and design | Integrate ESD principles in new developments  |
|                                       | Implement appropriate actions that build climate resilience based on the outcomes of the Climate Change Adaptation and Mitigation Framework   |
|                                       | Complete and commence implementation of the Melbourne Airport Integrated Water Plan   |
|                                       | Reduce total potable water use (from FY17 levels)   |
|                                       | Implement a Melbourne Airport Sustainable Procurement Policy  |
| Energy and carbon                     | 20% reduction of annual grid electricity consumption  |
|                                       | Install 10 megawatts of renewable energy capacity   |
|                                       | Establish science-based carbon reduction targets  |
|                                       | Implement the Airports Council International Level 2 Airport Carbon Accreditation and progress towards Level 3 accreditation                  |
|                                       | Implement a Carbon Management Plan  |
| Hazardous materials                   | Reduce the use of hazardous substances  |
| Cultural heritage                     | Identify and implement opportunities for enhanced visitor experiences based on Melbourne Airport's cultural and environmental heritage assets |
|                                       | Develop and implement a site wide Cultural Heritage Management Plan   |

| Aspect                             | Targets  |
|------------------------------------|--|
| Land and water management          | Complete a site-wide PFAS investigation and associated risk assessments  |
|                                    | Implement a site-wide Contaminated Land Management Strategy  |
|                                    | Reduce the total number of off-site noncompliances observed in surface water monitoring (from FY17)  |
|                                    | Increase the resilience of receiving waterways   |
|                                    | Implement a Groundwater Monitoring and Management Strategy   |
| Biodiversity and conservation      | Develop a Strategic Biodiversity Advanced Offsets Framework  |
|                                    | Continue to implement the Biodiversity and Conservation Management Plan  |
|                                    | Meet or exceed Melbourne Airport's annual target 12-month average wildlife strike rate   |
|                                    | Implement a site-wide Integrated Pest Management Plan  |
|                                    | Implement an Ecological Community Management and Improvement Plan for high value ecological areas  |
|                                    | 20% reduction of high threat weeds within the environmental significance overlay areas of APAM-controlled land (from FY17)                                       |
|                                    | 50% reduction of feral pest animals within the environmental significance overlay areas of APAM-controlled land (from FY17)                                      |
| Air quality and ground-based noise | Undertake a feasibility assessment for replacing diesel ground support equipment with electric alternatives  |
|                                    | Improve the reliability of the data capture rate of the Air Quality Monitoring Plan  |
|                                    | Continue to facilitate Noise Abatement Committee meetings  |
| Waste management                   | Implement a Melbourne Airport Waste Management Strategy  |
|                                    | Implement a Melbourne Airport Sustainable Procurement Policy to reduce the adverse environmental, social and economic impacts of purchased products and services |
|                                    | Reduce the total waste disposed to landfill (from FY17)  |
|                                    | Reduce level of contamination of commingled recycling from APAM and tenant bin rooms   |

## 16.3 Implementing the strategy

**This strategy will be implemented via Melbourne Airport's Environmental Management Framework.**

### 16.3.1 Environment Management Framework

Melbourne Airport has an Environmental Management Framework that is designed to ensure that processes for continuous improvement and ongoing monitoring of compliance are embedded in the way we work.

The Environment Strategy forms one part of the Environmental Management Framework and is one of the key mechanisms for ensuring that the commitments made in Melbourne Airport's Environment Policy are met. The strategy is enacted and implemented via the EMS.

More generally, Melbourne Airport operates within a framework of corporate governance, goals and values. These are reflected in the environmental management principles outlined in the Environment Policy. The Environmental Management Framework enables Melbourne Airport to effectively manage and adapt to environmental risks and continually improve environmental management practices and performance.

Under the framework, environmental compliance is internally monitored and reviewed on an ongoing basis. Compliance is also externally (and annually) reviewed by the Airport Environment Officer (AEO), on behalf of the Department of Infrastructure, Regional Development and Cities, via the annual Airport Environment Report. In addition, the EMS itself is externally audited periodically as part of maintaining ISO certification. These processes, and the overall framework, are shown in Figure 16-5.



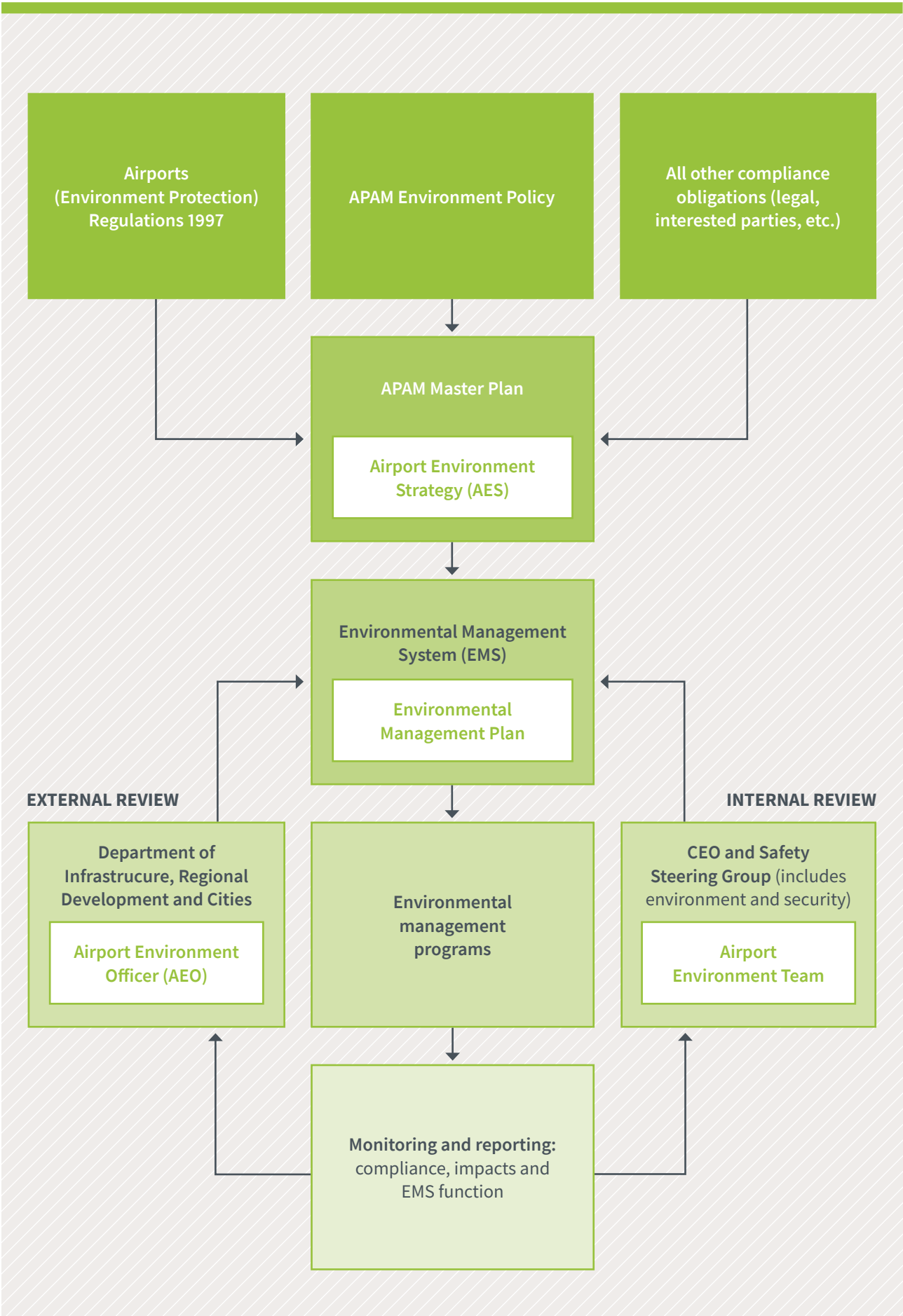


Figure 16-5: APAM Environment Management Framework and continuous improvement review loop

## 16.3.2 Environmental Management System

Central to the framework is Melbourne Airport's certified EMS, which has been in operation since 2004 and has recently been updated to align with the current EMS standard (ISO14001:2015). The EMS consists of the policies, plans, procedures and activities that together form a system to manage the environmental aspects of the airport and enable compliance with environmental legislation. Internal and external audits of the EMS are undertaken regularly to assess the compliance of operational systems. The EMS is the primary mechanism for implementing this strategy.

The EMS applies to all Melbourne Airport staff, contractors and subcontractors. Key elements of the EMS, of relevance to the Environment Strategy, are described below.

### 16.3.2.1 Environmental Site Register

A component of the EMS is the Environmental Site Register, which records site-specific environmental and cultural heritage attributes and environmental assessment results. The register is used by Melbourne Airport staff to determine the level of environmental risk and environmental mitigation measures that may be associated with proposed works. Melbourne Airport maintains the Environmental Site Register for:

- water quality, air and noise monitoring
- septic and fuel tank locations and inspections
- Aboriginal and European heritage site locations
- flora and fauna assessments
- groundwater monitoring
- contaminated land assessments.

### 16.3.2.2 Environmental responsibilities

The responsibility for environmental performance at Melbourne Airport lies with the board of directors and the CEO, supported by Corporate Service business unit and the Senior Leadership Team. This group is responsible for establishing, reviewing and implementing the EMS. The airport Environment Team is responsible for identifying and delivering strategies to address environmental issues and for providing advice and support across the organisation. Responsible environmental management requires the coordinated and cohesive involvement of all airport staff, tenants, business operators and contractors.

Airport tenants, business operators and contractors are required to perform their activities in accordance with the EMS, the Environment Policy and the Environment Strategy and must ensure their activities are compliant with applicable legislation and policy.

Figure 16-6 provides an overview of the corporate structure of the airport (left-hand side) and each team's responsibilities across the different environmental areas: Environmental Performance, Environmental Policy and Strategy, EMS documented information and Operations and documented information. Under the area of 'Operations and documented information', the diagonal indicates that maintenance of this area is split across the Senior Leadership Team and the Environment Manager on a sliding scale.

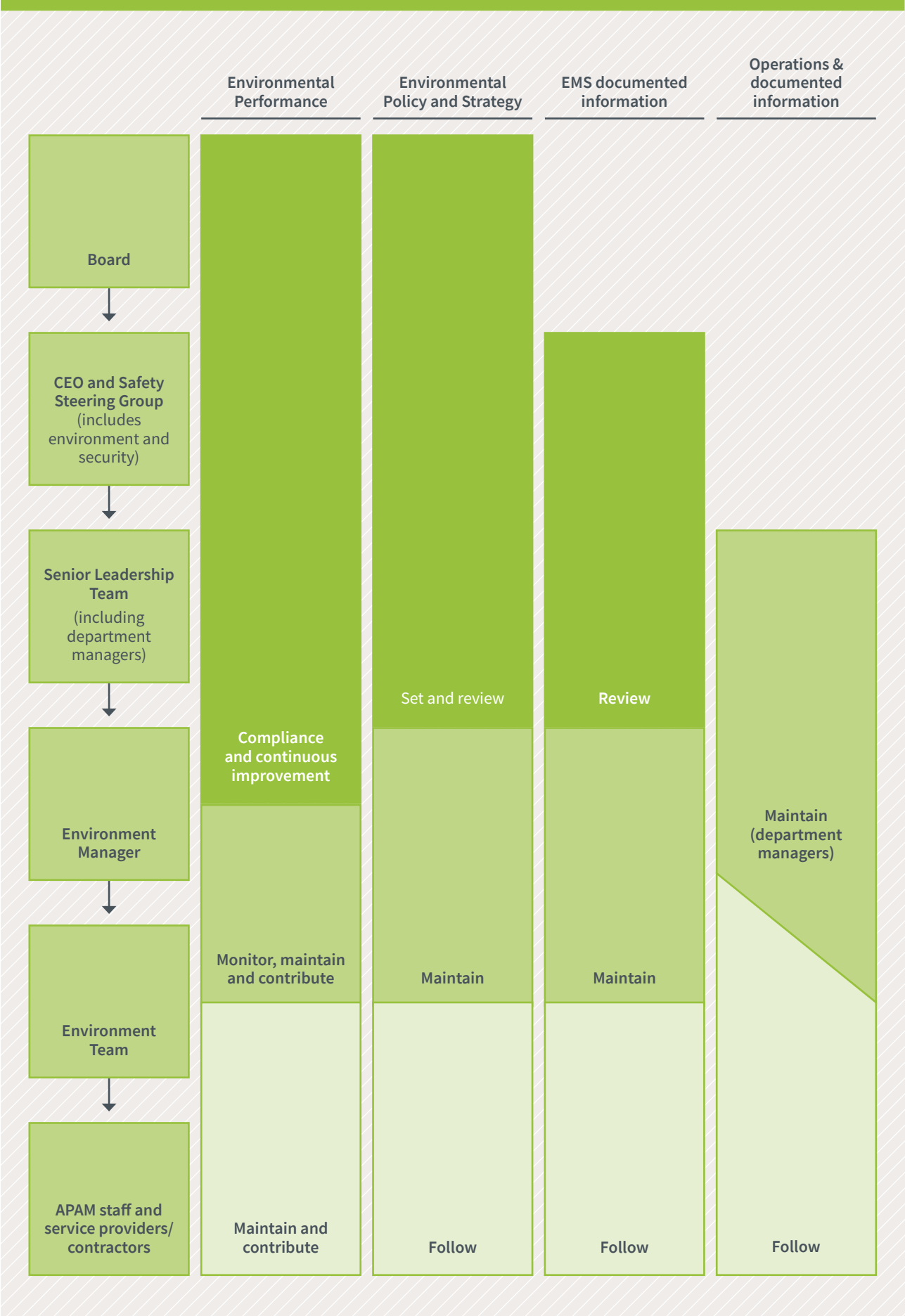


Figure 16-6: APAM Environment management responsibilities, relative to EMS documents

### 16.3.2.3 Environmental monitoring

Environmental monitoring is a critical component of Melbourne Airport's EMS to evaluate compliance, identify issues and opportunities, obtain information about environmental performance and encourage continual improvement. Under the Airports (Environment Protection) Regulations, the airport is required to monitor the levels of pollution (if any) present in air, water or soil at the airport and the level of ground noise generated at the airport in accordance with the Environment Strategy.

The Environment Strategy reflects the self-regulatory framework of the Airports (Environment Protection) Regulations and includes real-time monitoring and targeted audits to manage risks and inform airport decision making. If monitoring identifies noncompliance, Melbourne Airport undertakes necessary corrective actions. Where appropriate, the public display of data will demonstrate the airport's efforts to mitigate environmental impacts.

Melbourne Airport continues to refine and direct its environmental monitoring program. All monitoring and monitoring advice is provided by a range of suitably qualified technical specialists. In addition to monitoring environmental effects within the airport site, Melbourne Airport also monitors some aspects that can affect the surrounding environment.

Monitoring programs undertaken in accordance with the Environment Strategy are listed in Table 16-4.

### 16.3.3 Environmental awareness and training

Ongoing environmental awareness and education within business units across Melbourne Airport is essential to identify and manage risks and to achieve positive environmental outcomes. As outlined in the EMS, Melbourne Airport administers an effective environmental training program through environmental induction training, environmental awareness training and job-specific environmental training. Topics include regulatory requirements, spill response, biodiversity awareness and management of hazardous materials.

APAM employees whose work may result in a significant impact to the environment are expected to be competent in that work, and to have received appropriate training. An effective environmental awareness and training program is essential for achieving good environmental performance.

APAM delivers three levels of environmental training:

1. Environmental Induction Training – to introduce new employees to APAM's Environment Policy, the EMS and the Environment Strategy
2. Environmental Awareness Training – to update employees with developments in APAM's Environment Policy, the EMS, the Environment Strategy and key environmental management initiatives
3. Job-specific environmental training – to provide employees involved in activities that have potential for significant environmental impact with the skills needed to undertake these activities in a competent manner.

APAM's tenants and other operators are required to undertake relevant training related to the environmental risks associated with their operations. These requirements are documented within tenants'/ operators' OEMPs and/or CEMPs. Compliance is verified via APAM's inspection and audit program.

Contractor managers (i.e. APAM employees who oversee work undertaken by a contractor) are responsible for obtaining assurance that contractors undertaking activities at Melbourne Airport are appropriately trained and competent. Contractors working at the airport must undergo an induction, which includes a section that outlines their responsibilities under APAM's EMS.

Table 16-4: APAM's ongoing environmental monitoring program

| Environmental aspect                  | Monitoring type  | Specified frequency                                 |
|---------------------------------------|--|---|
| Environmental management              | Reporting to Safety, Security and Environment Steering Group                                       | 2-monthly   |
|                                       | Internal EMS Conformance Audit   | Annual  |
|                                       | Environment Management System ISO14001 External Audit  | 9-monthly   |
|                                       | Environment Management System ISO14001 Recertification   | 3-yearly  |
| Sustainability in planning and design | Qualitative review of the implementation of the ESD principles in new developments                 | Ongoing   |
|                                       | Water use  | Monthly   |
| Energy and carbon                     | Gas use  | Monthly   |
|                                       | Fuel use   | Monthly   |
|                                       | Electricity use (overall)  | Monthly   |
|                                       | Electricity use (multiple submeters)   | Ongoing   |
|                                       | Fuel usage (ground vehicles)   | Weekly  |
| Hazardous materials                   | Underground storage tank integrity testing   | Annual  |
|                                       | Inspections of hazardous materials storage areas   | Regular and ongoing                                 |
| Cultural heritage                     | Archaeological site monitoring   | As required   |
| Land and water management             | Soil contamination testing   | Prior to all major construction activities          |
|                                       | Soil erosion   | Monthly during CEMP inspections                     |
|                                       | Stormwater quality   | Quarterly   |
|                                       | Groundwater quality  | Annual  |
|                                       | Visual inspections of stormwater outlets   | Twice weekly inspections of nearby creeks           |
|                                       | Stream health monitoring surveys   | Annual  |
| Biodiversity and conservation         | Airside wildlife monitoring  | Daily   |
|                                       | Flora and fauna monitoring   | Annual / prior to all major construction activities |
| Air quality and ground-based noise    | Carbon monoxide, oxides of nitrogen, ozone, sulphur dioxide, particulate matter—onsite and offsite | Hourly with annual report                           |
|                                       | Ground-based noise   | As required   |
| Waste management                      | Bin room inspections   | Regular and ongoing                                 |
|                                       | Triple interceptor traps   | 3 weeks to 12 months, depending on trap             |
|                                       | Trade/greasy waste discharge monitoring  | 3 weeks to 12 months, depending on trap             |
|                                       | APAM internal office waste audit   | 6-monthly   |



## 16.4 Action plans

Achieving the objectives of this strategy and the targets for each environmental aspect requires:

- an understanding of the current situation and future trends
- a sequenced set of actions to be undertaken, with assigned responsibilities and timeframes for implementation.

The following sections provide the targets committed to, relevant foundational knowledge, and an action plan for achieving the targets under each environmental aspect.

**Proactive environmental management will be critical to achieving the goals of this strategy. This action plan ensures that Melbourne Airport's EMS is fully functional and continues to be improved.**

### 16.4.1 Environmental management

#### 16.4.1.1 Targets

- 100% of scheduled inspections and audits completed
- 100% of follow-up actions from inspections and audits closed out
- 100% of Operational Environmental Management Plans received and reviewed
- 100% of Codes of Environmental Practice signed and returned
- 100% of new staff and contractors undertake Environmental Induction Training
- Maintain certified EMS to ISO 14001:2015

#### 16.4.1.2 Background

Melbourne Airport's certified EMS has been in operation since 2004 and has recently been updated to align with the current EMS standard (ISO14001:2015). APAM is committed to maintaining this certification. The EMS is the primary mechanism for implementing the Environment Strategy.

The responsibility for environmental performance at Melbourne Airport lies with the board of directors and the CEO. The board and the CEO are supported by the Corporate Services business unit and the Senior Leadership Team in the establishment, review and implementation of the Environmental Management Framework and System. These have been designed to ensure that processes for continuous improvement and ongoing monitoring of compliance are embedded in the way we work. The Environment Team is responsible for identifying and delivering strategies to address environmental issues and for providing advice and support regarding environmental matters across the organisation.

The EMS provides a framework for monitoring and addressing environmental impacts associated with APAM's operations. The EMS consists of the policies, plans, procedures and activities that together form a systematic approach to managing environmental aspects and meeting compliance obligations. Internal and external audits of the EMS are undertaken regularly to assess the compliance of operational systems.

The EMS applies to all Melbourne Airport staff, contractors and subcontractors. Environmental compliance is internally monitored and reviewed on an ongoing basis. Compliance is also externally (and annually) reviewed by the AEO, on behalf of the Department of Infrastructure, Regional Development and Cities, via the annual Airport Environment Report. In addition, the EMS itself is externally audited periodically as part of maintaining ISO certification.

Airport tenants, business operators and contractors are required to perform their activities in accordance with the Airport Environment Strategy, Environment Policy and the EMS and must ensure their activities are compliant with applicable legislation and policy.

APAM monitors and measures the following areas of the EMS:

- environmental objectives
- operations and activities that can have a significant environmental impact
- compliance with applicable environmental legislation and other compliance obligations.

APAM tracks non-conformances and the corrective and preventive actions developed to address them.

An important aspect in an EMS is the identification and management of actual or potential contraventions of the Environment Policy or the EMS, and the incorporation of improvement suggestions to the system and procedures. The EMS requires that a process is in place to ensure that non-conformances are addressed through corrective and preventive action(s).

APAM uses the Safety (and environment) Incident Management System (SIMS) to document and track non-conformances. When SIMS is not available to the staff reporting the non-conformance, a templated Incident Report Form is used and is then provided to the Environment Team. In either case, non-conformances are registered, investigated, addressed and closed-out.

Within the airport's complex operating environment, maintaining the day-to-day functionality of the EMS, while at the same time continually improving the efficiency and effectiveness of its processes, presents an ongoing challenge for the Environment Team. The action plan at Table 16-5 summarises the activities in operating and maintaining the continuous improvement loop of the EMS, and provides a clear pathway to ensure the Airport Environment Team effectively manages the EMS.

While we achieved, or are continuing to implement all of the last Environment Strategy's targets, our new targets ensure we remain proactive in our monitoring, inspection and compliance programs using a risk-based approach.

**Table 16-5: Action plan for environmental management at Melbourne Airport**

| Action | Details   | Timeframe        |
|--------|---|------------------|
| 1      | Implement EMS updates from 2018 internal audit  | 2018             |
| 2      | Ensure the Environment Policy and Airport Environment Strategy are hosted on the internet for distribution to sub-lessees, licensees, other airport users and the local community | Early 2019       |
| 3      | Develop and implement a risk-based inspection and audit schedule for tenants, contractors and relevant APAM operations  | 2018 and ongoing |
| 4      | Maintain a register of follow-up actions  | Ongoing          |
| 5      | Allocate adequate resourcing to review tenant OEMPs at the required frequency and follow up if required   | Ongoing          |
| 6      | Regular inspections of low-risk tenants to ensure their COEPs are current and available   | Ongoing          |
| 7      | Regular inspections of high-risk tenants to ensure their OEMPs are current and available  | Ongoing          |
| 8      | Regularly report progress on targets to the Senior Leadership Team  | Ongoing          |
| 9      | Ensure the Melbourne Airport employee and contractor environmental induction is up to date  | Ongoing          |
| 10     | Record all attendance for environmental inductions  | Ongoing          |
| 11     | Undertake regular external audits of the EMS  | Ongoing          |
| 12     | Implement corrective actions to the EMS as required   | Ongoing          |
| 13     | Submit Annual Environmental Report to DIRDC, including reporting on environmental issues/incidents  | Ongoing          |
| 14     | Conduct formal monthly meetings with the AEO to review environmental progress and implementation of the Environment Strategy  | Ongoing          |
| 15     | Update and maintain internet site to provide environmental information to the community   | Ongoing          |
| 16     | Prepare and make publicly available information on key environmental achievements   | Ongoing          |

## 16.4.2 Sustainability in planning and design

**Melbourne Airport recognises its responsibility for contributing to the sustainability of Melbourne (and Victoria) as a whole. This action plan is targeted at ensuring that planning and design decisions are focused on building long-term sustainability and resilience.**

### 16.4.2.1 Targets

- Integrate Environmentally/Ecologically Sustainable Design (ESD) principles into new developments
- Implement appropriate actions that build climate resilience based on the outcomes of the Climate Change Adaptation and Mitigation Framework
- Complete and commence implementation of the Melbourne Airport Integrated Water Plan
- Reduce total potable water use (from FY17 levels)
- Implement a Melbourne Airport Sustainable Procurement Policy

### 16.4.2.2 Background

This action plan focuses on issues that are significantly broader (in terms of space and time) than the airport's day-to-day operations. Specifically, this includes ESD, climate resilience, water efficiency and procurement considerations. Energy and carbon have similarly broad implications and are addressed in a separate (albeit related) action plan.

#### **Ecologically Sustainable Development**

ESD aims to meet the needs of people today while conserving our ecosystems for the benefit of future generations.

The Melbourne Airport Planning and Urban Design Strategy (2015) provides a framework to encourage the adoption of ESD principles and initiatives in Melbourne Airport projects. The incorporation of ESD principles into asset management and operational practices at the airport will drive efficiencies in resource use, minimise environmental impacts and maximise commercial returns.

The future development of plans for Melbourne Airport to accommodate the predicted passenger growth will result in an increasing demand on natural resources and potentially increased impacts on the environment. Challenges associated with this growth and potential environmental impacts include:

- the rising cost of utilities
- increased water demand and potential scarcity exacerbated by climate change
- the depletion of non-renewable resources and materials
- increased carbon emissions
- climate change impacts
- other adverse environmental impacts including ecological harm, pollution and waste generation.

Melbourne Airport recognises the need to achieve a balance between future development and its environmental impacts. The mitigation of environmental impacts will be addressed by the integration of ESD principles into design guidelines, construction management and the operation and maintenance of buildings and infrastructure.

Melbourne Airport has developed a number of initiatives and design principles aimed at mitigating environmental impacts and improving the efficiency of resources in development projects. Indeed, the new Terminal 4 development was completed in line with the Leadership in Energy and Environmental Design (LEED) Guidelines.

The airport's 'Contractor Guide to Working at Melbourne Airport', and property and retail works fit-out guides, provide direction for incorporating ESD principles into the design and fit-out of Melbourne Airport developments. These guides recognise the importance of environmentally sensitive building design and construction practices to achieve high-performance building operations that are efficient and effective and fit for purpose. This includes the use of environmentally sustainable materials, low-volatile organic compound finishes, and improved energy and water efficiency.



### Climate resilience

The climate resilience of Melbourne Airport contributes directly to the climate resilience of Victoria as a whole. Therefore, in the interests of future-proofing its operations and environmental performance in the face of this climate change uncertainty, Melbourne Airport will work to build its resilience to a range of possible future scenarios.

To this end, Melbourne Airport has undertaken a Climate Risk and Vulnerability Assessment, and a similar assessment has been undertaken as part of the Runway Development Program.

Through these assessments, Melbourne Airport has concluded that projected changes in climate will exacerbate many existing climate-related risks. In particular, those risks related to high temperatures, extreme rainfall, drought and fire weather are likely to increase in both likelihood and severity. The effect of climate change on other weather-driven risks such as those related to wind and lightning is less clear.

Similarly, risks continue to arise from the regulatory and market transformation from governments and communities acting to reduce greenhouse gas emissions and/or adapt to climate change. These risks have been examined and have the potential to affect access to capital, reputation, investor concerns and regulatory pressure on the carbon-intensive aviation sector. Conversely, some of these factors also represent opportunities to drive projects in renewable energy and resource efficiency.

In the interests of future-proofing its operations and environmental performance in the face of this uncertainty, Melbourne Airport will work to build its resilience to a range of possible future scenarios. A key action will be to develop a Climate Change Adaptation and Mitigation Framework. This will be developed in consultation with stakeholders, including the state government. The framework will be designed to complement the Climate Change Strategy and Transport System Adaptation Action Plan, which will be developed by the state government under the *Climate Change Act 2017* from 2020.

## Water

Responsible water consumption and management is a key priority for Melbourne Airport due to the forecast demand from future airport growth and the potential impacts that climate change (and Melbourne's population growth) could have on water availability.

The main demand for water use in the airport comes from:

- terminal buildings, including bathroom facilities
- catering facilities
- airport and aircraft maintenance
- cooling towers.

Melbourne Airport's potable water network is undergoing a significant end-of-life replacement program to ensure it supports current and future demands.

Melbourne Airport is developing an Integrated Water Plan that will promote water efficiency and water-sensitive urban design initiatives and minimise potable water consumption and improve water quality. The intended benefits of the upgrade and plan are:

- more accurate, efficient and cost-effective operation of water utilities
- water supply that is more reliable and of higher quality
- development of additional water re-use and treatment facilities
- securing sufficient water capacity for current operations and projected growth
- reduction in the total potable water consumption of the airport precinct through efficiencies, demand reduction and water re-use
- feasibility analyses into further opportunities for water re-use and supply diversification.

Furthermore, Melbourne Airport has invested in significant rainwater and stormwater harvesting infrastructure and water treatment facilities. There are further opportunities to expand and complement this existing infrastructure. The incorporation of water-sensitive urban design initiatives within specific developments will result in a reduction in potable water demand and costs.

## Sustainable procurement

Sustainable procurement is a process that aims to reduce the triple bottom line (environmental, social and economic) impacts of purchased products and services. The process considers such impacts across the lifecycle of a product or service, from raw materials to operation and disposal/recycling. The scale of Melbourne Airport's operations means that the upstream and downstream impacts of its procurement decisions can be far reaching and long-lasting.

In recognition of this potential, Melbourne Airport is in the process of developing a Sustainable Procurement Policy to help it better manage the sustainability risks up and down its supply chain.

Melbourne Airport only had 2 targets related to ESD in the Environment Strategy, both of which have been achieved. Our new Environment Strategy builds on these achievements and focuses on integrated water management and further reducing our potable water use, and will deliver a Sustainable Procurement Policy.

Table 16-6 presents the action plan for sustainability at Melbourne Airport.



Table 16-6: Action plan for sustainability at Melbourne Airport

| Action | Details  | Timeframe       |
|--------|--|-----------------|
| 1      | Review the implementation of the ESD principles outlined in the Melbourne Airport Planning and Urban Design Strategy and the contractor guidelines for working at Melbourne Airport for new developments   | Ongoing         |
| 2      | Complete and start implementing the Melbourne Airport Integrated Water Plan including developing specific action plans to re-use water, reduce the use of potable water and improve water quality  | 2018 and beyond |
| 3      | Develop a Melbourne Airport Sustainable Procurement Policy   | 2019 and beyond |
| 4      | Collaborate with Melbourne Airport business partners and tenants to identify opportunities for potable water-saving measures   | Ongoing         |
| 5      | Monitor potable water consumption across Melbourne Airport and investigate/ implement improvements to the monitoring system  | Ongoing         |
| 6      | Review the ESD principles in the Melbourne Airport Planning and Urban Design Strategy and the Melbourne Airport Development Manual and identify opportunities to adopt improved sustainability measures (e.g. Infrastructure Sustainability Council of Australia IS rating, LEED, Green Star – Communities, National Australian Built Environment Rating System, and Global Reporting Initiative). Update as necessary | 2019            |
| 7      | Investigate opportunities to maximise climate resilience at Melbourne Airport (inside and outside) through review of planting guidelines and the development of a landscape strategy for Melbourne airport   | 2020            |
| 8      | Implement, where appropriate, recommendations from above   | 2020+           |
| 9      | Develop a Climate Change Adaptation and Mitigation Framework consultation with stakeholders, including the state government. The framework will be designed to complement the Climate Change Strategy and Transport System Adaptation Action Plan, which will be developed by the state government under the Climate Change Act from 2020  | 2020+           |
| 10     | Review the implementation of the Sustainable Procurement Policy  | 2022            |

## 16.4.3 Energy and carbon

**The Australian energy market is in a state of change. Melbourne Airport will need to balance volatile energy prices, evolving grid dynamics, new technologies and decarbonisation. This action plan is aimed at ensuring Melbourne Airport strikes this balance while still ensuring reliability of the services it provides to customers and tenants.**

### 16.4.3.1 Targets

- 20% reduction of annual grid electricity consumption by FY20 (compared with FY17)
- Install 10 megawatts of renewable energy capacity by 2021
- Establish science-based carbon reduction targets
- Implement the Airports Council International Level 2 Airport Carbon Accreditation and progress towards Level 3 accreditation
- Develop a Carbon Management Plan

### 16.4.3.2 Background

Melbourne Airport has long been committed to reducing its energy intensity and carbon footprint. Under its 2003 Environment Strategy, the airport developed and implemented an Energy Management Plan. Over subsequent years, the airport has, among other measures, rolled-out LED lighting and energy efficient appliances, continued to offset carbon emissions for APAM staff flights and vehicle emissions, and installed an 8 megawatt gas-fired tri-generation system (Figure 16-7).

Primarily as a result of the tri-generation system, APAM's Scope 1 and 2 greenhouse gas emissions dropped by 22 percent in FY17 compared with FY16 (Figure 16-8) In late 2017 the airport achieved Level 1 accreditation under the International Airport Carbon Accreditation scheme through our policy commitment to emissions<sup>1</sup> reduction and the development of a Scope 1 and 2 carbon footprint.

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<sup>1</sup> Scope 1 emissions are from sources that are directly controlled by APAM (e.g. gas boilers and on-site vehicles). Scope 2 emissions are from the generation of purchased electricity.



Figure 16-7: Melbourne Airport's Tri-generation Plant – low carbon electricity generation

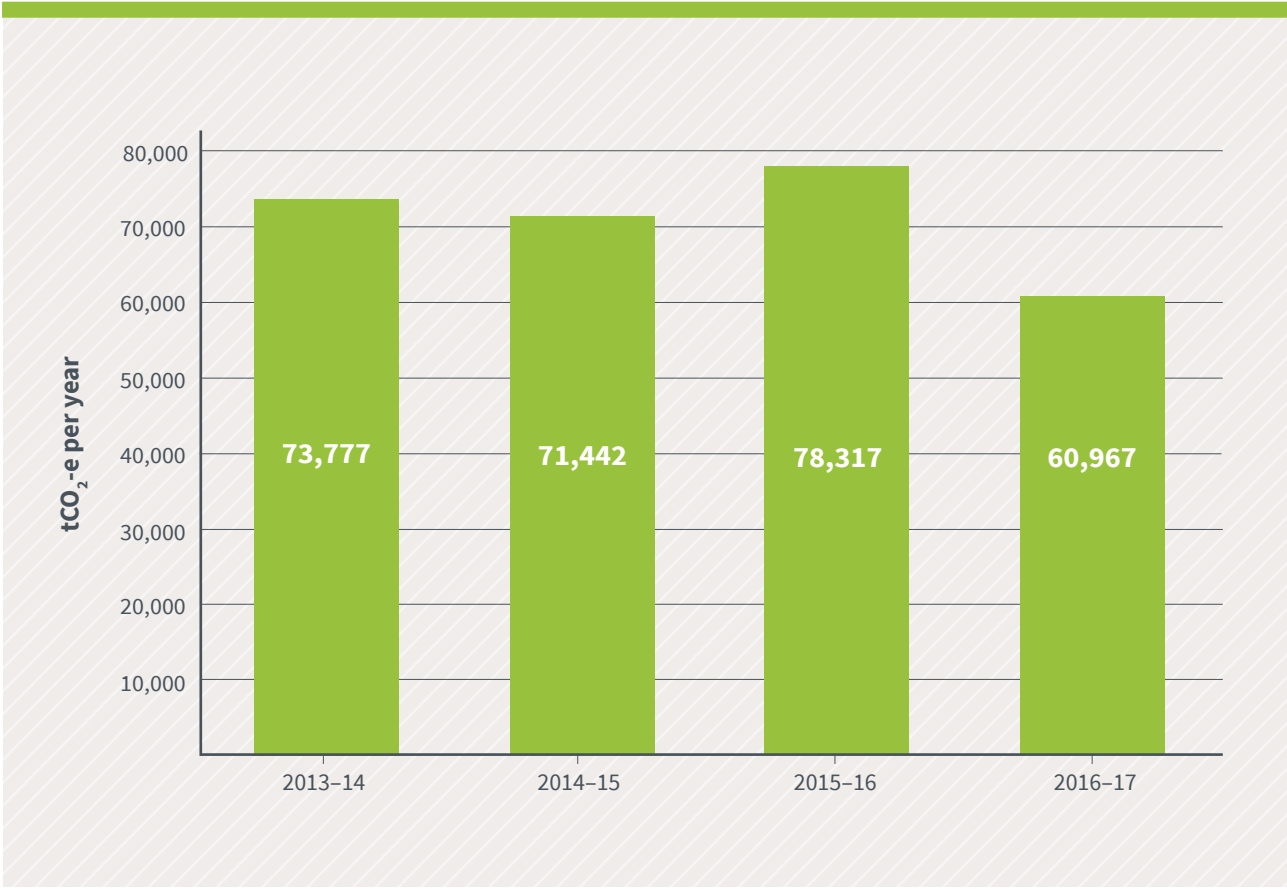


Figure 16-8: APAM Scope 1 and 2 emissions

From an energy perspective, APAM's electricity consumption has varied slightly year to year but has not grown appreciably since FY14. This demonstrates the effectiveness of the implemented energy efficiency measures, given the growth of APAM's operations in recent years. However, electricity consumption across the airport as a whole (which includes non-APAM areas) has grown, as has energy from fossil fuels consumed on site.

Melbourne Airport is now facing significant challenges to its energy and carbon management position. These challenges are driven by:

- sustained increases in wholesale price for electricity and gas. APAM Common Use energy is projected to cost significantly more in FY18 than in FY17. Increases in gas prices have altered the economics of operating the tri-generation system. Indeed, the emissions reduction unlocked by this system are at risk of being lost
- Property and Aviation business unit developments, which place upward pressure on energy demand. Overall, this upward trend in consumption is forecast to continue. APAM forecasts a 20 percent increase in airport-wide electricity consumption by FY20
- the need for APAM to play its part in reducing emissions in line with Victoria's target of net zero emissions by 2050.

These challenges are expected to play out in an environment of rapidly evolving technology and economics. Renewable energy installations are becoming increasingly cost competitive and energy storage technologies are coming to scalable maturity. The software and contractual developments necessary to govern microgrids and peer-to-peer energy trading are rapidly emerging, and Power Purchase Agreements are becoming an established solution.

Responding to these challenges and changes in context, Melbourne Airport will:

- roll out its Energy Strategy, which aims to reduce energy intensity by 20 percent by 2020. This strategy focuses on APAM's 'common energy use', which is energy (electricity and natural gas) over which APAM has direct operational control to service the operation of the airport (aviation processing, lighting, thermal plant, etc.) and supporting infrastructure (such as car parks, airfield lighting, data centres and roads). The strategy will be achieved by:
  - » optimising energy use through energy efficiency measures and smart monitoring and control systems
  - » transitioning to renewable energy
  - » targeting smart procurement options
- roll out a Solar Adoption Program, which aims to have 11 megawatts of solar PV generation installed on site by FY21
- roll out a Carbon Management Plan, which will include formalised emissions reduction targets and a pathway for achieving them.

While Melbourne Airport was unable to achieve the target of 'Aim for 15 percent of operational energy consumption to be generated or purchased through on-site renewables or accredited green power schemes' in the last strategy period, energy use where the Airport has operational control has not grown appreciably since FY14. Our new strategy will deliver best practice targets for carbon emissions and continue to reduce our grid consumption of electricity.

Table 16-7 presents the action plan for energy and carbon at Melbourne Airport.

Table 16-7: Action plan for energy and carbon at Melbourne Airport

| Action | Details  | Timeframe        |
|--------|--|------------------|
| 1      | Roll out the APAM Energy Strategy, which aims to reduce annual grid electricity consumption by 20% by 2020   | 2018 and ongoing |
| 2      | Collaborate with Melbourne Airport business partners and tenants to identify opportunities for energy-saving measures  | 2018 and ongoing |
| 3      | Explore the use of alternative fuel sources for airside equipment, including examination of electric vehicles, hybrid vehicles and alternative options for auxiliary power units               | 2018 and ongoing |
| 4      | Roll-out the Solar Adoption Program, which aims to have 11MW of solar PV generation installed on site by FY21  | 2018 and ongoing |
| 5      | Formulate a carbon emissions reduction target using the science-based target-setting methodology   | 2018             |
| 6      | Develop and begin implementing a Melbourne Airport Carbon Reduction Plan to reduce carbon emissions from Melbourne Airport's own operations  | 2018 and ongoing |
| 7      | Quantify Scope 3 emissions, set a Scope 3 emissions reduction target and develop a plan to engage with stakeholders on methods for Scope 3 emissions reduction                                 | 2019 and ongoing |
| 8      | Maintain compliance with existing energy and greenhouse reporting and assessment programs including 'the National Greenhouse and Energy Reporting Scheme and the National Pollutant Inventory' | Ongoing          |



## 16.4.4 Hazardous materials

**Melbourne Airport will continue to work to minimise the risk associated with hazardous materials. Through our action plan, we will systematically examine options to replace hazardous materials with non-hazardous alternatives, and we will manage the use and storage of those hazardous materials that cannot be avoided.**

### 16.4.4.1 Target

- Reduce the use of hazardous substances

### 16.4.4.2 Background

A number of hazardous materials are stored and used at Melbourne Airport. These include fuels, oils, solvent-based chemicals and hazardous building materials. Without appropriate management and procedures, hazardous materials have the potential to affect the environment, including soil, groundwater, surface water, air quality and human health and safety.

Sources and uses of hazardous materials at Melbourne Airport include:

- bulk aviation and automotive fuel storage and handling
- fire training and the storage and use of firefighting foam
- tenant-operated maintenance facilities for vehicles and aircraft
- general airport operation, construction, maintenance and landscaping, including the use and disposal of pesticides and herbicides, solvents and paints, batteries, and asbestos-containing materials within existing buildings, fuels and cleaning chemicals
- other hazardous materials present in buildings and structures including:
  - » lead-based paints
  - » polychlorinated biphenyls (which may be present in lighting capacitors and transformers)
  - » ozone-depleting substances (potentially used as refrigerants in cooling systems)
  - » water used in cooling towers (may be a source of legionella bacteria).

Furthermore, some operational and construction activities can affect soil quality. The Airports (Environment Protection) Regulations require expert examination of contaminated sites if there is a possibility they could affect the surrounding area.

Melbourne Airport has several control measures in place to ensure all activities involving hazardous materials are appropriately managed:

- The Melbourne Airport Emergency Plan details standard operating procedures to minimise volatile organic and odorous emissions in the event of chemical spills and to reduce any potential environmental impacts.
- Business partners and tenants are required, as part of their OEMPs, to maintain registers detailing all hazardous materials (including asbestos) stored, handled or used as part of their operations. The individual OEMPs must include provisions for phasing out hazardous materials in favour of safer alternatives and reviews are conducted annually. Similarly, OEMPs include procedures that allow for managing by-products. Business partners and tenants are responsible for ensuring that, for operations under their control, these procedures and control measures are adhered to and that appropriate records and registers maintained.

Melbourne Airport will continue to store, handle, use and dispose of hazardous materials appropriately and will explore further options for sustainable environmental management principles. This is supported by our hazardous materials action plan (Table 16-8).

Table 16-8: Action plan for hazardous materials at Melbourne Airport

| Action | Details  | Timeframe       |
|--------|--|-----------------|
| 1      | Investigate replacing hazardous materials with non-hazardous substances and/or identify options to reduce their use        | 2018 and beyond |
| 2      | Map location of hazardous materials for APAM using a geographic information system (GIS)                                   | Ongoing         |
| 3      | Undertake regular inspections of hazardous materials storage areas   | Ongoing         |
| 4      | Ensure all applicable airport staff (and tenants) are trained in environmental emergencies/spill responses                 | Ongoing         |
| 5      | Develop and implement an airport-wide framework to guide the control and management of hazardous substances                | 2020            |
| 6      | Maintain the Asbestos Register, inspect sites annually and map the location of sites using a geographic information system | Ongoing         |



## 16.4.5 Cultural heritage

**This action plan will ensure the management of a range of risks that have the potential to have temporary or lasting impacts on cultural heritage values, in particular the risk of disturbance due to construction activities.**

### 16.4.5.1 Targets

- Develop and implement a site-wide Cultural Heritage Management Plan
- Identify and implement opportunities for enhanced visitor experiences based on Melbourne Airport's cultural and environmental heritage assets

### 16.4.5.2 Background

There are 182 known sites at which artefacts of cultural and heritage significance have been identified on or near the airport. Maintaining cultural heritage values on site is a high priority, as is maintaining a good ongoing relationship with the Registered Aboriginal Party.

Indigenous silcrete stone artefact scatters are common on site and there are cultural heritage sites including scarred trees within the Grey Box Woodland. There are also five historical heritage sites on airport land listed on the Victorian Heritage Inventory under section 121 of the *Victorian Heritage Act 1995*, including the Oakland Junction Township Site, agricultural sites, the Steele Creek Tributary Bridge Ruin and St Mary's Church. It is likely that there are further sites of cultural significance not yet discovered on airport land.

There are a range of risks that have the potential to have temporary or lasting impacts on cultural heritage values. These risks are managed through approval processes for scheduled works but also through undertaking additional assessments for Heritage Management Plan updates, to track the condition of cultural heritage values.

The most common cause of damage is inadequate identification and consideration of cultural heritage throughout the life of a project. To mitigate this risk, Melbourne Airport regularly undertakes assessments under Commonwealth and state legislative requirements to actively manage Indigenous and non-Indigenous cultural heritage values. Prior to beginning works in the vicinity of a recorded site or in areas of cultural heritage sensitivity, Melbourne Airport liaises with specialists and stakeholders to manage any potential disturbance. These assessments and liaison guide the approvals process.

Heritage values are currently documented in a web application tool that also provides a range of management actions to prevent, control or reduce the major risks to culturally significant areas. The Environment Team also maintains a Cultural Heritage Environmental Site Register. This register includes the location of Indigenous and non-Indigenous sites within and adjacent to the airport.

Where construction works are planned in areas of known or potential heritage values, Melbourne Airport requires the project contractor to prepare and implement a Construction Environmental Management Plan (CEMP) that outlines appropriate management measures and contingency plans. This includes cultural awareness training for all site personnel. In construction areas where a Cultural Heritage Management Plan (CHMP) is required, the actions stipulated within the plan are also required to be addressed within the CEMP.

Recently, a CHMP was prepared for the Runway Development Program. The CHMP has been approved by the Wurundjeri Council. All mitigation works will be undertaken in accordance with approved CHMP conditions.

The continued management and conservation of cultural heritage is an important aspect of the airport's future planning. Melbourne Airport also recognises the value in promoting this information and connecting with the community and its passengers through enhanced experiences and the sharing of local knowledge. Our cultural heritage action plan works towards these ends (Table 16-9). Figure 16-9 shows all areas of cultural significance within the airport's boundaries.

Table 16-9: Action plan for cultural heritage at Melbourne Airport

| Action | Details  | Timeframe |
|--------|--|-----------|
| 1      | Complete airport-wide assessment of heritage assets  | 2018      |
| 2      | Develop a field guide for identifying and managing sensitive cultural heritage matters onsite  | 2018      |
| 3      | Train relevant employees in how to use CHMP and recognising cultural heritage values   | Ongoing   |
| 4      | Maintain and update heritage values on the airport's geographic information system   | Ongoing   |
| 5      | Consult with relevant stakeholders on proposals that have a potential impact on items of heritage value  | Ongoing   |
| 6      | Develop and implement a Cultural Heritage Management Plan including consultation with stakeholders for areas outside of the Runway Development Program footprint | 2019      |
| 7      | Identify opportunities for enhanced visitor experiences based on Melbourne Airport's cultural and environmental heritage assets                                  | 2022      |

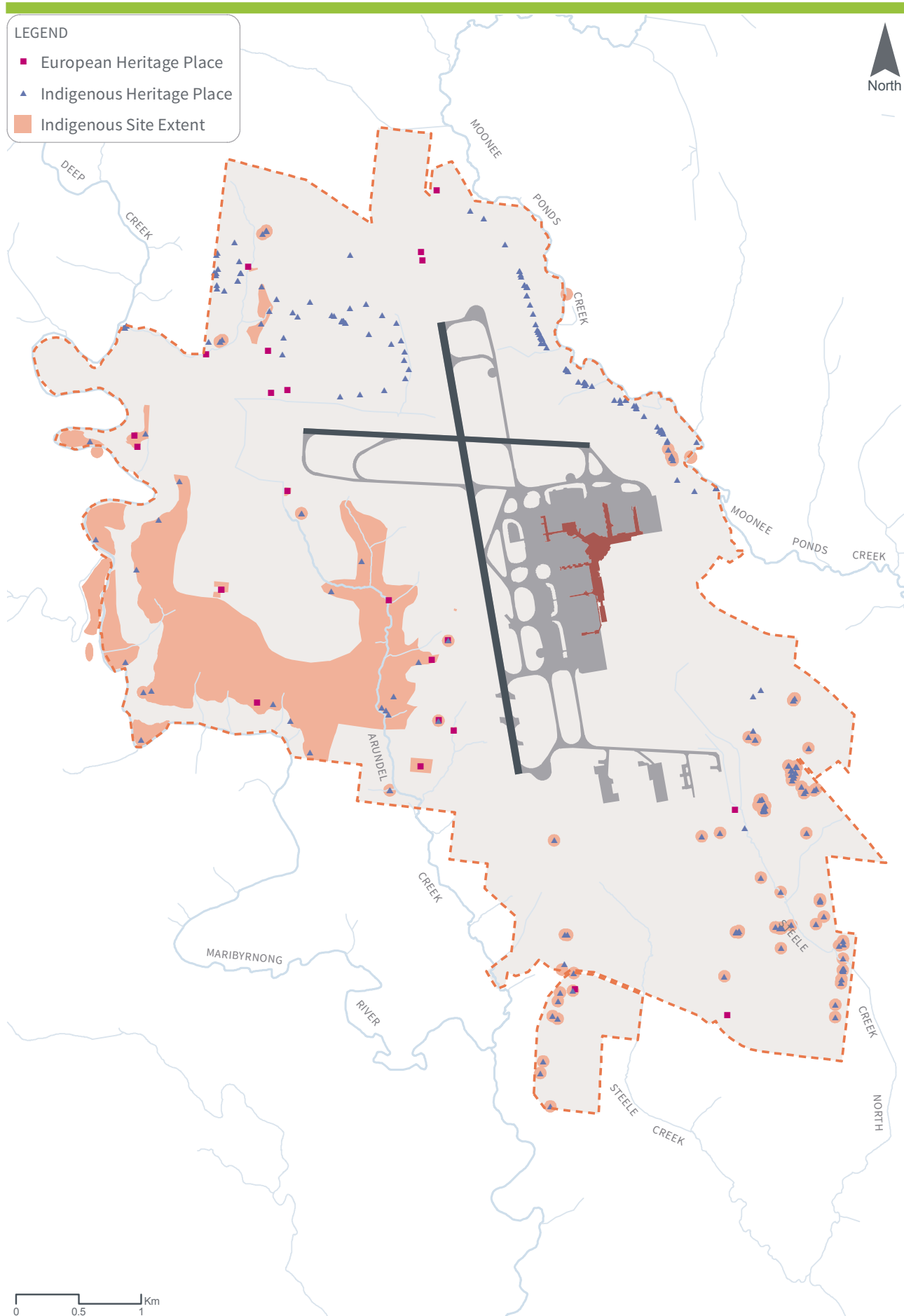


Figure 16-9: Aboriginal cultural heritage values at Melbourne Airport





### Area of archeological potential

Areas of undisturbed or minimally disturbed soils are potential archaeological deposits (PADs). PADs typically contain stone artefacts but may also include hearths, burials and other sub-surface archaeological features. PADs have not been archaeologically tested, so the nature of sub-surface deposits has yet to be confirmed. Until they are tested, they need to be managed in the same way as artefact sites.



### Artefact scatters

Artefact scatters are the most common Indigenous cultural heritage on Melbourne Airport land. They consist of flaked and ground stone tools and 'waste' from production. They are found in both surface and sub-surface contexts across the majority of the landscape. Artefacts tend to be found in the denser clusters near water, points with good views and other prominent landmarks.



### Stone quarry

Stone quarries are locations where Aboriginal people sourced raw stone material. Typically they are exposed to seams of silcrete, quartz or other hard material suitable for stone tools. There is one quarry in Melbourne Airport, located on an eroded section of Arundel Creek that has exposed a silcrete seam.



### Scarred trees

Scarred trees have been modified by Aboriginal people to remove bark to make shields, water carriers and other implements, leaving a scar. There are eight known scar trees located in the Greg Box Forest. The trees are alive, but vary in condition.



### Deep alluvial deposits

The riverbanks of Deep Creek and the Maribyrnong River have sections of alluvial deposits built up over many thousands of years. These deposits can contain evidence of past Indigenous land use such as charcoal hearths, ancestral remains and stone artefacts. Antiquity for Aboriginal occupation of Australia was first established in alluvial deposits at the nearby Keilor Skull site. These deposits can contain cultural heritage material and features in clay depths of more than two metres.



## Delisted Heritage Inventory sites

Delisted Heritage Inventory sites are considered destroyed or are unable to be relocated. Typically they have been removed by runway construction or by erosion. Delisted sites remain on the Heritage Inventory as an historical record but do not require approvals to harm.



## Archaeological deposits

Archaeological deposits include the remains of homesteads and other buildings. Ruins may be completely collapsed or removed and only foundations remain. Surviving under-floor deposits or rubbish heaps may provide a wealth of information about past lifestyles of European settlers and early settlement.



## Standing Structures

Standing structures includes culverts, homesteads or other built structures that are still standing. They are often in poor condition, but others remain in use as part of current road infrastructure.





## 16.4.6 Land and water management

**The management of land and water at Melbourne Airport involves mitigating risks that have a potential impact on both of these interrelated environmental aspects. As such, this action plan addresses land and water management as an integrated environmental issue.**

### 16.4.6.1 Targets

- Complete a site-wide PFAS investigation and undertake associated risk assessments
- Implement a site-wide Contaminated Land Monitoring and Management Strategy
- Reduce the total number of off-site noncompliances observed in surface water monitoring (from FY17)
- Increase the resilience of receiving waterways
- Implement a Groundwater Monitoring and Management Strategy

### 16.4.6.2 Background – land

The soil at Melbourne Airport overlies relatively shallow newer volcanic basalt, which is a hard and compact rock. Hazardous liquids such as fuels, oils and solvent-based chemicals, which are used frequently at Melbourne Airport, have a high potential to contaminate land. Activities that have the potential to affect the soil at the site included:

- chemical and waste storage, handling use and disposal
- water run-off from vehicle-related activities including aircraft maintenance and car park facilities
- importation and storage of contaminated fill
- fuel storage tanks and associated infrastructure
- demolition and construction works.

Due to the broad range of activities that can cause soil contamination, Melbourne Airport has developed numerous control measures to minimise and manage this issue. Any incidents of soil contamination and the ways in which this is managed are added to the Environmental Site Register. This allows for easy identification of when further investigations are required for particular sites or projects.

Furthermore, a site-wide contaminated land investigation is underway. This investigation will be used to better inform Melbourne Airport of the site's contamination status and the construction activities that result in the excavation of soil and generation of spoil at the airport.

The ongoing growth of Melbourne Airport will result in significant expansion to the airport's physical footprint. With this expansion there is a risk that works will interact with areas of soil contamination or could result in new contamination events. Careful consideration and management will also be necessary for transporting existing and imported fill material.

Melbourne Airport assesses all activities including construction and demolition projects for their potential impact on land, groundwater and surrounding waterways. Control measures are developed to minimise the impact of developments on these environmental aspects, and monitoring programs are in place to evaluate the effectiveness of these measures.

Through its land and water action plan, Melbourne Airport will investigate opportunities to remediate and repurpose airport land that adds value for the airport, local communities and environment.

### PFAS contamination

The body of scientific knowledge around the health risks of PFAS continues to grow. Historically at airports, PFAS have been found in firefighting foams used for aviation safety and fire training. These compounds are no longer in use; however, PFAS have been detected in soils, surface water and groundwater on site.

Melbourne Airport follows the PFAS National Environmental Management Plan (January 2018) to address all aspects of PFAS management on site.

### 16.4.6.3 Background – surface water

Melbourne Airport is located on a broad plateau in the catchments of the Yarra and Maribyrnong rivers, with several local waterways located on or adjacent to the airport site (Figure 16-11). The headwaters of Arundel Creek, Steele Creek and Steele Creek North originate on the airport site itself. These waterways support aquatic ecological communities and are also used for irrigation and stock watering purposes. Some reaches of Arundel Creek, the Maribyrnong River, Moonee Ponds Creek and Deep Creek also provide habitat for threatened species including the growling grass frog, *Litoria raniformis* and Australian grayling, *Prototroctes maraena*. These receiving waterways are an integral part of the local natural environment, and ongoing management for maintaining or improving their health is a key objective of the strategy.

Stormwater run-off at Melbourne Airport is managed through an extensive drainage network that includes vegetated swales, drainage pits, subsurface pipes, retention basins, raingardens and gross pollutant traps. Site management practices such as effective spill response construction site audits, erosion/sediment control, street sweeping and regular stormwater pit and gross pollutant trap maintenance are implemented to minimise potential contaminants leaving the airport site.

Water quality monitoring and stream health assessments have identified the need to increase the resilience of receiving waterways to airport stormwater flows. Some reaches of Moonee Ponds Creek, Arundel Creek and Deep Creek have degraded habitats and as such are more susceptible to impacts from stormwater flows. Revegetation and regeneration, weed and pest animal control, repairing bank erosion and stock management are all important considerations for future management.

Surface water pollutants have been primarily associated with certain firefighting foams (PFAS), heavy metals from aircraft operations and the road network and fuel storage. APAM's surface water monitoring program found that levels of some contaminants were above adopted guidelines at a number of locations across the site. No unacceptable human health risks have been found and APAM continues to monitor water quality at and surrounding the airport to inform future management actions.

The growing Melbourne Airport footprint will result in an increase in hard surfaces and stormwater run-off. This is expected to increase pressure on stormwater infrastructure and the receiving waterways. Without effective management, adverse environmental impacts could occur, such as bank erosion, weed invasion and degradation of aquatic and terrestrial habitat.

Climate change projections for the region indicate that surface water environments are likely to be affected by a number of climate variables including:

- altered rainfall patterns, with less rainfall in winter and spring affecting catchment rainfall and run-off regimes
- more frequent extreme daily rainfall events, with increased potential for flooding
- increased ambient air temperatures and evaporation, with more hot days and fewer cold nights (potential impacts include increased surface water temperatures, drier catchment soils and decreased run-off)
- higher incidence of severe fire weather conditions, with potential surface water impacts from a bushfire including high loads of ash and sediment run-off and bank destabilisation.

In response to these challenges, through the development of an Integrated Water Plan, Melbourne Airport has identified opportunities to improve water quality and increase the stability and resilience of receiving waterways to accommodate increased airport stormwater flows and minimise environmental impacts. These include better site management, new infrastructure, water re-use and habitat improvement. More specifically, key principles in managing stormwater discharge from the airport include:

- improving stormwater quality by upgrading water treatment measures such as filtration and retention
- reducing the potential for contaminants and litter in the stormwater catchments to enter the drainage network
- managing stormwater volumes so that peak flows and flow velocities are reduced to mitigate downstream erosion impacts and improve surface water quality
- identifying stormwater re-use opportunities through treatment and harvesting.

Though its action plan for land and water, Melbourne Airport will prioritise improving the quality of stormwater run-off and receiving waters through managing contaminants and increasing the resilience of the system through improved processes and technologies.



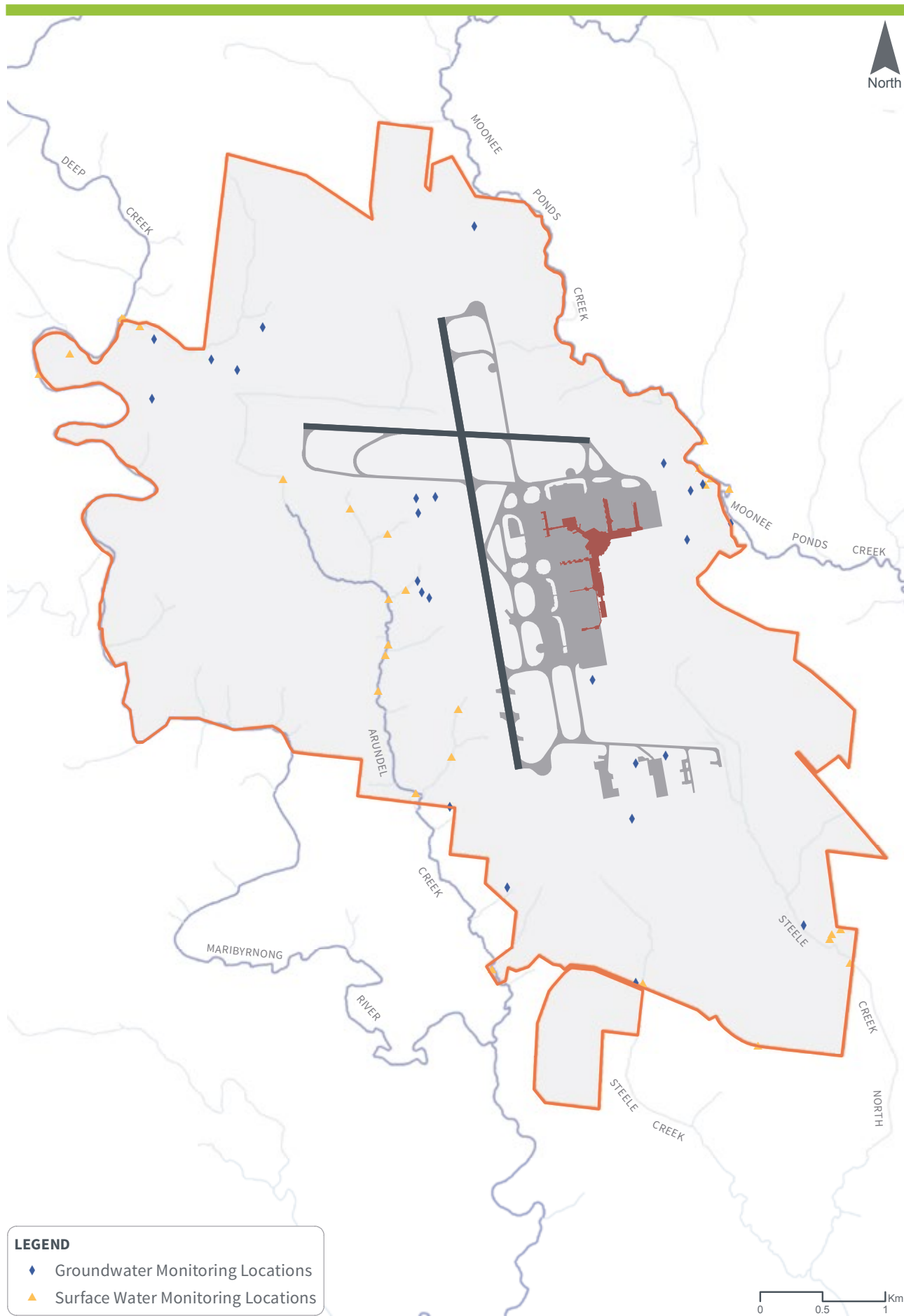
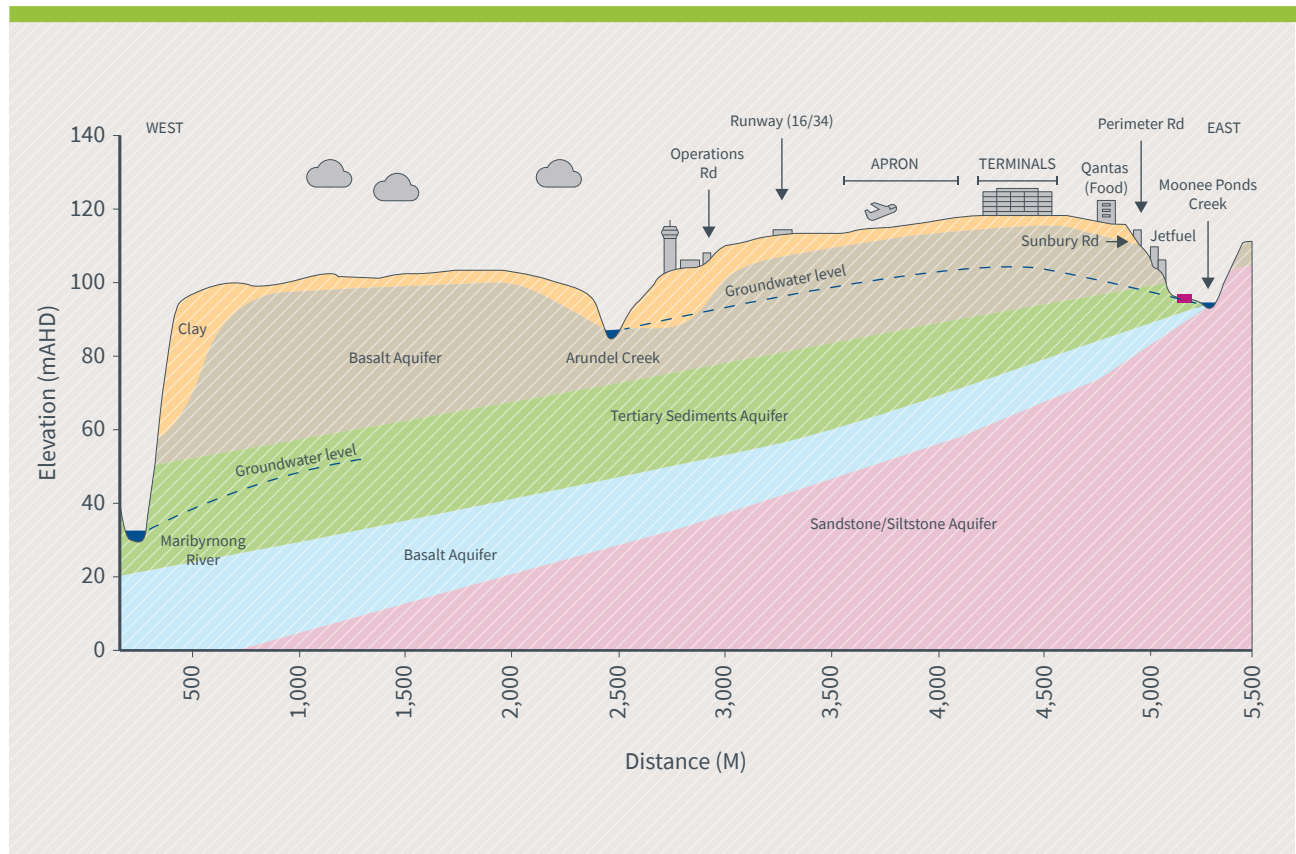


Figure 16-11: Location of waterways and groundwater monitoring points at Melbourne Airport

#### 16.4.6.4 Background – groundwater

Melbourne Airport is located above a regional aquifer. In some areas groundwater occurs at a shallower depth, interacting with surface and near-surface infrastructure. In these locations groundwater is vulnerable to contamination from surface activities. Understanding groundwater flow patterns, interactions and potential sources of contamination is critical to identifying risks, management and remediation. A simplified cross-section through the site showing the aquifers and groundwater depth is shown in Figure 16-12.



**Figure 16-12: Simplified cross-section beneath Melbourne Airport showing aquifer and groundwater level**

Potential groundwater contamination sources include:

- aircraft and vehicle maintenance, fuel storage and fuelling activities (including those undertaken at hangars and ancillary workshops)
- fire control operations including firefighting training, with reliance on the use of foam concentrates and powders
- petrol stations and other storage of petroleum hydrocarbons
- construction and refurbishment-related works
- existing solid waste disposal areas and areas with interim containment of impacted soils
- surrounding land uses (e.g. former landfills, agricultural uses).

Monitoring and managing groundwater is a key focus of Melbourne Airport due to the long-term use of the site and the historical use of chemicals and oils

and fuels. There are approximately 70 groundwater bores at the airport to monitor groundwater quality. Monitoring is regularly conducted at high-risk sites where current or historical activities have led to groundwater contamination.

The effects of climate change have the potential to affect groundwater levels and quality through increased localised recharge from stormwater run-off and from surface water bodies to groundwater.

To mitigate potential impacts on groundwater, Melbourne Airport undertakes the following measures:

- review of tenants' operational environmental management plans to assess whether appropriate emergency response (including spill response) and management measures are in place
- regular inspections and operational audits of active areas to verify existing management measures that are in place to mitigate potential risks

- compulsory spill response training to relevant personnel
- maintenance of existing infrastructure to minimise spills and uncontrolled discharges that could reach groundwater
- ongoing monitoring of known areas with contaminated groundwater
- ongoing development and implementation of CEMPs that include measures to prevent groundwater contamination during construction projects
- communication of existing groundwater information and identified sources of contamination to business operators and future developers
- working with relevant government agencies and stakeholders to identify priorities and effective management solutions for all site contaminants.

The completion of large stormwater management projects such as the Steele Creek North harvesting project, installation of a sediment and hydrocarbon trap to protect Moonee Ponds Creek and ongoing ground and surface water quality monitoring have all been achieved over the time frame of the last strategy. The airport is building on this information and experience to further improve land and water management over the next strategy.

The ongoing protection and maintenance of groundwater quality at Melbourne Airport is required to ensure compliance and to manage risks. Melbourne Airport has an overarching plan that assesses risks and sets appropriately designed management actions. The future management actions for groundwater are outlined in the action plan at Table 16-10.

**Table 16-10: Action plan for land and water management at Melbourne Airport**

| Action | Details  | Timeframe       |
|--------|--|-----------------|
| 1      | Develop a site-wide Environmental Management Plan for APAM operations that includes measures to prevent contamination of land and water  | 2018            |
| 2      | Design and construct a medium-term containment facility for managing contaminated soils  | 2018 and beyond |
| 3      | Identify opportunities across the airport to improve surface water quality including water-sensitive urban design and improved management practices, with a focus on Arundel Creek | 2018 and beyond |
| 4      | Improve the stability and resilience of waterways by actively managing feral animals, weeds, erosion   | 2018–22         |
| 5      | Develop a Contaminated Land Monitoring and Management Strategy that identifies contaminants of concern, priority sites and priorities for remediation                              | 2019 and beyond |
| 6      | Identifying priority sites for management and/or remediation that follow a risk-based approach   | 2019 and beyond |
| 7      | Develop and implement a Groundwater Monitoring and Management Strategy that identifies contaminants of concern and prioritises groundwater monitoring and remediation actions      | 2019 and beyond |
| 8      | Identify groundwater monitoring locations, frequency of monitoring and remediation following a risk-based approach   | 2019 and beyond |
| 9      | Develop a geographic information system that captures and graphically presents Melbourne Airport's site land and water management attributes                                       | 2019            |
| 10     | Undertake annual stream health monitoring surveys  | Ongoing         |
| 11     | Implement the PFAS National Environmental Management Plan, or any other such documents that may supersede this in time   | Ongoing         |
| 12     | Continue to ensure that tenants that meet legislative and lease obligations relating to entry and exit site audits/assessments   | Ongoing         |
| 13     | Map the existing underground and above ground tanks on the GIS   | Ongoing         |

### 16.4.7 Biodiversity and conservation

**The Melbourne Airport site is home to, or is likely to support, threatened ecological communities, threatened species and migratory species. We will continue to conserve the site's biodiversity during day-to-day operations and through the upcoming period of airport expansion.**

#### 16.4.7.1 Targets

- Develop a Strategic Biodiversity Advanced Offsets Framework
- Continue to implement the Biodiversity and Conservation Management Plan
- Meet or exceed Melbourne Airport's annual target 12-month average wildlife strike rate
- Implement a site-wide Integrated Pest Management Plan
- Implement an Ecological Community Management and Improvement Plan for high value ecological areas
- 20% reduction of high threat weeds within the environmental significance overlay areas of APAM-controlled land
- 50% reduction of feral pest animals within the environmental significance overlay areas of APAM-controlled land

#### 16.4.7.2 Background

The Melbourne Airport site is home to, or is likely to support, threatened ecological communities, threatened species and migratory species that are defined as Matters of National Environmental Significance (MNES). These MNES are inherently linked. The threatened ecological communities provide habitat for threatened or migratory species.

The site's Grey Box Woodland area is representative of a nationally threatened ecological community and is recognised as one of the largest remaining stands of this vegetation type in Victoria (Figure 16-13). It is listed on the Australian Heritage Council, Department of the Environment, Australian Heritage Database, the Register of the National Estate and the Commonwealth Heritage List. The woodlands provide potential suitable foraging habitat for the swift parrot, which is listed as endangered under Commonwealth legislation.

Areas across the site are designated as National Temperate Grasslands of the Victorian Volcanic Plains. Although degraded in some locations, the ecological community is nationally critically endangered, one classification short of extinction. Targeted surveys for the golden sun moth and striped legless lizard have not detected either species across the site over many years.

A range of endangered vegetation types have been mapped in waterways in and around the airport. The growling grass frog, a threatened species, is known to inhabit Moonee Ponds Creek and other surrounding waterways.

Within this sensitive environment, Melbourne Airport is subject to a range of existing and potential biodiversity threats. These include:

- infrastructure development and changes to surrounding land use
- weeds, pest animal invasion and grazing (rabbits, kangaroos and cattle)
- wildlife strikes
- stormwater and drainage run-off and water-quality impacts
- lack of prescribed fire (to aid germination and biodiversity health)
- climate change
- bushfire and wildfire.

The interconnected nature of the ecological values at Melbourne Airport therefore demands an integrated management approach.





Figure 16-13: Natural regeneration



Melbourne Airport has commissioned a number of ecological studies and assessments since acquiring the lease in 1997. In 2017 a Biodiversity and Conservation Management Plan (BCMP) was finalised. The BCMP contains targets, strategies, actions and monitoring requirements for a range of flora and fauna management areas.

The BCMP documents a wide range of management actions to prevent, control or reduce the major risks to environmentally important areas and MNES. These areas are actively managed for biodiversity and conservation purposes. For example, Melbourne Airport has actively managed the Grey Box Woodland since 2001, which has led to an overall improvement in the quality of this threatened community.

In addition, Melbourne Airport implements further measures to minimise impacts to fauna habitats and threatened species. Any proposed development at Melbourne Airport considers biodiversity values. Building on existing information, detailed assessments are undertaken prior to any development with the potential to impact on these values. All proposed developments consider options to minimise impacts to fauna habitats and threatened species, or where appropriate, offset those impacts at another location.

The conservation and active management of environmentally important areas at the airport is a key priority and will be achieved through continued application of robust monitoring programs and assessments, and through implementing an airport-wide framework for offsets. The associated management actions for achieving these outcomes are provided in our biodiversity and conservation management plan.

We engage with the community to help encourage the protection of biodiversity beyond the boundaries of the Airport. An example is our support of the Conservation Volunteers Program, which has been working to help preserve the endangered eastern barred bandicoot adjacent to the airport (Figure 16-14).

The airport has continued to build its knowledge of the site's biodiversity and conservation values over the period of the last strategy, having achieved all or continuing to undertake all identified targets. This strategy has specific targets around reducing key threatening processes (pest plants and animals), and implementing a management plan for areas of high environmental value to ensure these areas are improved over the life of this strategy.

Table 16-11 presents the action plan for biodiversity and conservation at Melbourne Airport. Figure 16-15 shows the ecological values and fauna habitat at Melbourne Airport.



**Figure 16-14: Eastern barred bandicoot**

**Table 16-11: Action plan for biodiversity and conservation management at Melbourne Airport**

| Action | Details  | Timeframe        |
|--------|--|------------------|
| 1      | Complete airport-wide assessment of biodiversity assets  | 2018             |
| 2      | Develop a Strategic Biodiversity Offsets Framework to guide the identification, negotiation and selection of off-site offset agreements  | 2019 and ongoing |
| 3      | Develop and implement a site-wide Integrated Pest Management Plan focused on reducing pest animals on the airfield   | 2019 and ongoing |
| 4      | Review the Biodiversity and Conservation Management Plan, with a focus on improving the long-term habitat and ecological functions that support MNES onsite (endangered flora and fauna) | Ongoing          |
| 5      | Implement the Biodiversity and Conservation Management Plan  | Ongoing          |
| 6      | Monitor and track Melbourne Airport's annual target 12-month average wildlife strike rate  | Ongoing          |
| 7      | Maintain biodiversity GIS mapping  | Ongoing          |
| 8      | Remove prickly pear weeds from areas of environmental significance   | Ongoing          |
| 9      | Undertake ripping and other rabbit control in areas of environmental significance  | Ongoing          |
| 10     | Implement the Wildlife Hazard Management Plan  | Ongoing          |
| 11     | Maintain a committee to address wildlife management at the airport   | Ongoing          |
| 12     | Implement the Melbourne Airport Tree Removal and Replacement Procedure   | Ongoing          |



Figure 16-15: Ecological values and fauna habitat at Melbourne Airport

## 16.4.8 Air quality and ground-based noise

**A number of activities at the airport have the potential to affect both air quality and ground-based noise. As such, this action plan looks to manage these impacts in an integrated manner.**

### 16.4.8.1 Targets

- Undertake a feasibility assessment for replacing diesel ground support equipment with electric alternatives
- Improve the reliability of the data capture rate of the Air Quality Monitoring Plan
- Continue to facilitate Noise Abatement Committee meetings

### 16.4.8.2 Background – air quality

Air quality in the vicinity of Melbourne Airport is typically affected by a range of sources and factors that are outside the control and boundary of the airport. For example, management of bushfires, controlled burns, wind-blown dust and smog from city-wide motor vehicle emissions, are not within the airport's control. In addition, meteorological factors can act to worsen Melbourne's air quality, for example, recirculating light winds (the 'Melbourne eddy') or wind-blown dust from the Mallee or Wimmera.

Nevertheless, activities within the airport boundary do contribute materially to Melbourne's air quality and Melbourne Airport reports annually to the National Pollutant Inventory via EPA Victoria.

Airport activities that can affect air quality include:

- aircraft operating on the ground and at low heights near ground level (less than approximately 900 metres above ground level)
- on-airport road vehicle traffic
- ground support equipment using diesel fuel on the apron
- ground power units and auxiliary (aircraft) power units
- power generation facility emissions related to Melbourne Airport operations and maintenance, other than those specifically for flying aircraft (e.g. from boilers, emergency generators and air-conditioners)
- emissions related to fire training operations including smoky emissions and the use of firefighting materials

- emissions of hydrocarbons and odours from aircraft and road vehicle refuelling/de-fuelling and emissions from fuel storage tanks
- emissions of dust and odours produced during construction works
- ozone-depleting refrigerants used in chillers.

Maintaining a sound scientific understanding of the airport's air emissions and air quality will enable adaptive management in the future. Melbourne Airport has been monitoring air quality since 2013. Two monitoring stations continuously monitor air pollutants including nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), carbon monoxide (CO), hydrocarbons, airborne fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and meteorological parameters such as wind speed and direction.

In 2016–17 an air quality impact assessment was undertaken to investigate the effects of ground-based activities on the surrounding environment and compliance with relevant legislation. The assessment was undertaken through extensive modelling and primarily to support the Runway Development Program. When compared with national and Victorian air quality standards, the data shows that key air pollutants do not represent a significant air quality issue for Melbourne Airport.

The most effective mitigation measures for air emissions at Melbourne Airport will be achieved through minimising and improving the efficiency of movements by aircraft, road vehicles and ground support equipment and advances in aircraft technology and emissions management. Efficiencies can be gained through switching to higher quality fossil fuels or replacing existing vehicles with electric or hybrid versions, resulting in lower emissions and better local air quality. Vehicles and plant are serviced on a regular basis using the Maximo asset management system to track when an asset is due to be serviced. This ensures that Melbourne Airport assets receive appropriate servicing and emissions to air are minimised.

Melbourne Airport continues to swap out ozone-depleting refrigerants with lower or no ozone depletion potential, for example the R-123 dichlorotrifluoroethane gas to R-134a tetrafluoroethane in the Terminal Service Building chillers, although there was no change to chiller refrigerants in 2016–17.

In line with the EMS, air quality management procedures are outlined in CEMPs, OEMPs and Permit to Commence Work conditions to minimise emissions of dust, odour and other air pollutants.

### 16.4.8.3 Background – ground-based noise

The management of airport noise is separated into air and ground-based noise sources. The noise generated by aircraft during flight, taxiing, landing and take-off is regulated by Airservices (chapter 9). While air noise tends to be a more significant source of noise impacts on surrounding areas than ground-based noise sources, this action plan focuses on Melbourne Airport's ground-based noise sources that have the potential to adversely affect the local community.

Ground-based noise sources at Melbourne Airport include:

- aircraft ground movements
- aircraft maintenance and testing including engine ground running
- fixed and mobile plant and equipment (e.g. power-generation facilities and GSE such as tow vehicles and fuel trucks)
- construction and demolition noise
- infrastructure maintenance
- road traffic noise from vehicles on the Melbourne Airport site (public and airport vehicles).

Melbourne Airport receives few ground-based noise complaints and has not experienced a serious incident related to noise emissions generated by ground-based operations.

Furthermore, Melbourne Airport has a specific policy in relation to ground running of aircraft (Melbourne Airport Operational Safety Policy: Ground Running of Aircraft, March 2015), which is used by airlines and maintenance staff. This policy specifies locations and procedures where aircraft ground running can be undertaken.

Melbourne Airport also conducts noise monitoring and manages the environmental impact in relation to ground-based noise sources by:

- holding quarterly Noise Abatement Committee meetings
- monitoring all noise complaints monthly to determine whether there are any particular emerging trends or issues
- managing and responding to any noise complaints received by Airservices in accordance with the airport's EMS procedures.

Melbourne Airport will plan for the potential increase in ground-based noise sources as the airport continues to grow. Noise management measures will be integrated into airport operations and procedures when planning for new development.

Table 16-12 presents the action plan for air quality and ground-based noise at Melbourne Airport.

**Table 16-12: Action plan for air quality and ground-based noise at Melbourne Airport**

| Action | Details   | Timeframe        |
|--------|---|------------------|
| 1      | Explore the use of alternative fuel sources for airside equipment, including examination of electric vehicles, hybrid vehicles and alternative options for auxiliary power units                  | 2018 and ongoing |
| 2      | Develop and start implementing an Air Quality Monitoring Plan including a review of existing modelling and recommendations for improvement. The plan will include both on and off-site monitoring | 2019             |
| 3      | Continue to adopt fixed electrical ground power units to minimise use of diesel-fuelled auxiliary power units   | 2019             |
| 4      | Facilitate discussions with Airservices and other key stakeholders on ways to minimise aircraft taxiing times, idling times and unnecessary aircraft engine usage                                 | Ongoing          |
| 5      | Ensure CEMPs outline strategies to manage dust  | Ongoing          |
| 6      | Undertake monthly site inspections of construction sites to make sure dust is appropriately managed   | Ongoing          |
| 7      | Carry out annual National Pollutant Inventory reporting and submit to EPA Victoria  | Ongoing          |
| 8      | Hold quarterly Noise Abatement Committee meetings   | Ongoing          |
| 9      | Monitor all noise complaints to determine whether there are any particular emerging trends or issues  | Ongoing          |



## 16.4.9 Waste management

**Under this action plan, Melbourne Airport will take a leadership role in ensuring tenants and operators contribute to improvements in waste management.**

### 16.4.9.1 Targets

- Implement a Melbourne Airport Waste Management Strategy
- Implement a Melbourne Airport Sustainable Procurement Policy to reduce the adverse environmental, social and economic impacts of purchased products and services
- Reduce the total waste disposed to landfill (from FY17 levels)
- Reduce level of contamination of commingled recycling from APAM and tenant bin rooms

### 16.4.9.2 Background

Waste is generated by both Melbourne Airport and operators (including tenants, airlines, retailers, ground handlers, maintenance, engineering, catering companies, construction and development). Due to the variety of contributors, waste streams are wide ranging and include quarantine waste, prescribed industrial wastes (solid and liquid), foreign object debris, organic waste (food and vegetation), paper, cardboard, and food and beverage containers. Ad hoc waste types include scrap metal, construction and demolition waste, concrete and asphalt, electronics and computers, furniture, office fittings and unclaimed baggage.

APAM, airlines and on-site operators generate at least 13,000 tonnes of solid waste every year. However, only about 20 percent of the total waste stream is under APAM's direct control. A breakdown of Melbourne Airport's waste types is provided in Figure 16-16.

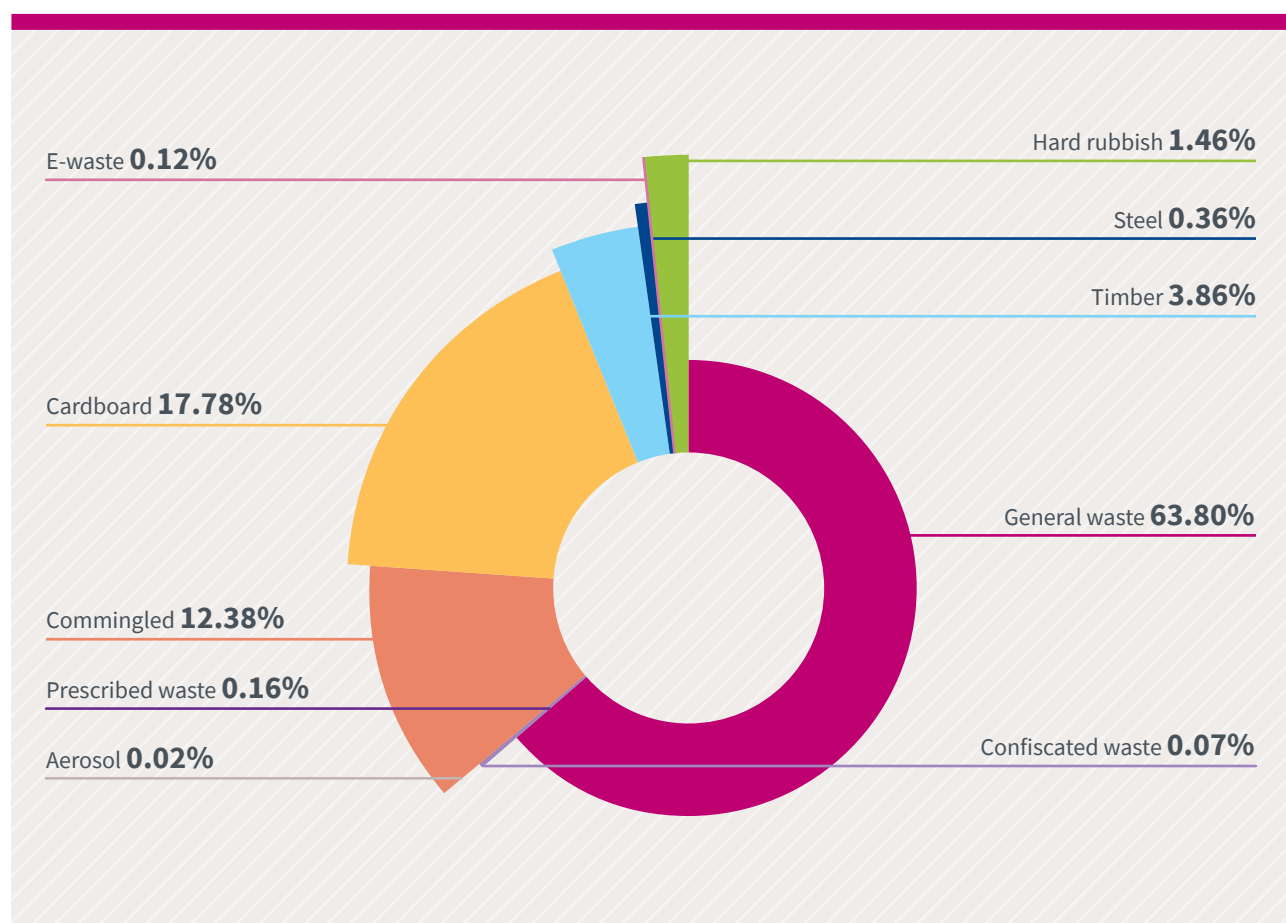


Figure 16-16: Melbourne Airport waste breakdown

Due to the nature of operations required at an airport, there are a number of potential waste-related issues:

- inconsistent solid waste disposal by Melbourne Airport operators, contractors and tenants
- inappropriate storage of waste oils, chemicals and other hazardous waste materials
- limited options and regulatory restrictions for the recycling and re-use of certain waste streams
- waste water run-off from airport operations such as aircraft and vehicle wash down
- generation of waste in an environment where many products must be used once and then disposed of
- illegal dumping of waste.

Waste management has transformed in the past decade as the cost of raw material and waste disposal has increased. There is an increasing awareness of the embedded, life-cycle impacts of materials associated with their extraction, transport, use and, ultimately, disposal.

The airport recognises that waste processes need to be effectively managed to reduce negative impacts. In 2016 Melbourne Airport appointed a single operator to collect all waste streams across the site. This has resulted in

improved waste management efficiencies and cost savings. Since 2016 Melbourne Airport has recycled more than 32 percent of waste generated on site (as at January 2017).

Melbourne Airport's Waste Minimisation Policy documents the airport's commitment to reducing the quantity of waste generated and the associated costs of managing that waste. The policy covers all airport operations and applies to all individuals, employees and contractors conducting business activities at the airport.

Under this policy, waste management is undertaken under a set of principles and the waste hierarchy framework. The framework aims to reduce, reuse, recycle and treat waste rather than dispose of it, particularly to landfill (Figure 16-17).

There are limited on-site options for the management and treatment of most waste streams. However, construction waste is recycled and re-used on site, as is waste vegetation as mulch across the site. Quarantine waste, defined as material from overseas that poses a potential biohazard threat to Australia, must be securely contained not only on site at Melbourne Airport but also during transport to approved disposal facilities.

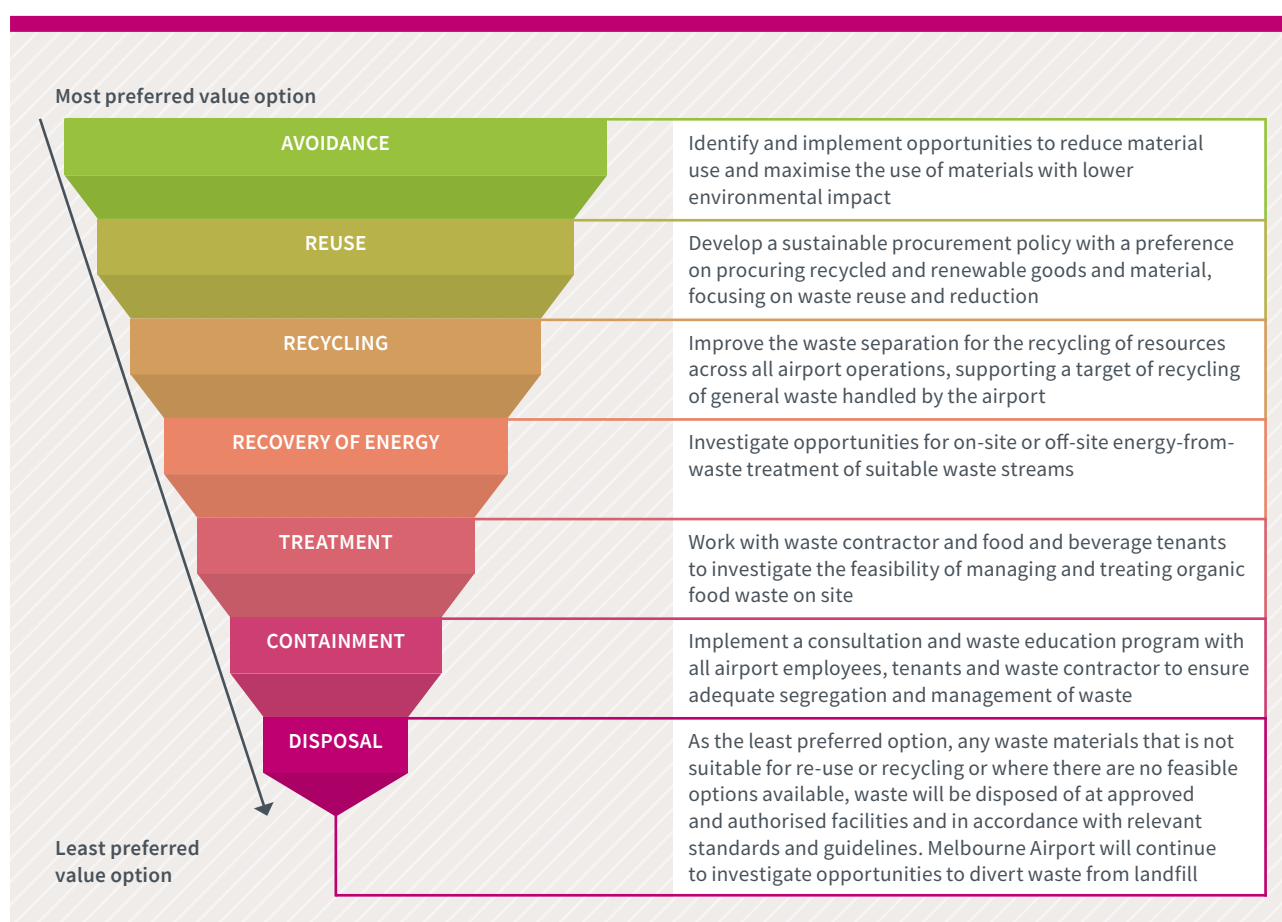


Figure 16-17: Alignment of Melbourne Airport's waste objectives to the management hierarchy

Melbourne Airport applies on-site waste minimisation and management practices across all airport-managed facilities by investigating new policies and procedures and encouraging accountability and efficiency. The reduction of waste being disposed to landfill is a priority for the airport to minimise environmental impacts.

Over the next five years, construction and demolition waste will be generated, including a range of waste from surplus or off-cut construction materials and clearing and the demolition of existing infrastructure. This development and its associated waste generation presents an opportunity to explore alternative management practices for these waste streams.

Our waste management action plan will help ensure that Melbourne Airport continues to improve its waste management practices. Central to this plan will be the development of Waste Management Strategy to manage all airport and construction wastes (including hazardous materials). The strategy will identify the type, amount and impact of waste streams and provide recommendations for improvement in accordance with the waste management hierarchy. The Waste Management Strategy will be complemented by a Sustainable Procurement Policy that will aim to reduce the adverse environmental, social and economic impacts of purchased products and services.

Table 16-13 presents the action plan for waste management at Melbourne Airport.

**Table 16-13: Action plan for waste management at Melbourne Airport**

| Action | Details   | Timeframe       |
|--------|---|-----------------|
| 1      | Develop a Melbourne Airport Waste Management Strategy to manage all airport and construction wastes (including hazardous materials)   | 2019            |
| 2      | Develop behavioural awareness campaign for tenants and employees about how to manage waste correctly  | 2019            |
| 3      | Develop a Melbourne Airport Sustainable Procurement Policy to reduce the adverse environmental, social and economic impacts of purchased products and services                  | 2019 and beyond |
| 4      | Collaborate with Melbourne Airport business partners and tenants to identify opportunities for improving waste management measures  | Ongoing         |
| 5      | Conduct regular tenant inspections to ensure appropriate waste management systems are in place. In addition, check for bin contamination and provide feedback on how to improve | Ongoing         |
| 6      | Undertake 6-monthly waste audits of APAM offices  | Ongoing         |
| 7      | Conduct regular inspections of bin rooms to monitor waste segregation   | Ongoing         |
| 8      | Continue to ensure that waste management and resource recovery are considered through development proposals for both construction and operational phases                        | Ongoing         |
| 9      | Continue to implement the management strategy and ensure tenants include waste management and resource recovery through their OEMPs   | Ongoing         |





# 17.0

## Safeguarding Melbourne Airport

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*This section provides the measures required for safeguarding the ongoing operations and growth of Melbourne Airport.*



## 17.0 Safeguarding Melbourne Airport

### KEY FEATURES



#### MAINTAINING AND SUPPORTING GROWTH

Maintaining, protecting and supporting ongoing operations and growth at Melbourne Airport



#### WORKING WITH GOVERNMENT

Working closely with the Victorian Government, local government and surrounding communities to restrict incompatible development from encroaching on airport operations

### 17.1 Overview and objectives

The capacity of an airport to operate unencumbered is fundamentally dependent on the activities on the land surrounding it. Erecting structures that physically intrude into the flight paths of arriving and departing aircraft can clearly limit or prevent the airport's use. Impacts on the airport can also occur because of other developments that are perhaps less obvious, for example:

- Residential developments adjacent to airports and under flight paths may lead to complaints about aircraft noise and calls for the introduction of operating restrictions/curfews
- Industrial activities that generate smoke or similar hazards may constrain use of an airport
- Other activities, such as agriculture, animal husbandry or wetland developments, may attract birds and wildlife species that pose a hazard to aviation.

The long-term and effective safeguarding of Melbourne Airport is critical to maintaining the social and economic benefits it provides to local communities, Melbourne and Victoria, and to protecting surrounding communities.

The objectives of the airport safeguarding strategy are to:

- strengthen Melbourne Airport's role within the state's economic and transport infrastructure and protect its ongoing 24-hour operation
- enable the airport to effectively and competitively operate at national and international levels
- ensure any new land use or development around the airport does not prejudice the airport's safe and long-term operations, and avoids or minimises incompatible land uses
- manage and, where possible, minimise the impact of airport and aircraft operations on surrounding areas and communities

- ensure strategic planning for metropolitan Melbourne recognises and protects Melbourne Airport, that land use decisions are integrated, that appropriate land use buffers are in place, and that provision is made for future growth and development
- continue to respect the safeguarding role of the green wedges and restrict incompatible land uses in these areas.

The National Airports Safeguarding Framework (NASF) provides a set of principles and guidelines to assist in addressing airport safeguarding issues to better protect the ongoing operation of airports in Australia.

## 17.2 National Airports Safeguarding Framework

The NASF is a national land-use planning framework that aims to:

- improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms
- improve safety outcomes by ensuring aviation safety requirements are recognised in land-use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The NASF applies at all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace or affect navigational procedures for aircraft. Pursuant to the Standing Council on Transport and Infrastructure agreement, it is the responsibility of each state jurisdiction to implement the NASF into their respective planning systems.

The NASF comprises a set of seven principles (Table 17-1) and seven guidelines (Figure 17-1). It is understood that additional guidelines relating to Public Safety Zones and helicopter operations are proposed to be released in the near future.

The Department of Infrastructure, Regional Development and Cities has produced a factsheet on the NASF ('DIRDC's factsheet'), which provides useful background and explanatory information relating to the framework. The Australian Airports Association has produced an airport practice note titled Planning Around Airports – Safeguarding for the Future, which provides guidance to planning authorities on how to implement the NASF.

The following subsections of this chapter discuss the current safeguarding policies and controls protecting Melbourne Airport, having regard to the NASF principles and guidelines, and identify areas for improvement where appropriate.

## 17.3 Melbourne Airport policies and processes

Melbourne Airport has a number of policies and processes in place for ensuring on-airport developments achieve airport safeguarding requirements. These include:

- the development approval process outlined in chapter 10 of this Master Plan, which incorporates the major development plan and building control requirements of the Airports Act
- the Melbourne Airport Planning and Urban Design Strategy for assessing on-airport development, which includes requirements derived from the NASF guidelines
- the Contractor Guide to Working at Melbourne Airport, which has been compiled to advise all contractors of the general requirements for working at Melbourne Airport
- the Melbourne Airport Planting Guidelines, which provide information regarding plant species suitable for planting within close proximity to the airport
- the Aerodrome Manual prepared in accordance with Melbourne Airport's obligations under the Civil Aviation Safety Regulations Part 139.

All on-airport developments must comply with the above policies and processes, which ensure airport safeguarding principles and requirements are met.

When Melbourne Airport is notified of off-airport development applications (usually limited to applications within the MAEO), it assesses them with consideration of the NASF guidelines and provides a response to the responsible authority that sets out any issues or concerns in terms of airport safeguarding.

Table 17-1: National Airports Safeguarding Framework principles

| Principles   | Description   |
|--------------|---|
| Principle 1: | The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance                          |
| Principle 2: | Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning                                    |
| Principle 3: | Governments at all levels should align land-use planning and building requirements in the vicinity of airports  |
| Principle 4: | Land-use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations   |
| Principle 5: | Governments will protect operational airspace around airports in the interests of both aviation and community safety  |
| Principle 6: | Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures   |
| Principle 7: | Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements |



Figure 17-1: National Airports Safeguarding Framework guidelines

## 17.4 State government planning policies

There are currently a number of state government policies that help protect Melbourne Airport from the potential adverse effects of off-airport developments. These include:

- Melbourne Airport Environs Strategy Plan and Part 3C of the *Planning and Environment Act 1987*
- State Planning Policy Framework clause 18.04-1: Melbourne Airport
- Urban Growth Boundary and the Green Wedges
- Plan Melbourne 2017–2050.

The role and importance of these policies in relation to safeguarding Melbourne Airport is discussed in section 6.3 of this document.

## 17.5 Managing the impacts of aircraft noise

*Over the long term, inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity due to the effects of aircraft noise. These impacts need to be managed in a balanced and transparent way.*

*Guideline A provides advice on the use of a complementary suite of noise metrics, including the Australian Noise Exposure Forecast system and frequency-based noise metrics, to inform strategic planning and provide communities with comprehensive and understandable information about aircraft noise.*

*DIRDC factsheet relating to aircraft noise*

### 17.5.1 Australian Noise Exposure Forecast

NASF Guideline A relates to measures for managing aircraft noise. A new ANEF has been produced for the Melbourne Airport as discussed in chapter 9 of this Master Plan.

### 17.5.2 Melbourne Airport Environs Overlay

Land use controls for the areas around Melbourne Airport have been in place since 1992. These controls ensure that inappropriate land use and development in the noise-affected areas surrounding the airport do not affect its efficient operation.

In 1996 the Victoria Planning Provisions (VPP) introduced the Airport Environs Overlay, which was based on the 1992 Melbourne Airport Environs Area controls. The AEO is a standard provision in the VPP that can be used by any airport in Victoria. In May 2007 a new overlay, the Melbourne Airport Environs Overlay (MAEO), based on the 2003 ANEF contours, was introduced into the VPP. This overlay incorporates improved and enhanced provisions specifically for Melbourne Airport in accordance with the outcomes of the Melbourne Airport Environs Strategy Plan 2003.

The state government has indicated that the MAEO boundaries will be reviewed after the 2018 Master Plan and associated ANEF have been approved. This will change the boundaries of the current MAEO to match the new long-range ANEF contours. The new ANEF contained in this Master Plan (chapter 9) is larger than the 2003 ANEF upon which the MAEO is based as a result of the new east–west runway.

The purposes of the MAEO controls are to:

- implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies
- ensure that land use and development are compatible with Melbourne Airport's operation in accordance with the relevant airport strategy or Master Plan, and with safe air navigation for aircraft approaching and departing the airfield
- assist in shielding people from the impact of aircraft noise by requiring appropriate noise attenuation measures in dwellings and other noise-sensitive buildings
- provide for appropriate levels of noise attenuation depending on the level of forecasted noise exposure.

The MAEO controls generally apply to land on the approaches to the airport's existing and proposed runways. The total area covered by the MAEO controls is shown in Figure 6-2, which also shows the two levels of controls – the MAEO Schedule 1 and MAEO Schedule 2. The MAEO boundaries are based on the recommendations of AS2021 and the 2003 Ultimate Capacity ANEF boundaries. The MAEO1 boundaries are defined by the 25 ANEF contour and the MAEO2 boundaries are defined by the 20 ANEF contour.

The details and requirements of the MAEO1 and MAEO2 are in the local planning schemes of the five councils covered by these controls: Hume, Brimbank, Moonee Valley, Melton and Whittlesea. In accordance with AS2021, the MAEO1 controls are more restrictive than those of MAEO2. For example, under MAEO1 certain noise-sensitive uses such as schools, hospitals and certain types of accommodation are prohibited, whereas MAEO2 requires a permit for these uses. All new noise-sensitive uses in both areas must be assessed for AS2021 acoustic requirements.

### 17.5.3 Limitations of the Australian Noise Exposure Forecast system

The main statutory planning tool currently safeguarding Melbourne Airport is the MAEO, which is based on the airport's 2003 Master Plan ANEF noise contours. Experience has shown that aircraft noise is not confined to areas inside the ANEF noise contours, nor does the noise stop at a line on a map. In fact, most complaints relating to aircraft noise at Australian airports, including Melbourne Airport, come from people who live outside the published 20 ANEF noise contours.

It is generally recognised that basing land-use planning decisions solely on ANEF noise contours, without reference to other information, is likely to lead to a less-than-optimal outcome for airports and the community. Additional or supplementary noise planning tools are used to better support the airport's ongoing operation and protect surrounding communities.

### 17.5.4 Number-above contours

Having regard to the recognised limitations of the ANEF system, NASF Guideline A: Measures for Managing Impacts of Aircraft Noise recommends using the 'number-above' noise contour system to supplement the ANEF contours.

The number-above system is a complementary aircraft noise contour system that produces contours showing the average number of aircraft noise events above 60dB(A), 65dB(A) or 70dB(A) per day. The N-contour system reports aircraft noise in the way that a person perceives it – as a number of noise events per day above a certain decibel level.

This system is not a new concept. As recommended in NASF Guideline A, N-contours for Melbourne Airport were first published in the 2013 Master Plan to provide an additional level of noise information. A new set of N-contours has been produced in association with this Master Plan based on the revised assumptions used in the development of the new ANEF. The new N-contours are shown in chapter 9 of this Master Plan. These contours also form part of Melbourne Airport's online flight path and noise tool.

### 17.5.5 Noise monitoring systems

Airservices has permanent noise monitoring equipment in a number of suburbs around Melbourne Airport to measure aircraft noise. When any of these terminals detect a noise event, the computerised Noise and Flight Path Monitoring System can identify the flight path and altitude of every aircraft operating in the vicinity of the monitor at that time, as well as the general level of background noise. This system can be used to determine whether a noise complaint is due to a particular aircraft, and whether an aircraft was operating in accordance with approved flight procedures.

Airservices also has a 24-hour Noise Complaints and Information Service system that receives, logs and investigates noise enquiries and complaints. These are monitored on a monthly basis to determine whether there are any particular trends or issues evident, or whether any aircraft has operated outside its approved flight procedures so that appropriate investigations can be initiated and corrective action taken if required.

The Aircraft Noise Ombudsman conducts independent administrative reviews of Airservices' management of aircraft noise-related activities including:

- handling of complaints or enquiries made to Airservices about aircraft noise
- community consultation processes related to aircraft noise
- presenting and distributing aircraft noise-related information.

### 17.5.6 Noise abatement procedures

Melbourne Airport's noise abatement procedures are designed and implemented by Airservices to reduce the impact of aircraft noise on the community. They include procedures for preferential runway use and flight paths to reduce flights over residential areas. Air traffic control implements these procedures when operationally feasible due to weather conditions and aircraft take-off or landing requirements.

When possible, flights are directed over the 'green wedge' areas to the north and west of the airport and over non-residential areas. If flying over particular suburbs cannot be avoided, a minimum height over these areas is applied to aircraft positioning to land or following take-off:

- jet aircraft – not below 5,000 feet above ground level
- propeller aircraft – not below 3,000 feet above ground level.



Currently, Airservices' noise abatement procedures comprise preferred runways and preferred flight paths:

- Preferred runways only operate in light winds. Between 6.00am and 11.00pm, when there is no heavy traffic, the preferred runways for landing are Runways 16 and 27, and the preferred runways for departure are Runways 27 and 34. During busy periods between 6.00am and 11.00pm, the preferred runways for landing are Runways 27 and 34, and the preferred runways for departure are Runways 27 and 34. Between 11.00pm and 6.00am, the preferred runways for landing are Runways 16 and 27, and the preferred runways for departure are Runways 27 and 34.
- Preferred flight paths are designed to maximise overflight of non-residential areas.

Further details of the current noise abatement procedures are available on the Airservices' website. Airservices conducts reviews to check the effectiveness of noise abatement procedures and to seek improvements. At major airports, it consults with community forums on the terms of reference for reviewing the procedures and publishes reports on its website.

The construction of a second east-west runway (Melbourne Airport's third runway) and eventually the airport's fourth runway, mean that noise abatement procedures would be updated in the future to utilise the new infrastructure.

Section 9.2.6 describes the proposed runway priorities that are anticipated to be implemented through updated noise abatement procedures in the future. With the three runways, including parallel east-west runways, the dominant flow of aircraft during peak periods will become the east-to-west and west-to-east because the parallel runways will cater for the greater demand at these times.

The proposed noise abatement procedures would include preferred night modes intended to direct the majority of flights over less populated areas to the north and west of the airport. The proposed procedures would prioritise departures off the north-south runway toward the north (Runway 34), with arrivals from the west (Runways 27L/27R). Departures towards the west and arrivals from the north would be the second priority. Versions of the three-runway preferred night modes are expected to be available once the fourth runway is constructed.

ICAO sets aircraft noise standards (known by the 'ICAO chapter', which defines each standard). In Australia, these standards are administered through the Department of Infrastructure, Regional Development and Cities. The majority of the current fleet at Melbourne Airport comply with the ICAO chapter 4 standard, which is mandatory for all aircraft manufactured since 2006 (e.g. A380-800, 787-8). Though many aircraft in the fleet were certified prior to ICAO chapter 4, they in fact meet the requirements of the newer standard (e.g. A320 200, 777 200, 747-400). The ICAO chapter 14 standard has now been adopted by ICAO and is applicable to new aeroplane types submitted for certification on or after 31 December 2017 (the implementation for aircraft under 55 tonnes is extended to 2021; however, the 31 December 2017 date would apply to most RPT aircraft).

## 17.5.7 New flight procedures and technologies

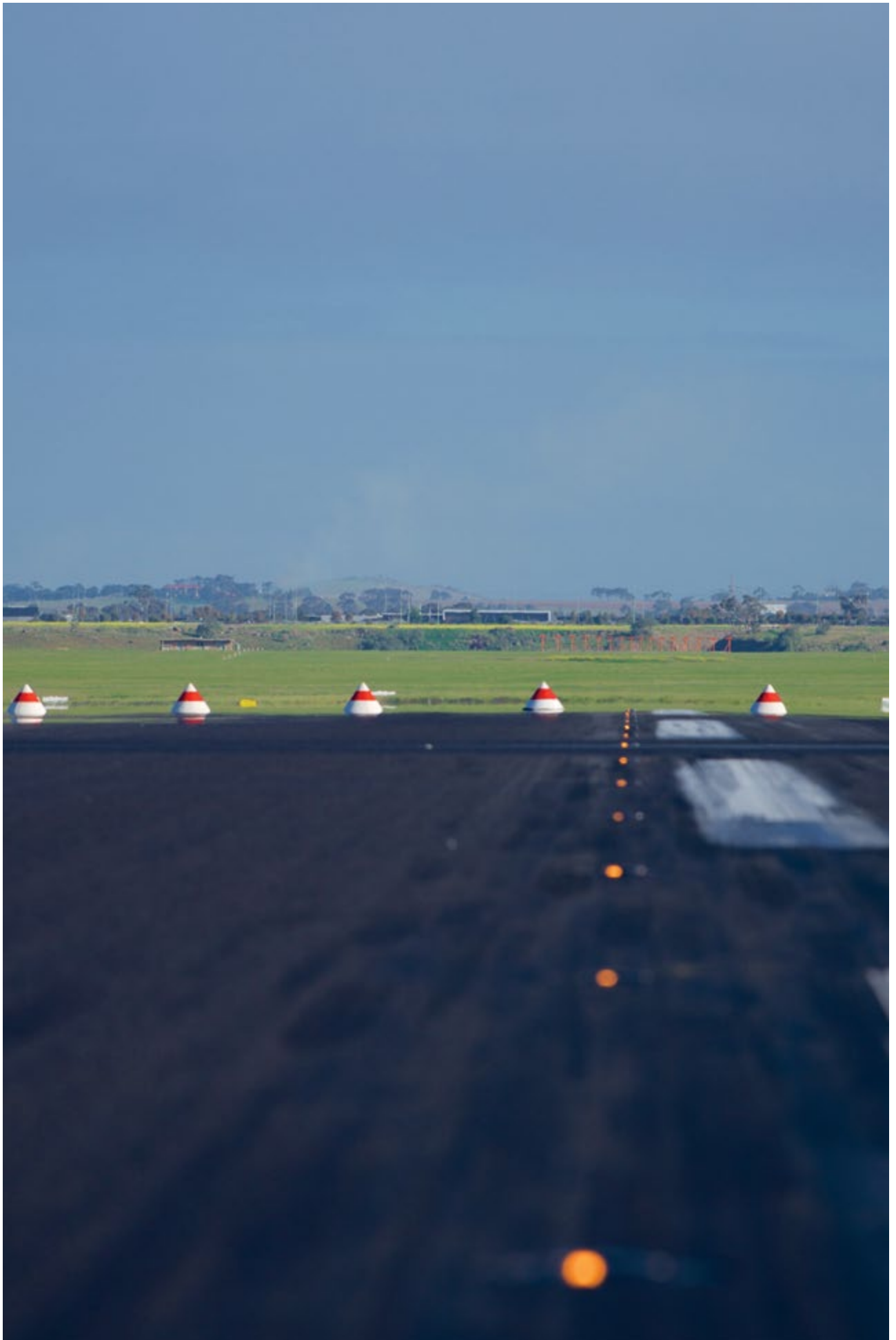
### 17.5.7.1 Smart tracking

In recent years satellite assistance has proved to provide quantum leap in aircraft navigation capability, and new aircraft are increasingly being designed to be more capable in this regard. Satellite-assisted navigation is recognised internationally for its safety benefits, which are achieved through navigation with high precision.

This technology is referred to as 'smart tracking'. To achieve the best aircraft safety, noise and emissions outcomes for Melbourne Airport, Airservices has made smart tracking technology permanently available for all suitably equipped aircraft landing at the airport.

### 17.5.7.2 Continuous descent approach

Landing procedures traditionally involve an aircraft descending in successive steps from cruising altitudes to the runway. Between each descent step is typically a level flight segment. In a continuous descent approach (CDA), the aircraft descends at a constant rate all the way down to the runway in one smooth and uninterrupted descent. A CDA eliminates the level flight segments, which involve the aircraft being at a relatively low altitude farther from the runway and having engines producing moderate thrust to maintain level flight. By eliminating these elements of an aircraft's approach, CDAs reduce noise levels on the ground.



### 17.5.8 Noise Abatement Committee

The Noise Abatement Committee is chaired by Melbourne Airport and comprises representatives from Airservices, major airlines, EPA Victoria, the Victorian Department of Environment, Land, Water and Planning, the Commonwealth Department of Infrastructure, Regional Development and Cities, and local councils. The committee reviews the impact of aircraft noise exposure on the surrounding community and makes recommendations to minimise it. The committee meets on a quarterly basis and works closely with the Melbourne Airport Community Aviation Consultation Group.

### 17.5.9 Online noise tool

Airservices has an online tool, WebTrak, that provides information about where and how high aircraft fly over metropolitan areas near Melbourne Airport. The tool covers suburbs within 55 kilometres of the airport and allows the user to view information about arriving and departing aircraft from the past three months.

Melbourne Airport also has an online flight path and noise tool that allows residents to locate their home and assess current and future noise levels.

## 17.6 Managing building-generated windshear

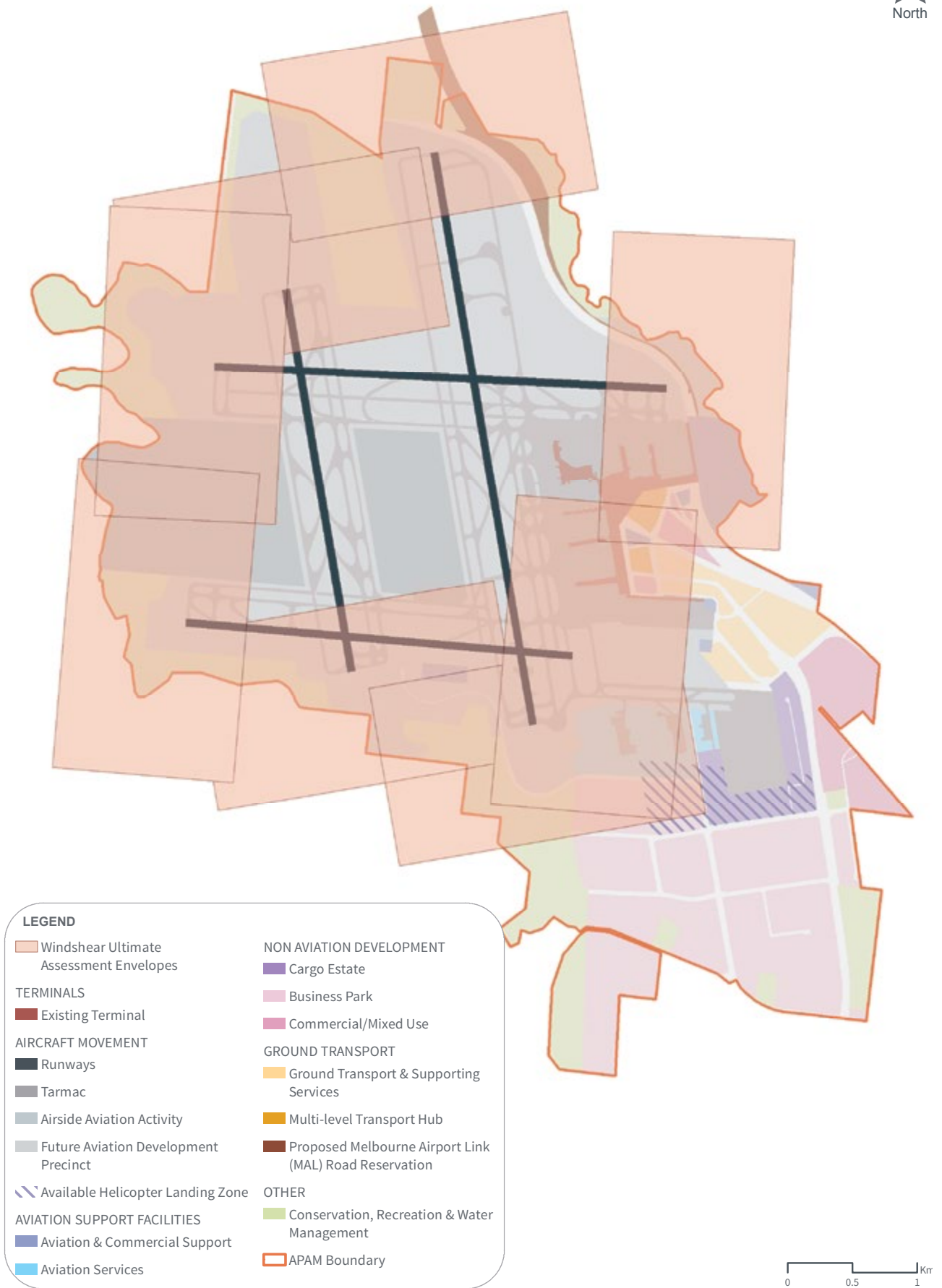
*Building-induced windshear can be a problem for aviation operations in cases where structures are situated close to airport runways. When a significant obstacle is located in the path of a crosswind to an operational runway, the wind flow will be diverted around and over the building and can cause the crosswind speed to vary along the runway.*

*Guideline B presents a layered risk approach to the siting and design of buildings near airport runways to assist land use planners and airport operators to reduce the risk of building-generated windshear and turbulence. It also provides options to modify existing buildings.*

*DIRDC factsheet relating to windshear*

Melbourne Airport's Planning and Urban Design Strategy and development approval process requires consideration of NASF Guideline B and building-generated windshear issues when considering on-airport development. The airport's windshear assessment envelopes, based on Guideline B, are shown in Figure 17-2.

There are currently no specific off-airport planning controls requiring consideration of building-generated windshear for off-airport developments. This is a matter that requires state government attention in accordance with NASF.



**Figure 17-2: Melbourne Airport windshear assessment envelopes**

## 17.7 Managing the risk of wildlife strikes

*Wildlife strikes and/or avoidance can cause major damage to aircraft and/or compromise aircraft safety. Whilst the Civil Aviation Safety Authority has well-established safety requirements for wildlife management plans on-airport, wildlife hazards also occur outside the airport fence.*

*Guideline C provides advice to help protect against wildlife hazards originating off-airport. Many existing airports are surrounded by areas that are attractive to wildlife, especially birds, but appropriate land use planning decisions and the way in which existing land use is managed in the vicinity of airports can significantly reduce the risk of wildlife hazards.*

*DIRDC factsheet relating to wildlife strikes*

Melbourne Airport's Planting Guidelines provide information regarding plant species suitable for planting within the airport site. While there are currently no specific off-airport planning controls relating to Guideline C, when Melbourne Airport is notified of off-airport permit applications (usually limited to applications within the MAEO) it assesses them for wildlife strike implications and requests conditions where appropriate. Figure 17-3 identifies the buffer zones as outlined in Guideline C. Buffer zones are split into three categories: Area A (3 km radius), Area B (8 km radius) and Area C (13 km radius). The radius is taken from each runway end for the long-term development concept.

Guideline C provides actions for existing developments, changes to existing developments and proposed developments based on the land use (agriculture, conservation, recreation, etc.) and the buffer zone category. However, this may not capture all potentially important land-use proposals, particularly given the fact that the wildlife hazards risk zones outlined in Guideline C extend 13 kilometres from the airport (Figure 17-3). This is a matter that requires state government attention in accordance with the NASF.

NASF Guideline C (2014) indicates that in calculating these perimeters the Aerodrome Reference Point (ARP) should generally be used as the point of origin but that there may be circumstances where a different point or multiple points of origin may be appropriate. Melbourne Airport has adopted the ultimate runway ends as the appropriate points of origin for the establishment of the risk zones. This is on the basis that, due to the location of the ARP, which is based on the original two-runway layout, the three kilometre risk zone would barely extend beyond some of the runway ends. As such risk zones based on the ARP may not adequately protect against land uses close to runway ends where the risk from wildlife strike during critical phases of flight.





Figure 17-3: Melbourne Airport wildlife buffer zone map

## 17.8 Managing the risk of wind turbine farms

*Wind turbines can constitute a risk to low-flying aviation operations such as agricultural pilots. Additionally, temporary and permanent wind monitoring towers can be erected in anticipation of, or in association with, wind farms and can also be hazardous to aviation, particularly given their low visibility. These structures can also affect the performance of Communications, Navigation and Surveillance equipment operated by Airservices Australia.*

*Wind turbine farms can be expected to continue to develop as a renewable energy option. Guideline D provides advice on the location and safety management of these and other similar structures.*

*DIRDC factsheet relating to wind turbine farms*

Within the VPP there are off-airport planning controls relating to wind turbine farms (clause 52.32), and these require consideration of any nearby airports. Wind turbine farms are not a significant operational issue for Melbourne Airport. Melbourne Airport is located on the urban fringe, where as wind farms are usually developed in rural and regional areas.

## 17.9 Managing the risk of lighting distractions

*Pilots are reliant on the specific patterns of aeronautical ground lights during inclement weather and outside daylight hours. These aeronautical ground lights, such as runway lights and approach lights, play a vital role in enabling pilots to align their aircraft with the runway in use. They also enable the pilot to land the aircraft at the appropriate part of the runway.*

*It is therefore important that lighting in the vicinity of airports is not configured or is of such a pattern that pilots could either be distracted or mistake such lighting as being ground lighting from the airport. Guideline E provides advice on the risks of lighting distractions and how these can be minimised or avoided.*

*DIRDC factsheet relating to lighting distractions*

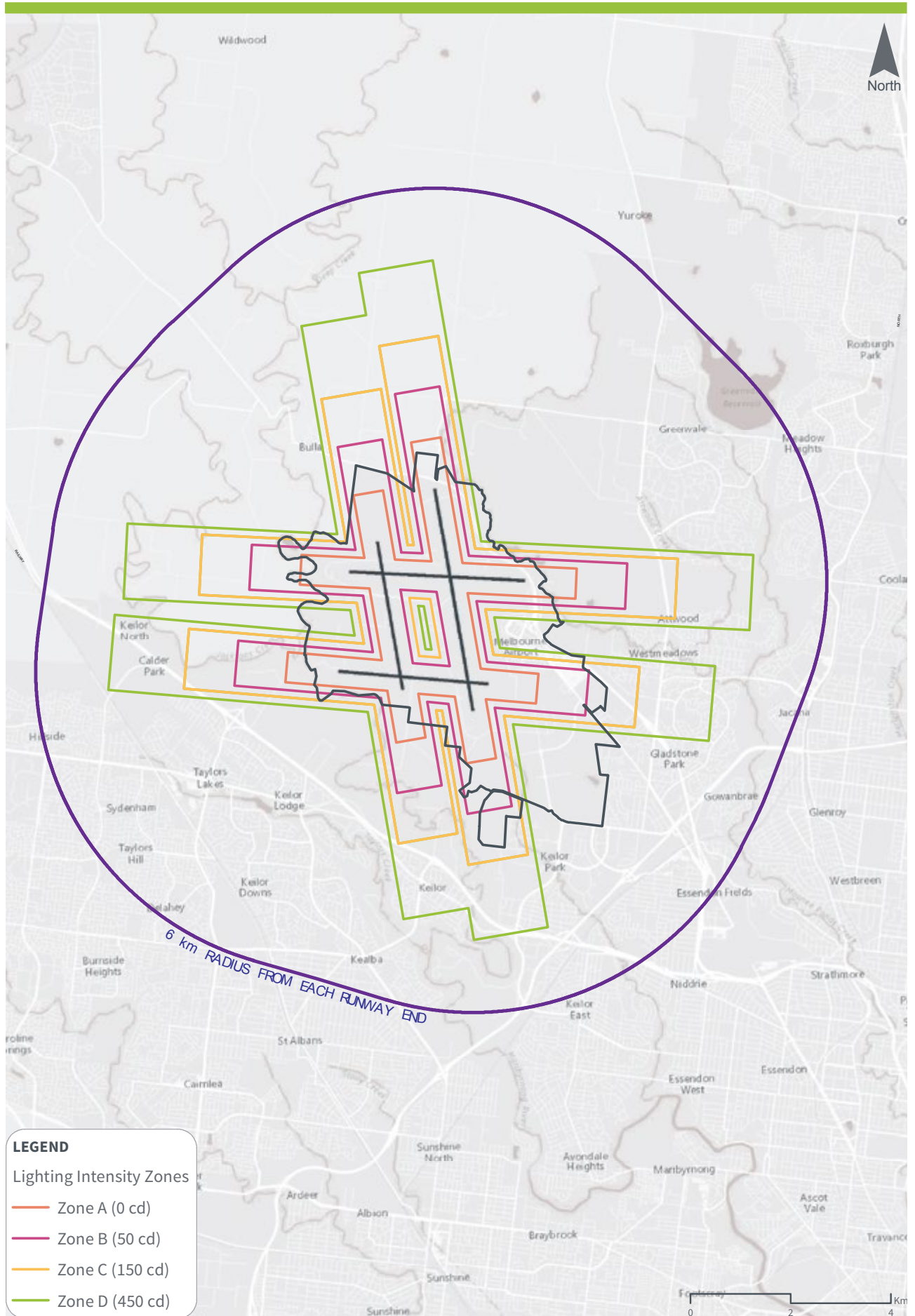
Melbourne Airport's Planning and Urban Design Strategy and development approval process require consideration of NASF Guideline E when planning on-airport developments.

While there are currently no specific off-airport planning controls relating to dangerous lighting around Melbourne Airport, there is regulation 94 of the Civil Aviation Regulations 1988, which applies off-airport. This regulation forms the basis of NASF Guideline E. When Melbourne Airport is notified of off-airport permit applications (usually limited to applications within the MAEO) it assesses them for lighting distraction implications and requests conditions where appropriate.

Lights within six kilometres fall into a category most likely to be subject to the provisions of regulation 94, which addresses lighting that has the potential to endanger the safety of aircraft. Within the six-kilometre radius there exists a primary area that is divided into four light control zones: A, B, C and D (Figure 17-4). These zones reflect the degree of interference ground lights can cause as a pilot approaches to land. These areas also nominate the intensity of light emission above which interference is likely.

Lighting projects within this area or in the vicinity of the airport that are brought to the attention of Melbourne Airport are assessed and reviewed regarding their likelihood to endanger the safety of an aircraft. The assessment is undertaken by the Airfield Operations and CASA manager to ensure they do not infringe on the provision of regulation 94.

If the application is for lighting and is within a six-kilometre radius of Melbourne Airport and the light is likely to endanger the safety of aircraft, whether by reason of glare or by causing confusion with, or preventing clear reception of, the lights or signals or of air route or airway facilities, then the application is referred to CASA for determination. On advice from Melbourne Airport, CASA may authorise a notice to extinguish or to effectually screen the light and to refrain from exhibiting any similar light in the future.



**Figure 17-4: Maximum lighting intensity zone around Melbourne Airport**

## 17.10 Managing the risk of airspace intrusions

*The operational airspace of airports is the volume of airspace above a set of imaginary surfaces, the design of which is determined by criteria established by the International Civil Aviation Organisation. These surfaces are established with the aim of protecting aircraft from obstacles or activities that could be a threat to safety—in particular, high-rise buildings.*

*Guideline F provides advice for planners and decision makers about working within and around protected airspace, including OLS [Obstacle Limitation Surface] and PANS-OPS [Procedures for Air Navigational Services – Aircraft Operations] intrusions, and how these can be better integrated into local planning processes.*

*DIRDC factsheet relating to airspace intrusions*

### 17.10.1 Prescribed Airspace regulations

Under Part 12 of the Airports Act ('Protection of airspace around airports') and the Airports (Protection of Airspace) Regulations 1996, the airspace around specific airports may be declared as Prescribed Airspace to protect the airspace for the safe arrival and departure of aircraft. Prescribed Airspace is the airspace above either an Obstacle Limitation Surface (OLS) or Procedures for Air Navigational Services – Aircraft Operations (PANS-OPS) protection surface, which are defined as follows:

- OLS: This surface is usually the lowest of the two sets of surfaces that make up Prescribed Airspace and is designed to provide protection for when the pilot is flying by sight (Figure 17-5)
- PANS-OPS: These surfaces are usually higher than the OLS and are designed to provide protection for when the pilot is flying by instruments (Figure 17-6).

Prescribed Airspace may also include protection for important communications, navigation and surveillance facilities, such as radar. NASF Guideline G describes these surfaces.

Under section 182 of the Airports Act, activities that result in intrusions into an airport's Prescribed Airspace are called 'controlled activities' and cannot be carried out without approval. The airport operator or DIRDC must assess applications to carry out controlled activities, taking into consideration the opinions of CASA and Airservices, and may impose conditions on approval.

Under the Act and Regulations, local councils with boundaries that fall within Melbourne Airport's Prescribed Airspace are required to review all building and development applications they receive for any infringements of Prescribed Airspace.

It is an offence to carry out a controlled activity without approval, or to breach a condition of a controlled activity approval.

### 17.10.2 Melbourne Airport's Prescribed Airspace

Airport operators are required to prepare plans of the future Prescribed Airspace surfaces relating to their airport and have those surfaces declared under the airspace regulations. DIRDC has previously declared Melbourne Airport's airspace as Prescribed Airspace under the regulations, and it is proposed that there will be an update of the airspace in association with this Master Plan.

Melbourne Airport's proposed long-term four-runway Prescribed Airspace OLS is shown in Figure 17-5 and proposed PANS-OPS protection surfaces are shown in Figure 17-6.

It is important to note the distances covered by the Prescribed Airspace. The Prescribed Airspace extends beyond 50 kilometres from the airport and at least 16 municipalities are either wholly or partly affected by Melbourne Airport's Prescribed Airspace, which also overlaps with Essendon Airport's Prescribed Airspace.

### 17.10.3 Other airspace protection regulations

In addition to the Airports (Protection of Airspace) Regulations, other regulations are also relevant to protecting the operational airspace around airports from obstacles and other hazards. These include the Civil Aviation (Buildings Control) Regulations 1988, the Civil Aviation Safety Regulations 1998 and the Civil Aviation Regulations 1988.

Under the Civil Aviation Safety Regulations 1998, a person who proposes to construct a building or structure of more than 110 metres above ground level must inform CASA. CASA also has powers to prevent lights from causing confusion, distraction or glare to pilots in the air under the Civil Aviation Regulations 1988 (see section 17.9).



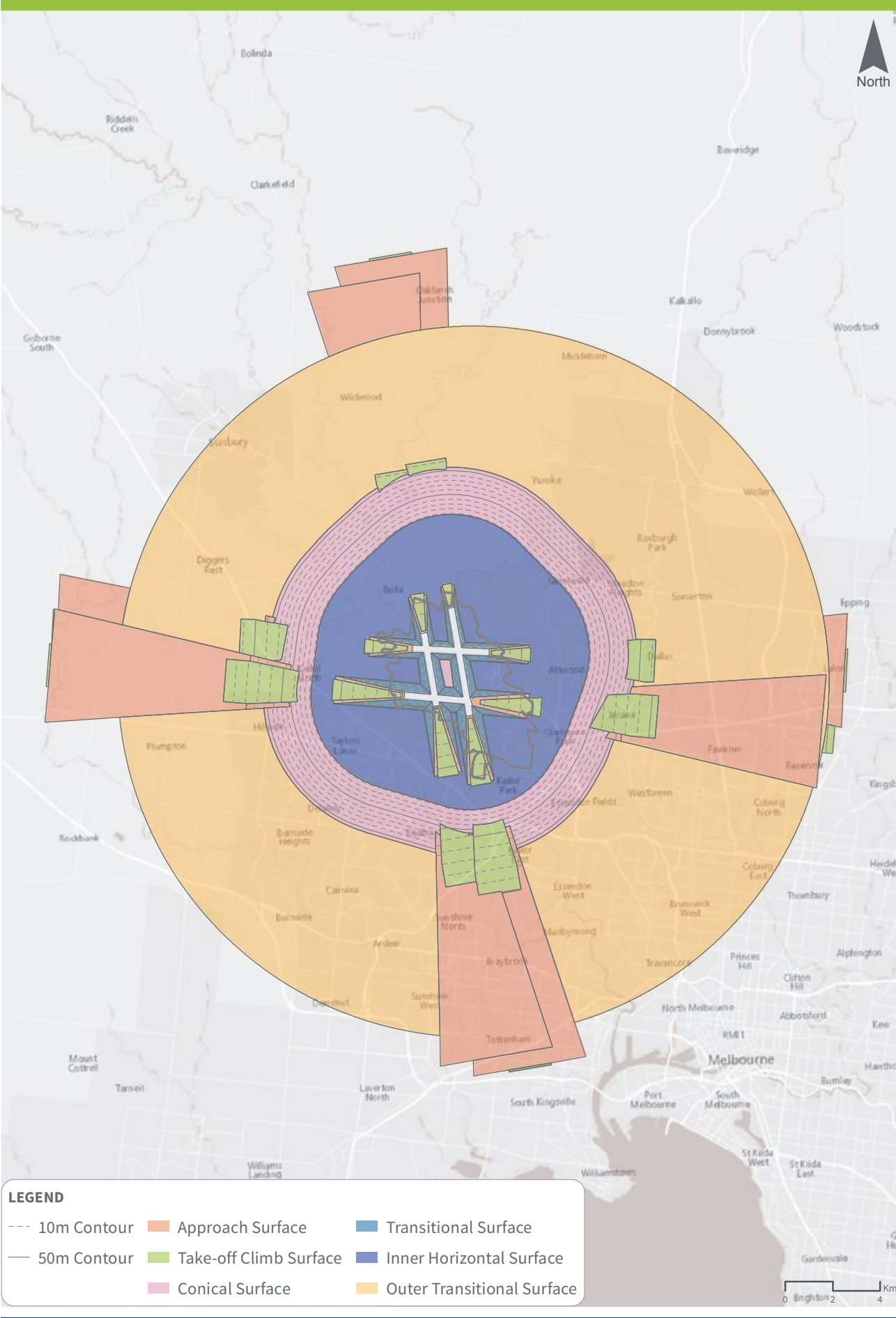


Figure 17-5: Long-term four-runway Obstacle Limitation Surfaces around Melbourne Airport



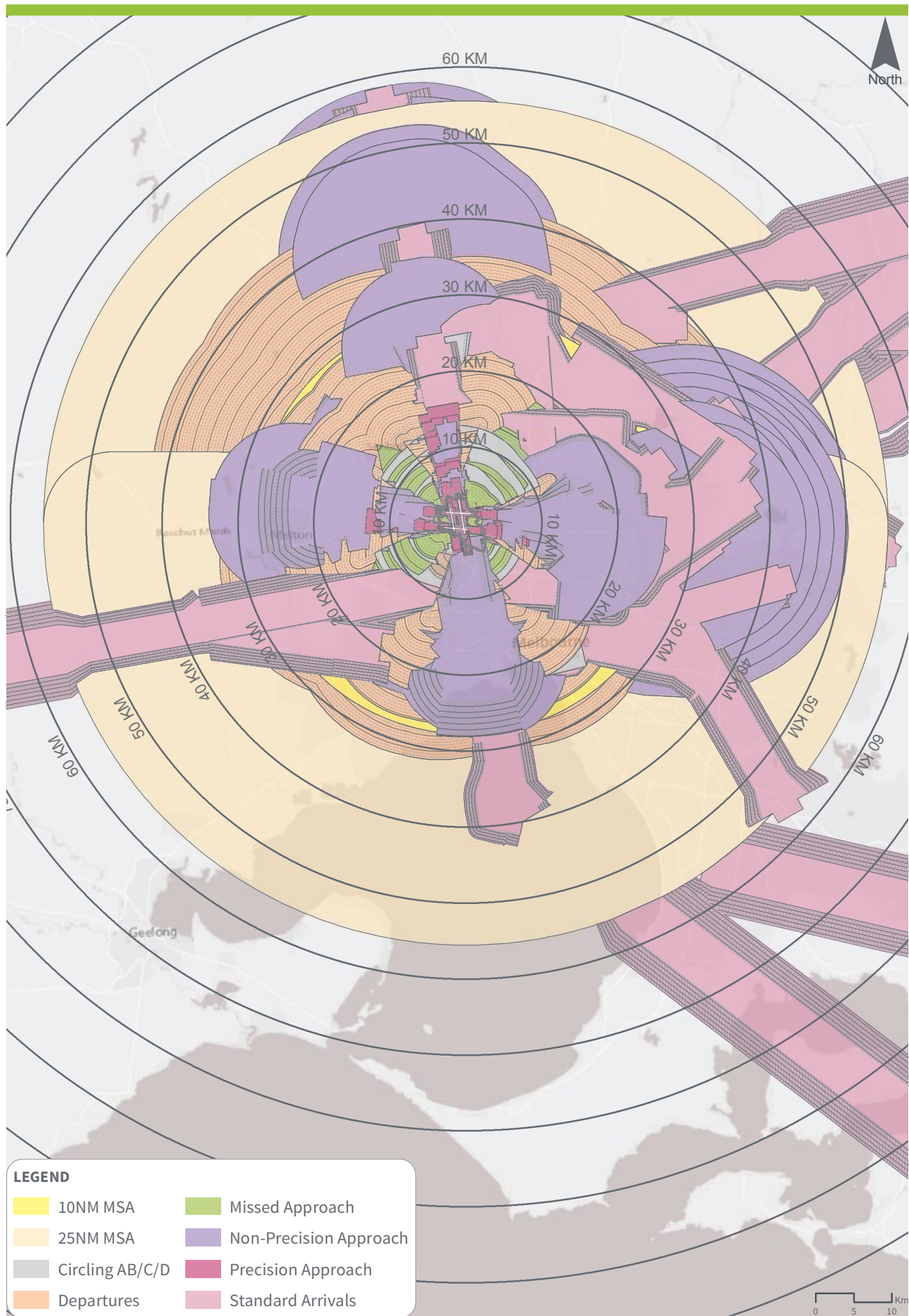


Figure 17-6: Procedures for Air Navigational Services – Aircraft Operations, Melbourne Airport

#### 17.10.4 Off-airport planning controls

Prescribed Airspace should not be confused with the MAEO. The MAEO relates specifically to aircraft noise and limiting noise-sensitive uses (e.g. houses) where aircraft noise is a potential problem. The MAEO does this by implementing the airport's ANEF and the Australian Standard AS2021-2015: Acoustics – Aircraft Noise Intrusion – Building Siting and Construction. The MAEO does not relate to Prescribed Airspace and does not control the height of structures.

While Melbourne Airport's Prescribed Airspace is protected by the Airports Act and Airports (Protection of Airspace) Regulations, there is evidence that this is not widely known or understood by developers, local government officers and councillors, or the general public. In Victoria the Prescribed Airspace requirements are not incorporated or linked into local planning schemes. While the MAEO controls land use in relation to noise, there is no equivalent overlay in the VPP that controls the height of structures or other land-use proposals that may affect Prescribed Airspace, including potential hazards to aircraft operations such as dangerous lighting, gaseous plume emissions or wildlife hazards.

Melbourne Airport considers that improvements to the Victorian planning system need to be made to provide greater certainty and rigour in protecting its Prescribed Airspace in accordance with NAS Guideline F. This could take the form of a new overlay control or a particular provision in the VPP.

### 17.11 Protecting aviation facilities

*Communications, Navigation and Surveillance (CNS) facilities are crucial to the safe and efficient operation of aircraft. They enable pilots to navigate while between airports, conduct instrument approaches and to communicate and confirm their position with air traffic control. While such facilities are generally associated with airports, some are offsite and at significant distances from airports. Inappropriate development in the vicinity of these facilities can compromise their effectiveness.*

*Guideline G is intended to assist land-use planners at all levels in their consideration of these facilities when assessing development proposals and rezoning requests and when developing strategic land use plans. It will also guide their interactions with Airservices Australia and the Department of Defence on when to consult on development proposals and in gaining up to date geographical locations for these facilities.*

*DIRDC factsheet relating to protecting aviation facilities*

Melbourne Airport's development approval process ensures the matters outlined in NASF Guideline G are taken into account when considering on-airport developments. Additionally, any proposals affecting communications, navigation and surveillance require a separate assessment from Airservices. There are currently no specific off-airport planning controls relating to the protection of communication, navigation and surveillance facilities. This is a matter that requires state government attention in accordance with the NASF.

## 17.12 Public Safety Zones

Public Safety Zones (PSZs) are designated areas of land at the end of airport runways within which development may be restricted in order to control the number of people on the ground at risk of injury or death in the event of an aircraft accident on take-off or landing. While air crashes are rare events and Australia has an excellent safety record, there will always be an inherent risk associated with the operation of aircraft around airports. The consideration of PSZs in land use planning can further reduce this already low risk.

In the absence of a national standard for PSZs at airports, Melbourne Airport has historically adopted PSZs at the end of each ultimate runway extending from the runway end based on the Queensland Government's policy. These PSZs are shown in Figure 17-7. They are largely contained within the airport site boundary, except there are some small areas where the PSZs extend outside the airport site.

Melbourne Airport uses these PSZs to assist in its land-use planning for developments on airport land and as a basis for responding to notification of off-airport planning proposals. New developments that are generally considered incompatible within PSZs as well as some typical compatible uses are indicated in Table 17-2.

**Table 17-2: Compatible and incompatible uses and activities within Public Safety Zones**

| Incompatible uses/activities   | Compatible uses   |
|--|---|
| <ul style="list-style-type: none"> <li>• <b>Accommodation activities:</b> This includes dwelling houses, multiple dwellings, resort complexes, tourist park, hostels, retirement villages or other residential care buildings</li> <li>• <b>Community activities:</b> Educational establishments, community centres, hospitals, theatres, child-care and playgrounds, detention facilities, places of worship</li> <li>• <b>Recreation activities:</b> This includes parks, outdoor recreation and sport, major sport and entertainment facilities</li> <li>• <b>Entertainment and centre activities:</b> Shopping centres, service stations, showrooms, markets, hotels, theatres, tourist attractions, garden centres</li> <li>• <b>Industrial and commercial uses involving large numbers of workers or customers:</b> Intensive uses such as high, medium and low-impact industry, warehousing, services industry</li> <li>• <b>Manufacture or bulk storage of flammable, explosive or noxious materials</b></li> <li>• <b>Public passenger transport infrastructure such as bus, train and light rail stations *</b></li> </ul> | <ul style="list-style-type: none"> <li>• <b>Long stay and employee car parking</b> (where the minimum stay is expected to be in excess of six hours)</li> <li>• <b>Built development for the purpose of housing plant or machinery</b> that would require <b>no people</b> on site on a regular basis, such as electricity switching stations or installations associated with the supply or treatment of water</li> <li>• <b>Golf courses, but not club houses</b> (provided appropriate mitigation measures are in place to reduce wildlife attraction risk)</li> </ul> |
| <p>*The planning of new transport links such as road and rail corridors within PSZs should be carefully considered and assessed in terms of the average density of people over time that might be exposed to risk</p>  |   |

Source: NASF Guideline I

In May 2018 the Australian Government released for consultation a draft National Airports Safeguarding Framework guideline regarding PSZs Managing the Risk in Public Safety Zones at the Ends of Runways (NASF Guideline I). Further detail and background to NASF Guideline I can be found here:

[https://infrastructure.gov.au/aviation/environmental/airport\\_safeguarding/nasf/public\\_consultation\\_nasf.aspx](https://infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/public_consultation_nasf.aspx)

Guideline I sets out a balanced approach to PSZs and defines inner and outer zones based on estimated levels of risk to individuals living and working close to airport runways. This suggested approach is based on the approach adopted in the UK. The UK model is the most formalised approach to defining a PSZ and has been applied at a number of international and Australian airports. The Queensland PSZ model is a modified version of the policy and research conducted in the UK. While other approaches to PSZ establishment do exist in other countries, the UK and Queensland models are currently considered to be the most relevant and appropriate to airports in Australia.

NASF Guideline I suggests:

- An outer zone based on a risk level of one in 100,000 per year. This identifies the area (or risk contour) within which any person living or working continuously would have an approximately one in 100,000 per year chance of being killed as a result of an aircraft incident.
- An inner zone based on a risk level of one in 10,000 per year. This identifies the area (or risk contour) within which any person living or working continuously would have an approximately one in 10,000 per year chance of being killed as a result of an aircraft incident.

The dimensions of the two zones are dependent on a range of airport specific factors such as forecasts of the numbers and types of aircraft movements.

The future implementation of NASF Guideline I is for jurisdictions to determine. Victoria has advised Melbourne Airport it will be consulting further on the proposed Guideline I before implementing this in the VPP and planning schemes. The following information is provided in the interests of completeness.

Melbourne Airport has calculated the risk contours associated with the inner and outer PSZ zones based on the methodology suggested in NASF Guideline I. The aircraft movement forecasts used are those adopted for the aircraft noise modelling on which the ANEC and other aircraft noise contours have been developed.

The PSZ risk contours applicable to each ANEC scenario are shown in Figures 17-8, 17-9 and 17-10. It can be seen that the inner PSZ contours generally remain within the airport site boundary, whereas the outer PSZ contours extend some distance from the runway. The outer PSZ contours, once beyond one kilometre from the runway, are generally quite narrow and concentrated around the extended runway centrelines.

The worst-case PSZ risk contours, being those within which the contours from all of the composite scenarios, are shown in Figure 17-11.

Based on historically declining worldwide aircraft accident rates and Australia's excellent aviation safety record in comparison with other nations with mature aviation industries, it is considered likely that the contours presented herein are conservative with respect to the risks to public safety. Melbourne Airport will continue to review the definition of PSZs on airport land and estimation of public safety risk contours, based on applicable guidance and forecast traffic, through each five-yearly Master Plan cycle. Melbourne Airport and will work with the Victorian Government to determine whether adjustment of the extents of the risk contours, based on further consideration of accident rates specific to Australia, is appropriate.



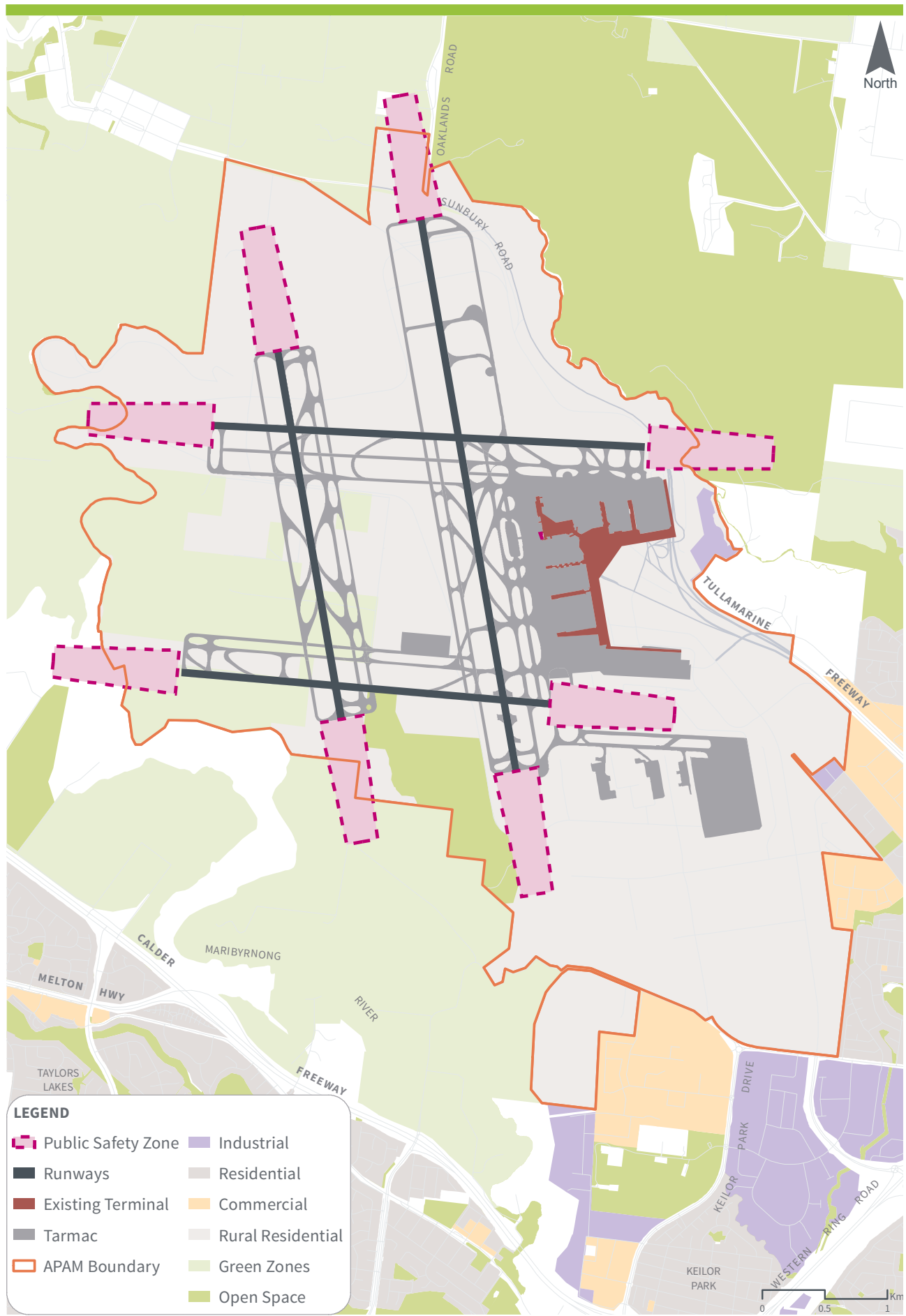


Figure 17-7: Public Safety Zones (trapezoid)



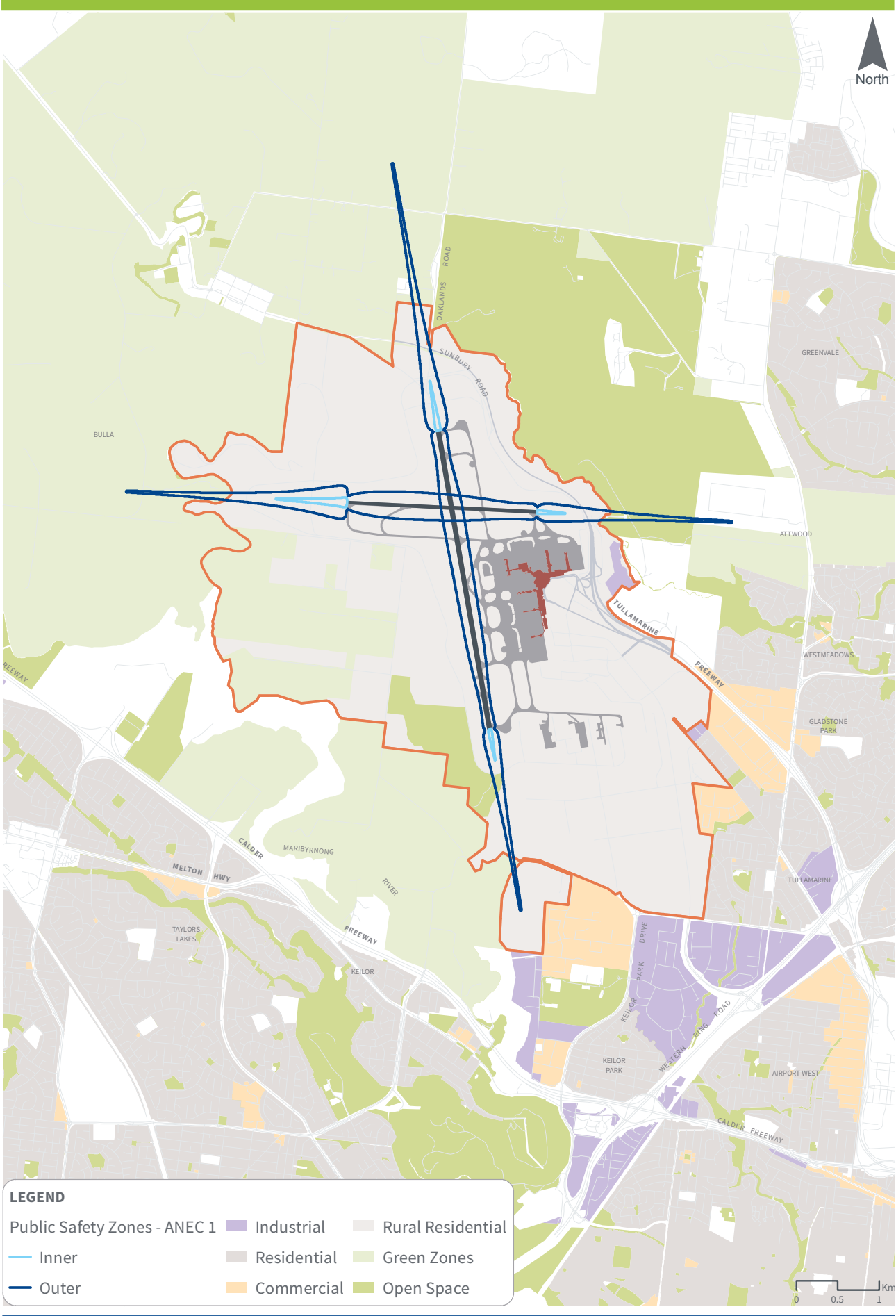


Figure 17-8: Public Safety Zones - ANEC 1

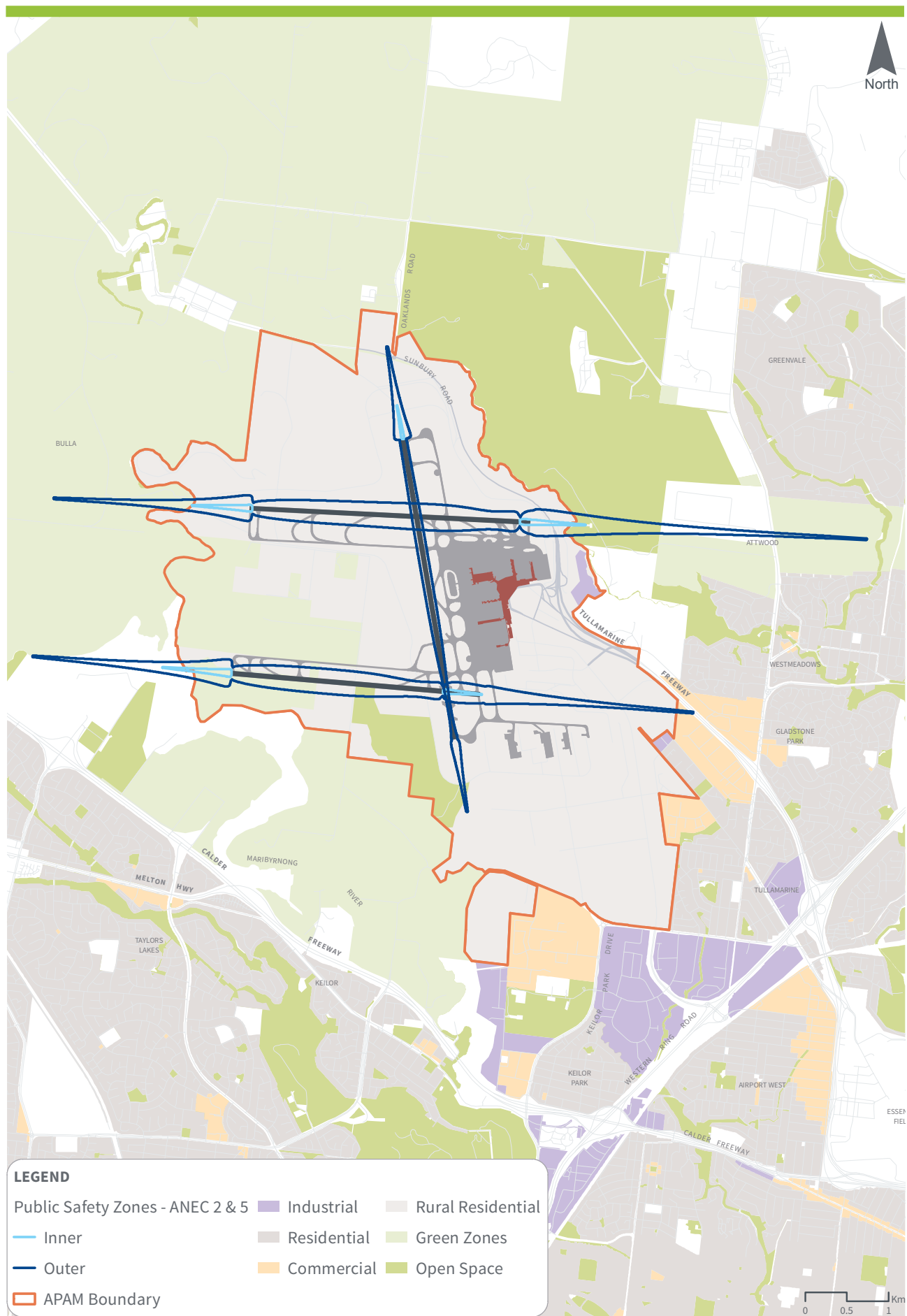


Figure 17-9: Public Safety Zones - ANEC 2

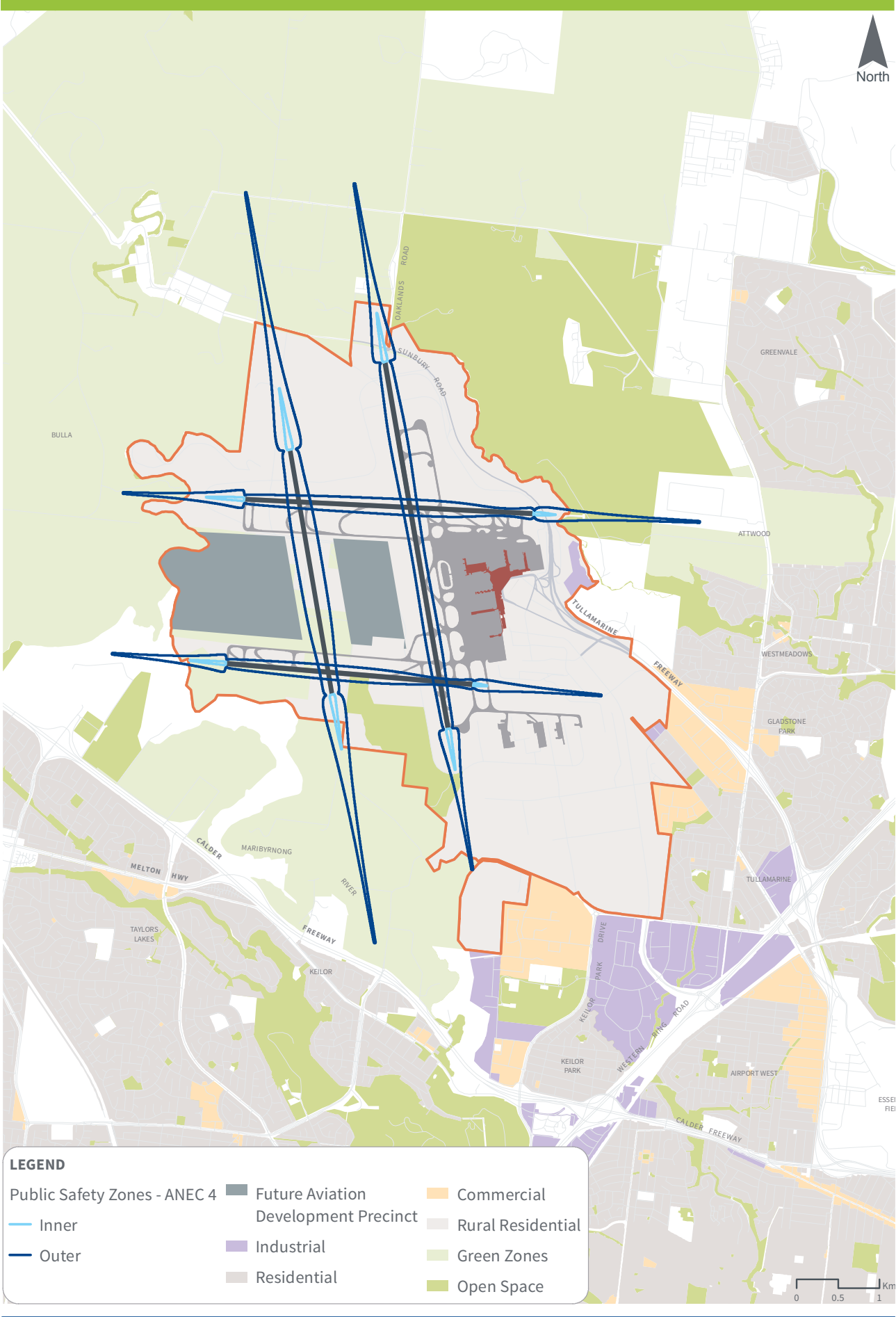


Figure 17-10: Public Safety Zones - ANEC 4

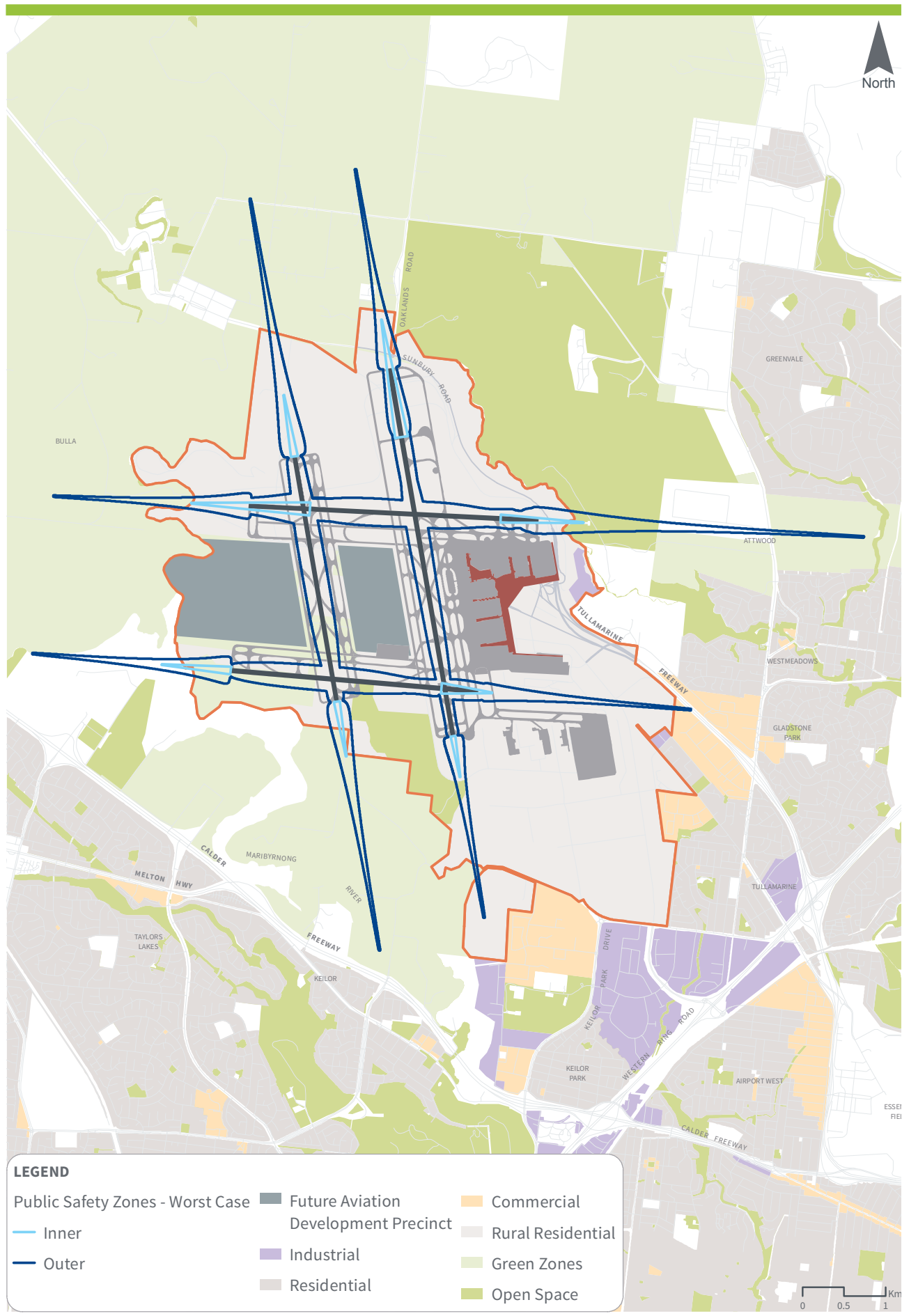


Figure 17-11: Public Safety Zones - Worst case



## 17.13 Summary

The measures outlined in this section form a safeguarding framework that helps maintain, protect and support Melbourne Airport's ongoing operations, as well as balance the needs of communities surrounding the airport.

Safeguarding the airport is an ongoing and shared responsibility between all levels of government and the airport. There is strong support from government for airport safeguarding, but it has become clear that improvements can be made to Melbourne Airport's safeguarding framework. The National Airports Safeguarding Advisory Group and the Australian Airports Association have highlighted the need to improve airport safeguarding measures around Australia.

Melbourne Airport supports the NASF guidelines and uses them to guide the consideration of on-airport developments and as the basis of responses to off-airport development proposals. For these guidelines to be fully effective, Melbourne Airport believes they need to be translated into planning controls within the VPP. At present the only planning control in the VPP protecting Melbourne Airport is the MAEO, which has a number of limitations.

Developing an improved safeguarding framework for Melbourne Airport will require a range of stakeholders to be involved, including the state government, local councils, local communities and the business sector. While Melbourne Airport will play a key role in developing the improved planning regime, the process will need to be led by the state government.

Melbourne Airport is working with the Commonwealth Government, the state government, local governments and industry to ensure that the airport's long-term operation is protected for the benefit of Melbourne and Victoria. The Melbourne Airport Planning Coordination Forum is playing a critical role in this regard.





# 18.0

## Implementation plan

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| 18.2 | Five-year staging and implementation program<br>(to 2023) | 287 |
| 18.3 | 20-year staging and implementation program<br>(to 2038)   | 293 |

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*This section provides a summary of the five-year and 20-year strategy and implementation programs for Melbourne Airport.*

# 18.0 Implementation plan

## KEY FEATURES



### 20-YEAR VISION

Our 20-year vision for Melbourne Airport will be achieved through a staged development program, responding to increases in passengers, flights and development activity



### COLLABORATIVE PRIORITISING

Melbourne Airport will work closely with airlines and other key stakeholders to discuss timing and priority investments



### 3RD RUNWAY – 4TH INTO PLANNING

Within this planning period, the third east-west runway will be operational, and planning will have begun for the fourth runway and second Terminals Precinct



### AIRPORT RAIL LINK

The Airport Rail link is anticipated to be operational



### ENHANCED EXPERIENCE

The passenger experience will continue to be enhanced



### GATEWAY TO THE WORLD

Melbourne Airport will continue to be a major economic and employment hub and a gateway to the world

## 18.1 Introduction

This Master Plan provides a strategic framework for the future development of Melbourne Airport over the next 20 years and beyond. Timely investment in aviation and airport infrastructure through a staged development program will ensure the airport responds to changing aviation trends, increases in passengers, flights and development activity, and customer needs.

Investment at Melbourne Airport will contribute to better services and more capacity for the whole of Victoria. The future development of Melbourne Airport is crucial to the growth and development of the state's economy as a global gateway and major transport and employment hub.

Melbourne Airport will work closely with airlines and other key stakeholders to discuss timing and priority investments. The actual timing of proposed developments will depend on demand triggers, an assessment of forecast market conditions, commercial discussions and approval processes.

Melbourne Airport will also work closely with all levels of government to ensure the timely delivery of essential transport infrastructure and the ongoing safeguarding and protection of airport operations through appropriate policy controls.

Safeguarding the operations of Melbourne Airport is an ongoing and shared responsibility between the airport and all levels of government.

There is strong support from all levels of government for airport safeguarding, as reflected in the NASF. The NASF seeks to achieve a balance between the growth and operation of Australian airports, recognising their economic and social benefits while considering the needs of communities surrounding the airport.

Developing an improved safeguarding framework for Melbourne Airport will require a range of stakeholders to be involved including the Victorian Government, local councils and local communities. The Melbourne Airport Planning Coordination Forum is playing a critical role in this regard.

The review of the Master Plan every five years further enables Melbourne Airport to reassess project priorities and timeframes, validating forecasts and development requirements.

The following sections represent an indicative staging and implementation program for the future development of Melbourne Airport, subject to further approvals as required.

## 18.2 Five-year staging and implementation program (to 2023)

For the initial five-year period of the Master Plan (to 2023), the total direct and indirect investment associated with future airport developments has been forecast to be in the region of \$4 billion, or 0.2 percent of Victoria's Gross State Product.

Potential priority projects and developments have been identified for the initial five-year period covering aviation and non-aviation development (Table 18-1), ground transport (Table 18-2) and utilities development (Table 18-3). Melbourne Airport and the Victorian Government share responsibility for delivering ground transport improvements both on and off airport land. Environmental priorities and programs to implement the Environment Strategy over the initial five-year period are also identified. Priority projects and developments associated with protecting and safeguarding airport operations is an ongoing and shared responsibility between the airport and all levels of government.

Implementation of the Environment Strategy (Table 18-4) will be achieved with the commitment and involvement of all Melbourne Airport staff, business operators, tenants, contractors and stakeholders. A coordinated and integrated response across all environmental aspects is required to achieve our objectives. Melbourne Airport will develop an implementation schedule that will assign actions to the appropriate business units. The implementation schedule will be managed by the airport's Environment Team to monitor progress against initiatives and meet annual reporting requirements on how the Environment Strategy is tracking. Community and stakeholder engagement is an important element in implementing the Environment Strategy. Melbourne Airport engages with a broad range of stakeholders on a regular basis when undertaking ongoing assessments and management actions associated with the environmental aspects outlined in the Environment Strategy. In preparing the Environment Strategy, Melbourne Airport has undertaken a formal consultation program with relevant government, industry and community representatives (section 3.3).

Table 18-1: Aviation and non-aviation key developments – five-year horizon (to 2023)

| Project/element                         | Key developments – five-year horizon (to 2023) cont.  |
|---|---|
| Airside developments                    |   |
| Runway Development Program              | <ul style="list-style-type: none"> <li>• Third runway</li> <li>• Extension of existing east-west runway</li> <li>• Supporting taxiways for parallel operations</li> </ul>   |
| Taxiway Yankee                          | <ul style="list-style-type: none"> <li>• Taxiway Yankee extended to provide an additional arrival exit for Runway 16 and departure entry to Runway 34</li> </ul>  |
| Taxiway Zulu                            | <ul style="list-style-type: none"> <li>• New taxiway supporting dual Code F taxiway flow around the Northern Terminal Precinct</li> </ul>   |
| Apron capacity enhancements             | <ul style="list-style-type: none"> <li>• Progressively provide additional aircraft parking apron capacity to support forecast growth and associated terminal development plans such as apron infill north of Tango and Pier F apron infill</li> </ul>   |
| Delta Ground Service Equipment, Stage 2 | <ul style="list-style-type: none"> <li>• Further expansion of the GSE storage area provided in the Northern Precinct Delta GSE storage area to support the expansion of additional aircraft parking in the Northern Precinct</li> </ul>   |
| Terminals and aviation developments     |   |
| Increased terminal capacity             | <ul style="list-style-type: none"> <li>• Additional international capacity through developing bridged ‘swing gates’ that can serve both international and domestic operations</li> <li>• Inbound and outbound bus lounges that will serve additional operation aircraft parking stands</li> <li>• Additional automated self-service check-in and bag-drop facilities in the Departures Hall</li> <li>• Additional security units</li> <li>• Additional self-service immigration facilities</li> <li>• Additional and improved baggage system facilities</li> <li>• Expansion of Australian Border Force secondary examination facilities</li> <li>• Expansion of the Arrivals Hall</li> <li>• Enhancement of the general passenger experience through upgrades to retail, departures lounge and airline lounge areas</li> </ul> |
| Non-aviation developments               |   |
| Landside Business Precinct              | <b>Melbourne Airport Business Park</b> <ul style="list-style-type: none"> <li>• Additional 60,000 square metres of land development per annum comprising large industrial warehouses ranging from 10,000 to 100,000 square metres in area</li> <li>• Additional four hectares of development over the next five years – approximately 66,000 square metres of new industrial warehouse and office accommodation comprising of sub 7,000 square metre facilities</li> </ul>  |
|   | <b>Elite Park</b> <ul style="list-style-type: none"> <li>• Focus on leisure and customer experience facilities</li> </ul>   |
| Landside Main Precinct                  | <b>The Forefront</b> <ul style="list-style-type: none"> <li>• Development focused on lower density commercial uses (i.e. hotels, retail showroom, petrol stations and car parking)</li> </ul>   |
|   | <b>The Hive</b> <ul style="list-style-type: none"> <li>• Additional hotel and office facilities supported by ground-floor amenity such as cafés, bars and restaurants</li> </ul>  |

**Table 18-2: Ground transport key developments – five-year horizon (to 2023)**

| Project/element             | Key developments – five-year horizon (to 2023) cont.  |
|-----------------------------|---|
| External road network*      | <ul style="list-style-type: none"> <li>• Plan for the impact of Bulla Bypass/Melbourne Airport Link traffic on the Tullamarine Freeway</li> <li>• Plan for arterial road upgrades in northern suburbs</li> <li>• Wayfinding improvements on the arterial road network to increase use of Airport Drive (improved static and dynamic signage)</li> </ul>   |
| Internal road network       | <ul style="list-style-type: none"> <li>• Direct connection from the Tullamarine Freeway into the T4 ground transport hub</li> <li>• Elevated entry ramps connecting the existing T4 ramp into a reconfigured T123 ground transport hub</li> <li>• Elevated exit ramps connecting the reconfigured T123 ground transport hub directly into Departure Drive (for drop-off traffic) and Melbourne Drive (for pick-up traffic)</li> <li>• Capacity improvements on Centre Road</li> <li>• Local road extensions in the Business Park</li> </ul> |
| Ground transport facilities | <ul style="list-style-type: none"> <li>• Reconfiguration of the main forecourt and T123 car park</li> <li>• Additional at-grade car parking</li> </ul>  |
| Public transport*           | <ul style="list-style-type: none"> <li>• Improve the frequency and hours of operation for existing public bus services</li> <li>• Provide new public bus routes to under-served areas</li> <li>• Plan for Melbourne Airport Rail Link</li> <li>• Safeguard corridors for potential future rail extensions</li> <li>• Safeguard corridors for potential future high-capacity public transport links</li> </ul>   |
| Active transport            | <ul style="list-style-type: none"> <li>• Improve walking and cycling path connectivity within Melbourne Airport</li> </ul>  |
| Travel demand management    | <ul style="list-style-type: none"> <li>• Develop an airport employee commuting strategy, including a sustainable travel plan for Melbourne Airport employees</li> <li>• Review the airport Planning and Urban Design Strategy – in particular, minimum parking standards</li> </ul>   |

\*Initiatives to be led by the Victorian Government



Table 18-3: Utilities infrastructure key developments – five-year horizon (to 2023)

| Project/element                  | Key developments – five-year horizon (to 2023) cont.  |
|----------------------------------|---|
| High-voltage electricity network | <ul style="list-style-type: none"> <li>• Complete the Low Carbon Energy Development Plan in alignment with the airport's Climate/Carbon Policy</li> <li>• Complete studies to identify how energy uses within the precinct can be best matched to available energy grades</li> <li>• Embedded network augmentation and potential second on-site substation (MAT2)</li> </ul>  |
| Thermal energy network           | <ul style="list-style-type: none"> <li>• Develop a Thermal Network Master Plan</li> <li>• Consider augmentation of the back-up generation plant by another 4MW</li> <li>• Integrate the central plant</li> </ul>  |
| Gas supply network               | <ul style="list-style-type: none"> <li>• Continually ensure contracts adequately safeguard the airport's gas supply</li> <li>• Relieve the current gas distribution constraints within the Terminals Precinct</li> </ul>  |
| Potable water                    | <ul style="list-style-type: none"> <li>• Develop and implement the inaugural Integrated Water Plan</li> <li>• Complete the Fire Water Separation Project to separate and enhance the fire water suppression systems from the potable water main</li> <li>• Increase the water supply resilience through delivery of a second water main supply from the northern end of the airport (Northern Boundary Water Supply Project)</li> </ul> |
| Stormwater drainage              | <ul style="list-style-type: none"> <li>• Identify waste associated with stormwater run-off and opportunities to neutralise or eliminate it</li> <li>• Deliver passive treatment facilities and expand green infrastructure within the Arundel Creek catchment area</li> <li>• Explore opportunities to re-use water on site</li> <li>• Consider expansion stages of the Steele Creek North catchment</li> </ul>                         |
| Sewer network                    | <ul style="list-style-type: none"> <li>• Develop a proactive and responsive infrastructure renewal and maintenance program to ensure base-level performance and compliance</li> <li>• Monitor the quality and flow rate of sewerage by expanding the number of monitoring stations and using the infrastructure capital project to reline ageing pipe infrastructure</li> </ul>   |

**Table 18-4: Environment Strategy priorities and programs – five-year horizon (to 2023)**

| Project/element   | Key developments – five-year horizon (to 2023) cont.  |
|---|---|
| Ecologically sustainable development                      |   |
| Integrate ecologically sustainable development principles | <ul style="list-style-type: none"> <li>• Continue to implement the ESD principles outlined in the Melbourne Airport Planning and Urban Design Strategy and the Melbourne Airport Development Manual</li> <li>• Review the ESD principles in the Planning and Urban Design Strategy and the Melbourne Airport Development Manual and identify opportunities to adopt improved sustainability measures (e.g. Infrastructure Sustainability Council of Australia IS rating, LEED, Green Star – Communities, National Australian Built Environment Rating System, and Global Reporting Initiative)</li> </ul> |
| Minimise the urban heat island effect                     | <ul style="list-style-type: none"> <li>• Investigate opportunities to minimise the urban heat island effect at Melbourne Airport (inside and outside)</li> <li>• Implement, where appropriate, recommendations from the investigation (refer above)</li> </ul>  |
| Energy and climate change                                 |   |
| Energy and greenhouse gas management                      | <ul style="list-style-type: none"> <li>• Develop and begin implementing a Greenhouse Action Plan to reduce greenhouse gas emissions from Melbourne Airport's operations</li> </ul>  |
| Climate resilience  | <ul style="list-style-type: none"> <li>• Prepare a Climate Change Adaptation and Mitigation Framework, including a risk and opportunity assessment for the whole of Melbourne Airport on the potential impacts of climate change</li> <li>• Implement the Climate Change Adaptation and Mitigation Framework to address climate change risks</li> </ul>   |
| Airport carbon accreditation                              | <ul style="list-style-type: none"> <li>• Implement the Airports Council International Level 2 Airport Carbon Accreditation requirements including effective carbon management and progress towards a reduced carbon footprint</li> </ul>  |
| TAKE2 Climate Change Pledge                               | <ul style="list-style-type: none"> <li>• Collaborate with the Victorian Government and other businesses to support the Victorian Government's commitment to reach net zero emissions by 2050</li> </ul>   |
| Waste and resource management                             |   |
| Waste governance  | <ul style="list-style-type: none"> <li>• Develop a Waste Management Strategy to manage all airport and construction wastes (including hazardous materials). The strategy will identify the type, amount and impact of waste streams and provide recommendations for improvements in accordance with the waste management hierarchy</li> </ul>   |
| Reduce waste disposed to landfill                         | <ul style="list-style-type: none"> <li>• Begin implementing the Waste Management Strategy in accordance with the waste management hierarchy</li> </ul>  |
| Optimise use of sustainable materials                     | <ul style="list-style-type: none"> <li>• Develop and implement a Melbourne Airport Sustainable Procurement Policy to reduce the adverse environmental, social and economic impacts of purchased products and services</li> </ul>  |
| Water consumption management                              |   |
| Water strategy and management                             | <ul style="list-style-type: none"> <li>• Implement the Melbourne Airport Integrated Water Plan including the development of specific action plans to re-use water, reduce the use of potable water and improve water quality</li> </ul>   |
| Reduce water usage  | <ul style="list-style-type: none"> <li>• Collaborate with Melbourne Airport business partners and tenants to identify opportunities for water-saving measures</li> </ul>  |

| Project/element                            | Key developments – five-year horizon (to 2023) cont.   |
|--|--|
| Surface water                              |  |
| Reduce contaminants                        | <ul style="list-style-type: none"> <li>Identify opportunities across the airport to improve surface water quality including water-sensitive urban design and improved management practices, with a specific focus on Arundel Creek</li> </ul>  |
| Increase resilience of receiving waterways | <ul style="list-style-type: none"> <li>Improve the stability and resilience of waterways through active management of feral animals and weeds and revegetation</li> </ul>  |
| Groundwater                                |  |
| Groundwater action plan                    | <ul style="list-style-type: none"> <li>Develop and implement a Groundwater Management Strategy that identifies contaminants of concern and prioritises groundwater monitoring and remediation actions (the identification of groundwater monitoring locations, frequency of monitoring and remediation will follow a risk-based approach)</li> </ul>             |
| Biodiversity and conservation management   |  |
| Biodiversity offsets framework             | <ul style="list-style-type: none"> <li>Develop a Strategic Biodiversity Offsets Framework to guide the identification, negotiation and selection of off-site offset agreements</li> </ul>  |
| Habitat management                         | <ul style="list-style-type: none"> <li>Continue to implement the Biodiversity and Conservation Management Plan with a focus on improving the habitat and ecological functions that support MNES on site (endangered flora and fauna)</li> </ul>  |
| Wildlife strikes                           | <ul style="list-style-type: none"> <li>Meet or exceed Melbourne Airport's annual target 12-month average wildlife strike rate</li> </ul>   |
| Cultural heritage management               |  |
| Enhanced experiences                       | <ul style="list-style-type: none"> <li>Identify opportunities for enhanced visitor experiences based on the cultural and environmental heritage assets of Melbourne Airport</li> </ul>   |
| Cultural heritage plan                     | <ul style="list-style-type: none"> <li>Develop and implement a Cultural Heritage Management Plan including consultation with stakeholders and a cultural heritage survey of Melbourne Airport land to identify, confirm and record the condition of Aboriginal and European cultural heritage sites</li> </ul>   |
| Air quality                                |  |
| Low-emission energy options                | <ul style="list-style-type: none"> <li>Investigate the replacement of diesel-powered ground support equipment with electric vehicles that use battery charging from renewable energy sources</li> </ul>  |
| Air-quality plan                           | <ul style="list-style-type: none"> <li>Develop and begin implementing an Air Quality Management Plan including a review of existing modelling, data and monitoring and recommendations for improvements (the plan will include both on- and off-site monitoring)</li> </ul>  |
| Ground-based noise                         |  |
| Ground-based noise management              | <ul style="list-style-type: none"> <li>Develop and begin implementing a Melbourne Airport Noise Management Plan, including a review of existing ground-based noise sources, ground-based noise complaints and recommendations of additional management measures, procedures and requirements to control and minimise noise emissions from the airport</li> </ul> |

| Project/element                                       | Key developments – five-year horizon (to 2023) cont.  |
|---|---|
| Land management                                       |   |
| Contaminated land management                          | <ul style="list-style-type: none"> <li>• Develop a Contaminated Land Management Strategy that identifies contaminants of concern, priority sites and priorities for remediation</li> </ul>            |
| Geographic information system                         | <ul style="list-style-type: none"> <li>• Develop a geographic information system that captures and graphically presents Melbourne Airport's environmental and cultural heritage attributes</li> </ul> |
| Hazardous materials                                   |   |
| Overarching hazardous substances management framework | <ul style="list-style-type: none"> <li>• Develop and implement an airport-wide framework to guide the control and management of hazardous substances</li> </ul>                                       |
| Hazardous material phase-out                          | <ul style="list-style-type: none"> <li>• Investigate replacing hazardous materials with non-hazardous substances and/or identify options to reduce their use</li> </ul>                               |

## 18.3 20-year staging and implementation program (to 2038)

### 18.3.1 Potential future key developments – 20-year planning horizon

For the initial six to 20-year period of the Master Plan (by 2038), the total direct and indirect investment associated with future airport developments has been forecast to be in the region of \$18 billion, or 0.18 percent of Victoria's gross state product.

The key developments envisaged in relation to aviation and ground transport improvements over the next 20 years are summarised in Tables 18-5 and 18-6.

Table 18-5: Aviation key developments – 20-year horizon (to 2038)

| Project/element                                   | Key developments – 20-year horizon (to 2038)  |
|---|---|
| Airside developments                              |   |
| Southern apron expansion                          | <ul style="list-style-type: none"> <li>Expansion of apron in the southeast of the Terminals Precinct to support dual Code C taxi-lanes and 10+ Code C aircraft parking stands</li> </ul>  |
| Midfield apron development                        | <ul style="list-style-type: none"> <li>Develop new apron with approximately five aircraft parking positions and supporting taxiways</li> </ul>  |
| Southern freight apron                            | <ul style="list-style-type: none"> <li>New freight apron will be developed in the south-eastern corner of the airfield, providing an initial stage of seven Code F sized aircraft parking positions for dedicated freight operations</li> </ul>   |
| Runway and taxiway improvements                   | <ul style="list-style-type: none"> <li>Provision of additional RETs to support runway capacity where required</li> </ul>  |
| Terminals and aviation developments               |   |
| International terminal expansion                  | <ul style="list-style-type: none"> <li>Extension of the existing Pier D to provide additional Code E and Code F contact gates</li> <li>Expanded baggage handling capacity</li> <li>Expansion of retail and passenger lounge facilities</li> <li>Expansion into the adjacent terminals (T1 and T3) to provide additional aircraft gates, departures and arrivals facilities</li> </ul> |
| Domestic terminal expansion                       | <ul style="list-style-type: none"> <li>Reconfiguration and expansion of key domestic terminal processes and piers to accommodate domestic airlines growth</li> <li>Expansion of Terminal 1, with an opportunity to develop Alpha Pier for additional contact aircraft parking positions</li> </ul>  |
| Southern Terminal Precinct expansion (Terminal 5) | <ul style="list-style-type: none"> <li>Expansion of the Terminals Precinct further south with significant additional processing capacity</li> <li>New Pier development for 13 Code C aircraft gates</li> </ul>  |



**Table 18-6: Ground transport key developments – 20-year horizon (to 2038)**

| Project/element             | Key developments – 20-year horizon (to 2038)   |
|-----------------------------|--|
| External road network*      | <ul style="list-style-type: none"> <li>• Widen Tullamarine Freeway between Melbourne Airport and the M80 Ring Road</li> <li>• Construct the Bulla Bypass/Melbourne Airport Link</li> <li>• Commence construction of the Outer Metropolitan Ring Road</li> <li>• Widen the Calder Freeway</li> <li>• Plan for road access to future terminals</li> <li>• Plan for arterial road upgrades in northern suburbs</li> </ul> |
| Internal road network       | <ul style="list-style-type: none"> <li>• Improve access/egress to the north</li> <li>• Build out the Melbourne Airport Business Park road network</li> </ul>   |
| Ground transport facilities | <ul style="list-style-type: none"> <li>• Expand ground transport hubs</li> <li>• Develop a consolidated car rental facility</li> </ul>   |
| Public transport*           | <ul style="list-style-type: none"> <li>• Construct the Airport Rail Link</li> <li>• Plan for public transport connections to future terminals</li> </ul>   |
| Active transport*           | <ul style="list-style-type: none"> <li>• Improve walking and cycling path connectivity between Melbourne Airport and surrounding suburbs</li> </ul>  |
| Travel demand management    | <ul style="list-style-type: none"> <li>• Explore opportunities for employee and public parking facilities that are accessible from Airport Drive and Sunbury Road</li> </ul>   |

\*Initiatives to be led by the Victorian Government









An aerial photograph of the Melbourne Airport, showing extensive parking lots filled with cars, taxi ranks, and the terminal building in the background. The image is overlaid with a semi-transparent orange filter. A vertical white bar is on the left side, and a diagonal hatched pattern is at the bottom left.

Part E:

# Supporting Information



19.0

## References



# References 19.0

|   |
|---|
| Airbus Global Market Forecasts 2017   |
| <i>Airports Act 1996</i>  |
| Airports Regulations 1997   |
| Airports (Building Control) Regulations 1996  |
| Airports (Protection of Airspace) Regulations 1996  |
| Airports (Environment Protection) Regulations 1997  |
| Australia Pacific Airports Corporation Limited, APAC Annual Report 2015–16, Melbourne, 2016   |
| Australia Pacific Airports Corporation Limited: <a href="#">VISIT SITE &gt;</a>   |
| Australian Standard AS2021-2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction   |
| Austrroads Guide to Traffic Engineering Practice  |
| <i>Civil Aviation Act 1988</i>  |
| Civil Aviation (Building Control) Regulations 1988  |
| Civil Aviation Safety Regulations 1988  |
| Economic Impact of Melbourne Airport, April 2008  |
| <i>Environment Protection Act 1970 (Vic)</i>  |
| <i>Environment Protection and Biodiversity Conservation Act 1999</i>  |
| Guidance Material for Selecting and Providing Aircraft Noise Information, Department of Environment and Heritage and Department of Transport and Regional Services, 2003  |
| House of Representatives per Mr Jess (La Trobe), Commonwealth Parliamentary Debates, 8/11/1962, page 2,223, House of Representatives, 1962                                |
| Hume Planning Scheme  |
| International Air Transport Association – Guidelines for Airport Capacity/Demand Management   |
| International Standard for Environmental Management Systems ISO14001 (2004)   |
| Melbourne Airport Environment Strategy 2008   |
| Melbourne Airport Environs Strategy Plan 2003   |
| Melbourne Airport Ground Transport Plan 2009  |
| Melbourne Airport Land Use Study 1992   |
| Melbourne Airport Master Plan 1998  |
| Melbourne Airport Master Plan 2003  |
| Melbourne Airport Master Plan 2008  |
| Melbourne Airport Master Plan 2013  |
| Melbourne Airport Strategy 1990 and associated Environmental Impact Statement   |
| National Airports Safeguarding Framework, May 2012  |
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| Plan Melbourne Metropolitan Strategy, 2017  |
| Public Transport Victoria (PTV) – Melbourne Rail Link Study 2013  |
| Runway Development Program - Economic Impact Assessment (unpublished)   |
| <i>Planning and Environment Act 1987 (Vic)</i>  |
| Safeguards for Airports and the Communities Around Them – Discussion Paper, Department of Infrastructure, Transport, Regional Development and Local Government, June 2009 |
| The Economic Contribution of Victoria's major airports - September 2017   |

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Tourism, Events and Visitor Economy Branch (TEVE) (2016), Business Victoria

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Tourism Research Australia (2016)

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Tourism Research Australia – Tourism Forecasts 2017

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Value of Victoria's tourism industry – Business Victoria

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Victoria Planning Provisions (VPP)

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Appendix A:

# Compliance with the *Airports Act* *1996*

# Compliance with the *Airports Act 1996*

The Melbourne Airport Master Plan has been prepared in accordance with the requirements of the Airports Act and associated Regulations. The legislation specifies elements that are to be addressed within an airport Master Plan. A reference guide is provided below of how each element of the legislation has been addressed within this Master Plan.

| Requirements under Part 5, Division 3, section 70(2)<br>Final Master Plans   | Chapter/section response              |
|--|---------------------------------------|
| <b>The purposes of a final Master Plan for an airport are:</b>   |                                       |
| a. to establish the strategic direction for efficient and economic development at the airport over the planning period of the plan                                   | Chapter 2                             |
| b. to provide for the development of additional uses of the airport site   | Chapter 10<br>Chapter 13              |
| c. to indicate to the public the intended uses of the airport site   | Chapter 8<br>Chapter 10<br>Chapter 13 |
| 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 | Chapter 10<br>Chapter 17              |
| e. to ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards                                   | Chapter 16                            |
| f. to establish a framework for assessing compliance at the airport with relevant environmental legislation and standards  | Chapter 16                            |
| g. to promote the continual improvement of environmental management at the airport   | Chapter 16                            |

| Requirements under Part 5, Division 3, section 71(2)<br>Contents of draft or final Master Plan  | Chapter/section response  |
|---|---|
| <b>In the case of an airport other than a joint-user airport, a draft or final Master Plan must specify:</b>  |   |
| a. the airport-lessee company's development objectives for the airport  | Chapter 2   |
| b. the airport-lessee company's assessment of the future needs of civil aviation users of the airport, and other users of the airport, for services and facilities relating to the airport                      | Chapter 7<br>Chapter 8<br>Chapter 14  |
| c. the airport-lessee company's intentions for land use and related development of the airport site, where the uses and developments embrace airside, landside, surface access and land planning/zoning aspects | Chapter 8<br>Chapter 10<br>Chapter 11<br>Chapter 12<br>Chapter 13<br>Chapter 14 |
| d. an Australian Noise Exposure Forecast (in accordance with regulations, if any, made for the purpose of this paragraph) for the areas surrounding the airport   | Chapter 9   |

| Requirements under Part 5, Division 3, section 71(2)<br>Contents of draft or final Master Plan  | Chapter/section response                                  |
|---|---|
| da. flight paths (in accordance with regulations, if any, made for the purpose of this paragraph) at the airport  | Chapter 9   |
| e. the airport-lessee company's plans, developed following consultations with the airlines that use the airport and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels | Chapter 9<br>Chapter 17                                   |
| f. the airport-lessee company's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the plan   | Section 5.6<br>Chapter 16<br>Section 16.2                 |
| g. the airport-lessee company's plans for dealing with the environmental issues mentioned in paragraph (f) (including plans for ameliorating or preventing environmental impacts)   | Section 5.6<br>Chapter 16<br>Section 16.3<br>Section 16.4 |
| ga. in relation to the first 5 years of the Master Plan – a plan for a ground transport system on the landside of the airport that details:   | Chapter 14  |
| i. a road network plan  | Figure 14-1   |
| ii. the facilities for moving people (employees, passengers and other airport users) and freight at the airport   | Section 14.2  |
| iii. the linkages between those facilities, the road network and public transport system at the airport and the road network and public transport system outside the airport  | Section 14.2  |
| iv. the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport system   | Section 14.4  |
| v. the capacity of the ground transport system at the airport to support operations and other activities at the airport   | Section 14.3  |
| vi. the likely effect of the proposed developments in the Master Plan on the ground transport system and traffic flows at, and surrounding, the airport   | Section 14.3  |
| gb. in relation to the first 5 years of the Master Plan – detailed information on the proposed developments in the Master Plan that are to be used for:   | Chapter 13  |
| i. commercial, community, office or retail purposes   |   |
| ii. for any other purpose that is not related to airport services   |   |
| gc. in relation to the first 5 years of the Master Plan – the likely effect of the proposed developments in the Master Plan on:   | Section 6.2<br>Section 13.4                               |
| i. employment levels at the airport   |   |
| ii. the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport  |   |
| h. an environment strategy that details:  | Chapter 16  |
| i. the airport-lessee company's objectives for the environmental management of the airport  | Chapter 16<br>Section 16.1                                |



| Requirements under Part 5, Division 3, section 71(2)<br>Contents of draft or final Master Plan  | Chapter/section<br>response              |
|---|--|
| ii. the areas (if any) within the airport site which the airport-lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant        | Section 5.6                              |
| iii. the sources of environmental impact associated with airport operations   | Chapter 16<br>Section 16.2               |
| iv. the studies, reviews and monitoring to be carried out by the airport-lessee company in connection with the environmental impact associated with airport operations                        | Chapter 16<br>Section 16.3               |
| v. the time frames for completion of those studies and reviews and for reporting on that monitoring   | Chapter 16<br>Section 16.3<br>Table 16.5 |
| vi. the specific measures to be carried out by the airport-lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations | Chapter 16<br>Section 16.4               |
| vii. the time frames for completion of those specific measures  | Chapter 16<br>Section 16.4               |
| viii. details of the consultations undertaken in preparing the strategy (including the outcome of the consultations)  | Chapter 16<br>Section 16.2               |
| ix. any other matters that are prescribed in the regulations  | Not applicable                           |
| i. such other matters (if any) as are specified in the regulations.   | Not application                          |

| <b>Requirements under Part 5, Division 3, section 71A<br/>Draft or final Master Plan must identify proposed sensitive developments</b> | <b>Chapter/section response</b> |
|--|---------------------------------|
| 1. A draft or final Master Plan must identify any proposed sensitive development in the plan.  | Section 10.6                    |

| <b>Requirements under Regulation 5.02:<br/>Contents of draft or final Master Plan – general</b>  | <b>Chapter/section response</b> |
|--|---------------------------------|
| 1. For paragraphs 71(2)(j) and (3)(j) of the Act, the following matters are specified in an environment strategy:  |                                 |
| a. any change to the OLS or PANS-OPS surfaces for the airport concerned that is likely to result if development proceeds in accordance with the Master Plan  | Section 17.10                   |
| b. for an area of an airport where a change of use of a kind described in subregulation 6.07(2) of the Airports (Environment Protection) Regulations 1997 is proposed:   | Chapter 16                      |
| i. the contents of the report of any examination of the area carried out under regulation 6.09 of those Regulations  | Chapter 16<br>Section 16.3      |
| ii. the airport-lessee company's plans for dealing with any soil pollution referred to in the report.  | Chapter 16<br>Section 16.4      |
| 2. For section 71 of the Act, an airport Master Plan must, in relation to the landside part of the airport, where possible, describe proposals for land use and related planning, zoning or development in an amount of detail equivalent to that required by, and using terminology (including definitions) consistent with that applying in, land-use planning, zoning and development legislation in force in the State or Territory in which the airport is located. | Chapter 10<br>Appendix D        |
| 3. For subsection 71(5) of the Act, a draft or final Master Plan must:   |                                 |
| a. address any obligation that has passed to the relevant airport-lessee company under subsection 22(2) of the Act or subsection 26(2) of the Transitional Act   | Section 4.3<br>Section 10.7     |
| b. address any interest to which the relevant airport lease is subject under subsection 22(3) of the Act, or subsection 26(3) of the Transitional Act.   | Section 4.3<br>Section 10.7     |

| <b>Requirements under Regulation 5.02A:<br/>Contents of draft or final Master Plan – to be specified<br/>in environment strategy</b>   | <b>Chapter/section<br/>response</b>         |
|--|---|
| 1. For subparagraphs 71(2)(h)(ix) and (3)(h)(ix) of the Act, the matters in this regulation must be specified in an environment strategy.  | Chapter 16                                  |
| 2. The environment strategy must specify any areas within the airport site to which the strategy applies that the airport-lessee company for the airport has identified as being a site of Indigenous significance, following consultation with: | Section 4.4.6<br>Chapter 16<br>Section 16.4 |
| a. any relevant Indigenous communities and organisations; and  | Chapter 16<br>Section 16.4                  |
| b. any relevant Commonwealth or State body   | Chapter 16<br>Section 16.4                  |
| 3. The environment strategy must specify the airport-lessee company's strategy for environmental management of areas of the airport site that are, or could be, used for a purpose that is not connected with airport operations.                | Chapter 16<br>Section 16.4                  |
| 4. The environment strategy must specify:  |   |
| a. the training necessary for appropriate environment management by persons, or classes of persons, employed on the airport site by the airport-lessee company or by other major employers; and  | Chapter 16<br>Section 16.3                  |
| b. the training programs, of which the airport-lessee company is aware, that it considers would meet the training needs of a person mentioned in paragraph (a).  | Chapter 16<br>Section 16.3                  |

| <b>Requirements under Regulation 5.02B:<br/>Contents of draft or final Master Plan – to be addressed<br/>in environment strategy</b>   | <b>Chapter/section<br/>response</b> |
|--|-------------------------------------|
| 1. For subsection 71(5) of the Act, a draft or final Master Plan must address the things in this regulation.   | Chapter 16                          |
| 2. In specifying its objectives for the airport under subparagraph 71(2)(h)(i) or (3)(h)(i) of the Act, an airport-lessee company must address its policies and targets for:                                 | Chapter 16                          |
| a. continuous improvement in the environmental consequences of activities at the airport   | Chapter 16<br>Section 16.4          |
| b. progressive reduction in extant pollution at the airport  | Chapter 16<br>Section 16.4          |
| c. development and adoption of a comprehensive environmental management system for the airport that maintains consistency with relevant Australian and international standards                               | Chapter 16<br>Section 16.3          |
| d. identification, and conservation, by the airport-lessee company and other operators of undertakings at the airport, of objects and matters at the airport that have natural, Indigenous or heritage value | Chapter 16<br>Section 16.4          |

| Requirements under Regulation 5.02B:<br>Contents of draft or final Master Plan – to be addressed<br>in environment strategy  | Chapter/section<br>response         |
|--|-------------------------------------|
| e. involvement of the local community and airport users in development of any future strategy  | Chapter 16<br>Section 16.2          |
| f. dissemination of the strategy to sub-lessees, licensees, other airport users and the local community.   | Section 5.6<br>Tables 16-1 to 16-13 |
| 3. In specifying under subparagraph 71(2)(h)(ii) or (3)(h)(ii) of the Act, the areas within the airport site it identifies as environmentally significant, an airport-lessee company must address:     | Chapter 16                          |
| a. any relevant recommendation of the Australian Heritage Council  | Chapter 16<br>Section 16.4          |
| b. any relevant recommendation of the Department of Environment regarding biota, habitat, heritage or similar matters  | Chapter 16<br>Section 16.2          |
| c. any relevant recommendation of a body established in the State in which the airport is located, having responsibilities in relation to conservation of biota, habitat, heritage or similar matters. | Chapter 16<br>Section 16.2          |
| 4. In specifying the sources of environmental impact under subparagraph 71(2)(h)(iii) or (3)(h)(iii) of the Act, an airport-lessee company must address:   | Chapter 16<br>Section 16.4          |
| a. the quality of air at the airport site, and in so much of the regional airshed as is reasonably likely to be affected by airport activities   | Chapter 16<br>Section 16.4          |
| b. water quality, including potentially affected groundwater, estuarine waters and marine waters   | Chapter 16<br>Section 16.4          |
| c. soil quality, including that of land known to be already contaminated   | Chapter 16<br>Section 16.4          |
| d. release, into the air, of substances that deplete stratospheric ozone   | Chapter 16<br>Section 16.4          |
| e. generation and handling of hazardous waste and any other kind of waste  | Chapter 16<br>Section 16.4          |
| f. usage of natural resources (whether renewable or non-renewable)   | Chapter 16<br>Section 16.4          |
| g. usage of energy the production of which generates emissions of gases known as 'greenhouse gases'  | Chapter 16<br>Section 16.4          |
| h. generation of noise.  | Chapter 16<br>Section 16.4          |

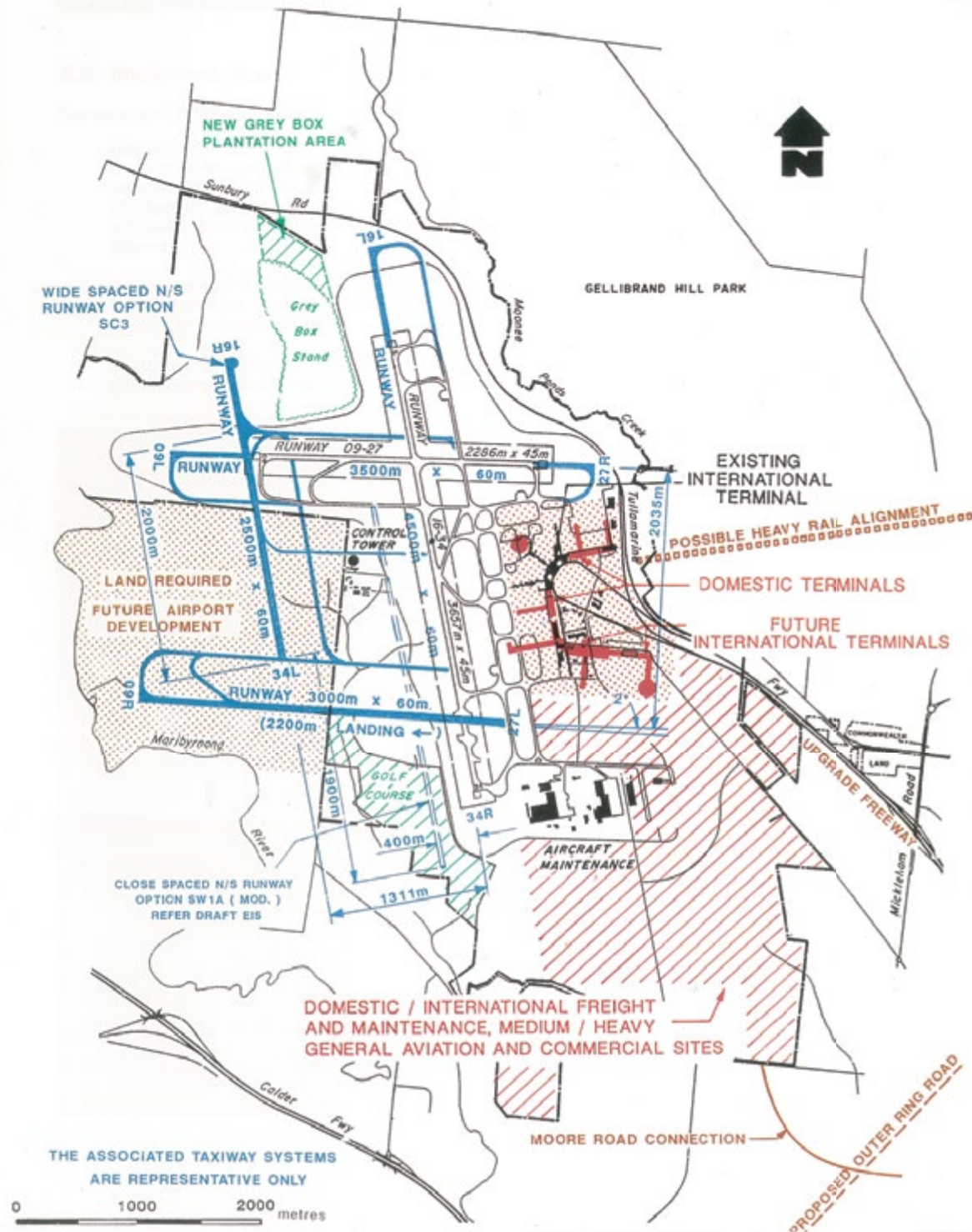
| Requirements under Regulation 5.02B:<br>Contents of draft or final Master Plan – to be addressed<br>in environment strategy  | Chapter/section<br>response |
|--|-----------------------------|
| <p>5. In specifying under subparagraph 71(2)(h)(iv) or (3)(h)(iv) of the Act the studies, reviews and monitoring that it plans to carry out, an airport-lessee company must address:</p> <ul style="list-style-type: none"> <li>a. the matters mentioned in subregulation 5.02A(2) and subregulations 5.02B(3) and (4); and</li> <li>b. the scope, identified by the airport-lessee company, for conservation of objects and matters at the airport that have natural, Indigenous or heritage value; and</li> <li>c. the approaches and measures identified by the airport-lessee company as its preferred conservation approaches and measures; and</li> <li>d. the professional qualifications that must be held by a person carrying out the monitoring; and</li> <li>e. the proposed systems of testing, measuring and sampling to be carried out for possible, or suspected, pollution or excessive noise; and</li> <li>f. the proposed frequency of routine reporting of monitoring results to the airport environment officer (if any) for the airport, or to the Secretary.</li> </ul> | Chapter 16                  |
| <p>6. In specifying under subparagraph 71(2)(h)(iv) or (3)(h)(iv) of the Act the studies, reviews and monitoring that it plans to carry out, an airport-lessee company must address:</p> <ul style="list-style-type: none"> <li>a. the matters mentioned in subregulation 5.02A(2) and subregulations 5.02B(3) and (4); and</li> <li>b. the scope, identified by the airport-lessee company, for conservation of objects and matters at the airport that have natural, Indigenous or heritage value; and</li> </ul>  |                             |
| <p>7. the approaches and measures identified by the airport-lessee company as its preferred conservation approaches and measures.</p>  | Chapter 16                  |



Appendix B:

# 1990 Melbourne Airport Strategy – Principal Features

# 1990 Melbourne Airport Strategy – Principal Features



This plan has been prepared to illustrate the Master Plan and is not intended to serve any other purpose.

Appendix C:

# 2013 Environment Strategy Achievements

## 2013 Environment Strategy achievements

Over the past five years Melbourne Airport has implemented a range of initiatives to improve the environmental performance of the airport in accordance with the 2013 Environment Strategy.

| Aspect                                     | Achievement   |
|--|---|
| Ecologically sustainable development (ESD) | The new T4 development has been completed in line with Leadership in Energy and Environmental Design (LEED) Guidelines, including compliance with LEED criteria to have positive outcomes in the areas of sustainable sites, water efficiency, energy and atmosphere, material and resources, indoor environmental quality, innovation in design and regional priority. |
|  | Publication and implementation of ESD guidance and principles. The technical manuals (e.g. Melbourne Airport Sustainable Buildings and Infrastructure Guide and the Development Manual) identifies ESD principles that can be considered at all stages of airport projects.   |
|  | Incorporation of ESD principles into the Runway 16 High Intensity Approach Lighting Project that delivered savings in both energy and maintenance through replacing old incandescent lights with new-generation LED lighting.   |
|  | Melbourne Airport Technical Standards were updated to be inclusive of ESD principles, in particular electrical and mechanical services, to improve efficiencies across the business.  |
| Energy and climate change                  | Melbourne Airport successfully became Airport Carbon Accredited by Airports Council International under its carbon standard for airports. The accreditation recognises Melbourne Airport's commitment to reducing its impacts on the environment and in managing and reducing carbon emissions.   |
|  | Melbourne Airport continued the annual offset program for all of its staff flights and vehicle emissions, resulting in an average offset of 2,550 tonnes of carbon dioxide emissions per year.  |
|  | Melbourne Airport commissioned an eight megawatt tri-generation plant, which will result in an estimated reduction in carbon dioxide emissions of 920,000 tonnes over 15 years.   |
|  | A car park lighting upgrade was rolled out to reduce Melbourne Airport car park's lighting energy consumption. The project results in an annual energy saving of approximately 2,000 megawatt hours.  |
|  | Melbourne Airport revised its standards for lighting in all new projects and renewal and refurbishment projects and mandated the use of energy efficient technology, including LED lighting, to reduce energy consumption and operating costs.  |

| Aspect                        | Achievement   |
|-------------------------------|---|
| Waste and resource management | In 2016 Melbourne Airport appointed a new specialist waste contractor to provide advanced waste management and cleaning solutions. Since the appointment the airport has improved its performance and recycled more than 32 percent of its waste generated on site. Efficiencies were also gained through one company collecting waste streams from various locations across the precinct and disposing off site. |
|                               | Melbourne Airport completed a detailed planning and feasibility study for the future development of a centralised waste facility. The benefits identified include efficiency within waste management logistics, improved waste-type segregation, cost reduction and opportunities to create a waste-to-energy plant.  |
|                               | Waste audits of key locations were conducted and resulted in identifying incorrect waste disposal practices at retail tenancies and concessionaires. Actions were taken to improve waste management at these locations to improve future waste disposal efficiencies.   |
|                               | New waste compactors were installed, with access for trained personnel only. This initiative has seen improved waste segregation, a reduction in the quantity of waste to landfill, and an increase in recycling volumes.   |
|                               | A consolidated waste tracking system has been implemented since April 2016. The data captured can be used to target areas for future waste management improvements and initiatives.   |
|                               | The airport's Waste Minimisation Policy was updated, outlining Melbourne Airport's commitment to reducing waste and continually adapt and improve management practices.   |
| Water consumption management  | Water-sensitive urban design practices were, and continue to be, incorporated in all new designs, ranging from car parks to warehouses. The use of bioswales and rain gardens was initiated to reduce the required size of water mains and improve water quality through local detention and bioretention treatment.  |
|                               | The new T4 precinct was designed and constructed to incorporate rainwater harvesting for use in toilet flushing (greywater) to reduce potable water catchment.  |



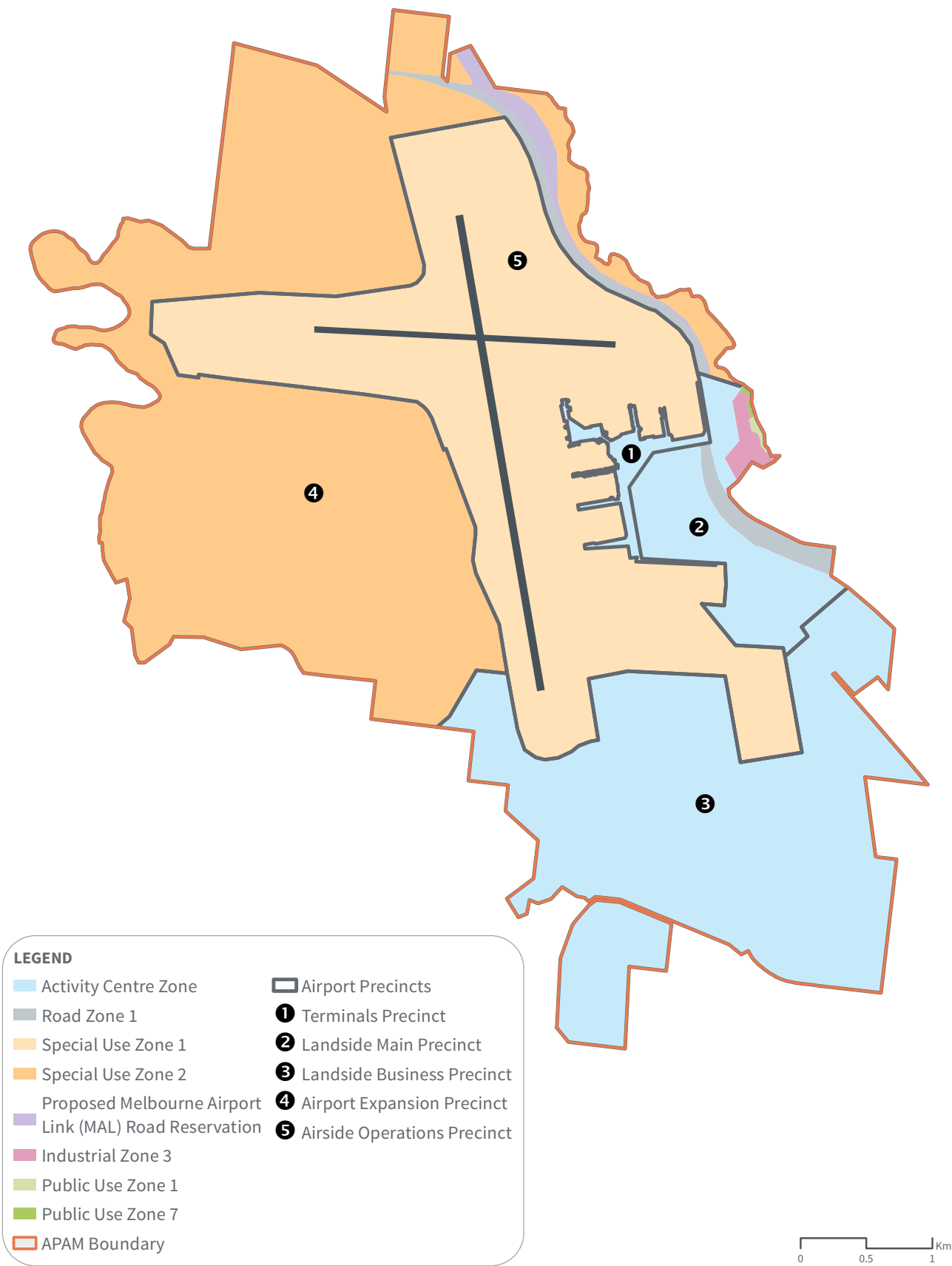
| Aspect                     | Achievement  |
|----------------------------|--|
| Water quality – stormwater | <p>Phase 1 of the Airport Drive Stormwater Treatment and Reuse System Project was completed and received a national award in stormwater engineering excellence. The system harvests non-potable water from Melbourne Airport land within the Steele Creek North catchment area to meet both the airport's and community water requirements, including the Essendon Football Club's training ground. Importantly, this project also improves water quality, leaving the catchment.</p>  |
|                            | <p>A Stormwater Quality Improvement Device (Stormceptor SPEL) unit was installed in the airport drainage network, which has resulted in better quality stormwater that discharges to Moonee Ponds Creek. Results have also shown downstream improvements in water quality and aquatic habitat (i.e. an increase in native aquatic vegetation).</p>   |
|                            | <p>Melbourne Airport, in collaboration with Melbourne Water, has improved the riparian habitat along the reaches of Moonee Ponds Creek and Deep Creek through weed control and planting of native vegetation. The works have resulted in the extensive clearing of weeds, particularly the large patches of African boxthorn, and the establishment of native plants.</p>  |
|                            | <p>Environmental assessments undertaken identified contaminant sources in the stormwater catchment of Arundel Creek. The assessment findings have provided a better understanding of where contaminants are entering the river system, and have driven the implementation of adaptive management actions to eliminate or reduce the ability of contaminants to enter the drainage network. For example, sediment control measures have been installed at stormwater pits to eliminate or reduce the ability of contaminants to enter the drainage network.</p> |

| Aspect                                   | Achievement   |
|--|---|
| Water quality – groundwater              | Melbourne Airport completed a detailed site assessment to inform a high-level conceptual site model. The model was used to augment the understanding of the regional hydrogeology and groundwater occurrence at the airport. The conceptual site model informs the groundwater monitoring program and the development of a risk-based approach for ongoing groundwater.   |
| Biodiversity and conservation management | Melbourne Airport finalised the Biodiversity Conservation Management Plan, which consolidates available ecological information for Melbourne Airport site and provides detailed guidance for ongoing biodiversity conservation management activities.   |
|  | Ecological investigations have been conducted over more than half of Melbourne Airport's Commonwealth-owned land and have included targeted surveys for at least 12 threatened species or ecological communities. These ongoing investigations are important in identifying areas of ecological significance for future management.   |
|  | A 10-year Ecological Management Plan was prepared for the Grey Box Woodland. Annual ongoing management activities have included revegetation, pest species eradication, fire management and targeted surveys for threatened species. Regular ecological monitoring provides the information required to ensure management of the woodland is able to adapt to new issues as they arise.   |
| Biodiversity and cultural heritage       | Melbourne Airport has developed a web application tool that records and identifies all biodiversity and heritage values, reports and risks. As a live application, the tool is updated as activities are undertaken to allow for sensitive and adaptive management of these values.   |
| Cultural heritage                        | Melbourne Airport commissioned investigative heritage works for development programs over the majority of airport land, which has significantly increased understanding of Aboriginal and European historical heritage values within the local region. The scale of investigations has also significantly contributed to developing better archaeological investigation strategies, particularly for the Victorian Volcanic Plains geographic region. |
|  | Melbourne Airport has established the Annandale Grassland Reserve. As well as protecting important grasslands, the airport has worked with Aboriginal Traditional Owners to conserve and manage Aboriginal heritage values in this reserve over the long term.  |
| Air quality                              | Two new air quality monitoring stations were commissioned. Continual monitoring is important for providing long-term air quality trends for future planning and decision making.  |
|  | An air emissions inventory and air-quality impact assessment was undertaken to improve our understanding of local air quality and provide a baseline to measure future changes.   |
|  | Melbourne Airport purchased (and where possible, continues to purchase) low-emission vehicles and provides regular maintenance to assist in reducing the airport's carbon footprint.  |

| Aspect              | Achievement  |
|---------------------|--|
| Land management     | Melbourne Airport removed or decommissioned non-essential underground storage tanks, including the redundant tank located at the Long Term Car Park, to reduce the residual contamination within soils and surrounding ecosystems.   |
|                     | The airport completed construction of the retarding basin – ‘Rain Garden’ as part of the Steele Creek North Strategy. The project ensures the effective management of stormwater from the Business Park by reducing surface water run-off, containing sediments within the retarding basin and reducing soil erosion.  |
|                     | Melbourne Airport developed a working group with representation from relevant business units to coordinate appropriate management of the potential issues associated with per- and poly-fluorinated alkyl substances (PFAS) contamination resulting from the use of aqueous film-forming foams in firefighting training and activities on the airport. Melbourne Airport continues to engage with DIRDC, the Airport Environment Officer and EPA Victoria in relation to setting guidelines and future regulations relation to PFAS contamination. |
|                     | To understand the extent of PFAS contamination, a site-wide investigation of soil, sediment, groundwater and surface water was undertaken. The outcomes of this investigation are a key input to the risk assessment, which forms the basis of an airport-wide PFAS management strategy.   |
|                     | Melbourne Airport continued the annual auditing of hazardous materials and management practices and procedures for tenants, in accordance with Operational Environment Management Plans (OEMPs), to assess compliance across the business.   |
| Hazardous materials | Monthly assessments at Melbourne Airport recorded a notable decrease in reportable environmental spill incidents and a significant decrease in the proportion of spills reaching the stormwater system. The results indicate that preventative measures to reduce the impact of spills are effective.  |
|                     | Spill response training continued to be carried out regularly for operational staff to reduce the impact of spills. Business Partner Environment Forums are held to further educate airport tenants about spill response preparedness.   |
|                     | Fuel tank testing and monitoring inspections continues to be carried out every two years to ensure the ongoing storage of hazardous materials is reliable and safe.  |

Appendix D:

# Melbourne Airport Planning Zones





# Melbourne Airport Planning Zones

## Melbourne Airport Activity Centre Zone

### 1.0 Purpose

- To implement the Melbourne Airport Master Plan 2018.
- To advance Melbourne Airport as one of the state's key activity centres and transport gateways.
- To provide for the long-term and sustainable growth of Melbourne Airport.
- To encourage a mix of uses and the development of the activity centre:
  - » as a focus for airport activities, complementary business and shopping activities, working, travellers' accommodation, leisure, transport and community facilities
  - » to support sustainable urban outcomes that optimise the use of infrastructure.
- To create an attractive, pleasant, safe, secure and stimulating environment through good urban design.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

### 2.0 Major Development Plan

Any activities listed in sections 89 and 89A of the *Airports Act 1996* (Cwlth) that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth Minister for Infrastructure and Transport.

### 3.0 Table of uses

| Section 1: Permitted Uses            |  |
|--------------------------------------|--|
| Use                                  | Condition  |
| Airport                              |  |
| Car park                             |  |
| Cinema                               |  |
| Cinema-based entertainment facility  |  |
| Conference centre                    |  |
| Convenience restaurant               |  |
| Education centre                     | Must be an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport. |
| Emergency services facility          |  |
| Food and drink premises              |  |
| Freeway service centre               | Must not be in Terminals Precinct.   |
| Fuel depot                           |  |
| Function centre                      |  |
| Heliport                             |  |
| Hotel                                |  |
| Industry                             | Must not be in Terminals Precinct.   |
| Medical centre                       |  |
| Minor sports and recreation facility |  |

|  |                                    |
|--|------------------------------------|
| Motel  | Must not be in Terminals Precinct. |
| Office   |                                    |
| Place of assembly  |                                    |
| Place of worship   |                                    |
| Railway station  |                                    |
| Research and development centre  |                                    |
| Residential hotel  |                                    |
| Retail premises  |                                    |
| Road   |                                    |
| Service station  |                                    |
| Transport terminal   |                                    |
| Utility installation   |                                    |
| Warehouse  | Must not be in Terminals Precinct. |
| <b>Section 2: Consent uses (airport-lessee company approval required)</b>  |                                    |
| <i>Use</i>   |                                    |
| Any use not included in sections 1 or 3  |                                    |
| Any use in section 1 if the condition is not met   |                                    |
| <b>Section 3: Sensitive uses (Commonwealth minister's approval required)</b>   |                                    |
| <i>Use</i>   |                                    |
| Residential dwelling (does not include accommodation for students studying at an aviation educational facility at the airport)   |                                    |
| Community care facility  |                                    |
| Preschool  |                                    |
| Primary, secondary, tertiary or other educational institution (does not include an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport) |                                    |
| Hospital (does not include a facility with the primary purpose of providing emergency medical treatment and that does not have inpatient facilities)   |                                    |

## 4.0 Approvals

### 4.1 Use of land

Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master Plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

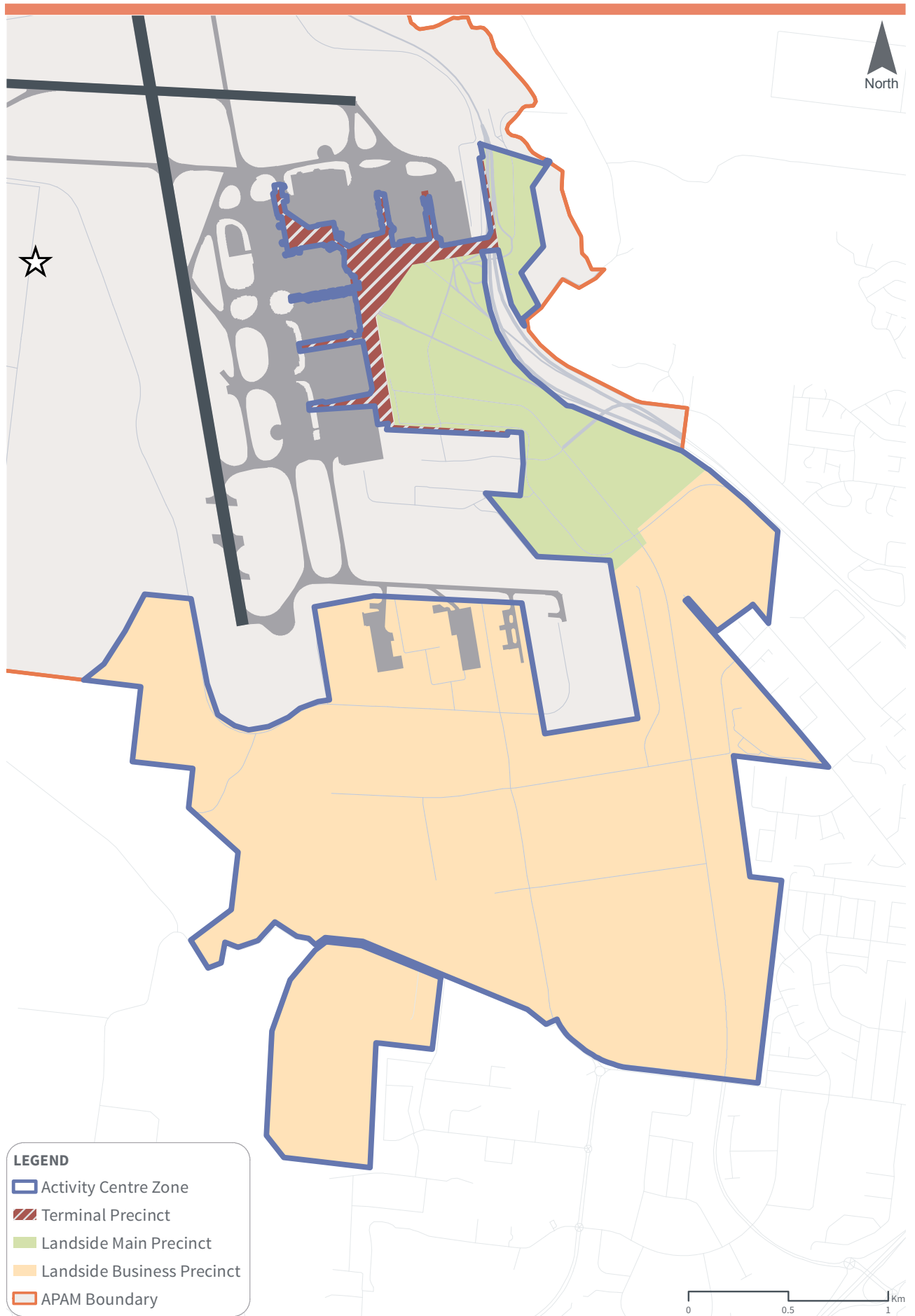
### 4.2 Buildings and works

Planning and design approval and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).

The airport-lessee company may specify buildings and works that are exempt from planning and design approval.

Planning and design approval is not required if a Major Development Plan is required.

## Melbourne Airport Activity Centre Zone



### **4.3 Design and development**

Design and development must be generally in accordance with the following:

- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- Melbourne Airport Development Manual.

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

## **5.0 Precinct Provisions**

### **5.1 Precinct 1: Terminals Precinct**

#### ***Precinct objectives***

- To provide for the operation, use and development of land for the purpose of the passenger and baggage processing at Melbourne Airport, enabling the terminal processors to operate safely, efficiently and in a cost-effective manner.
- To provide world-class facilities for airlines and passengers, including but not limited to efficiently operating terminal processors with adequately located and sized retail areas.
- To provide an integrated terminals facility ('singleroof') with ample commercial and retail uses.
- To provide for expansion of passenger terminal facilities to meet forecast demand.

#### ***Precinct requirements***

Applications for development should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy, Melbourne Airport Planting Guidelines and Melbourne Airport Interior Fittings and Finishes Standard.

#### ***Precinct guidelines***

- The precinct should be used for the continued operation, enhancement and expansion of the terminal complex.
- The precinct must continue to provide essential passenger services and act as an efficient transport modal interchange.
- The precinct should not be used or developed for any purpose that may interfere or conflict with safe and secure aircraft operations in the Airside Operations Precinct or Airport Expansion Precinct.

## 5.2 *Precinct 2: Landside Main Precinct*

### ***Precinct objectives***

- To provide for a range of airport support activities, services and facilities for use by airlines, passengers, government agencies, freight businesses and transport providers.
- To provide integrated car parking, hotel accommodation, commercial uses and retail premises that support the airport.
- To provide an attractive and functional gateway to the airport.
- To provide ground transport facilities and services for efficient access to the airport.
- To provide for expansion of passenger terminal facilities to meet forecast demand.

### ***Precinct requirements***

Applications for development should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy and Melbourne Airport Planting Guidelines.

### ***Precinct guidelines***

- The precinct should be used for a range of activities that support the airport consistent with the precinct's prime location including freight, car parking, hotel accommodation, offices, commercial uses and retail premises.
- The use and development of the precinct must provide for safe and efficient ground transport access.
- The use and development of the precinct must provide for a high level of visual amenity.
- The precinct should not be used or developed for any purpose that may interfere or conflict with safe and secure aircraft operations in the Airside Operations Precinct or Airport Expansion Precinct.

## 5.3 *Precinct 3: Landside Business Precinct*

### ***Precinct objectives***

- To provide land for a range of aviation and non-aviation uses.
- To provide a range of aviation-related services including maintenance and servicing of aircraft and freight terminals.
- To provide for a range of non-aviation uses including industrial, commercial, retail, office, recreational, manufacturing, warehousing and associated activities.

### ***Precinct requirements***

Applications for development should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy and Melbourne Airport Planting Guidelines.

### ***Precinct guidelines***

- The precinct should be used for aviation and non-aviation uses.
- The use and development of the precinct must provide for safe and efficient ground transport access.
- The use and development of the precinct must provide for a high level of visual amenity.
- The development must not affect the safety and amenity of adjacent more sensitive land uses.
- The precinct should not be used or developed for any purpose that may interfere or conflict with safe and secure aircraft operations in the Airside Operations Precinct or Airport Expansion Precinct.



## 6.0 Application requirements

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

### 6.1 Use

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- a description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land
- plans drawn to scale and dimensioned that show:
  - » the siting and use of buildings
  - » areas not required for immediate use
  - » adjacent buildings
- the likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant
- a written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

### 6.2 Buildings and works

An application to construct a building or construct or carry out works must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land
  - » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
  - » the layout of existing and proposed buildings and works
  - » the internal layout and use of the proposed development
  - » all access and pedestrian areas
  - » all driveway, car parking and loading areas, including turning circles
  - » existing and proposed vegetation
  - » all external storage and waste treatment areas
  - » the location of easements and services
- elevation plans drawn to scale and dimensioned that show:
  - » the building form and scale
  - » setbacks to property boundaries
  - » finished floor levels and building heights to Australian Height Datum
- a schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences
- a written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy

- a landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area
- construction details of all drainage works, driveways, vehicle parking and loading areas
- a stormwater management plan.

## 7.0 Decision guidelines

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

### 7.1 General

- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding and Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes
- The framework plan
- The land use and development objectives
- The relevant precinct objectives and guidelines

### 7.2 Aircraft operations

- Whether the proposal impacts on the safe and secure operation of the airport
- Whether the proposal complies with the Prescribed Airspace requirements (protection of OLS and PANS-OPS surfaces)
- Whether the proposal addresses the Australian Noise Exposure Forecast (ANEF) and AS2021 requirements

### 7.3 Access

- The Melbourne Airport Ground Transport Plan (part of the Melbourne Airport Master Plan)
- Movements systems through and around the site including the movement of pedestrians, and vehicles providing for supplies, waste removal, emergency services
- The provision of car parking, loading of vehicles and access to parking spaces and loading bays, including turning circles, where appropriate

### 7.4 Use

- The interim use of those parts of the land not required for the proposed use
- Whether the use is compatible with adjoining and nearby land uses
- Compatibility of the use with aircraft operations

### 7.5 Design and built form

- The consistency of the proposal with the Melbourne Airport Planning and Urban Design Strategy
- Whether the proposal contributes to enhancing the amenity of the airport

### 7.6 Environmental sustainability

- The Melbourne Airport Environment Strategy (part of the Melbourne Airport Master Plan)

## 8.0 Advertising signs

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

## 9.0 Reference documents

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines
- Melbourne Airport Interior Fittings and Finishes Standard
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes

## 10.0 Definitions

All land use terms have the same meaning as defined in the Victoria Planning Provisions except for the following terms, which have the meaning according to the *Airports Act 1996*:

- aviation educational facility
- community care facility
- educational institution
- hospital
- preschool
- residential dwelling.

# Melbourne Airport Special Use Zone Schedule 1 – Airside Operations Precinct

## 1.0 Purpose

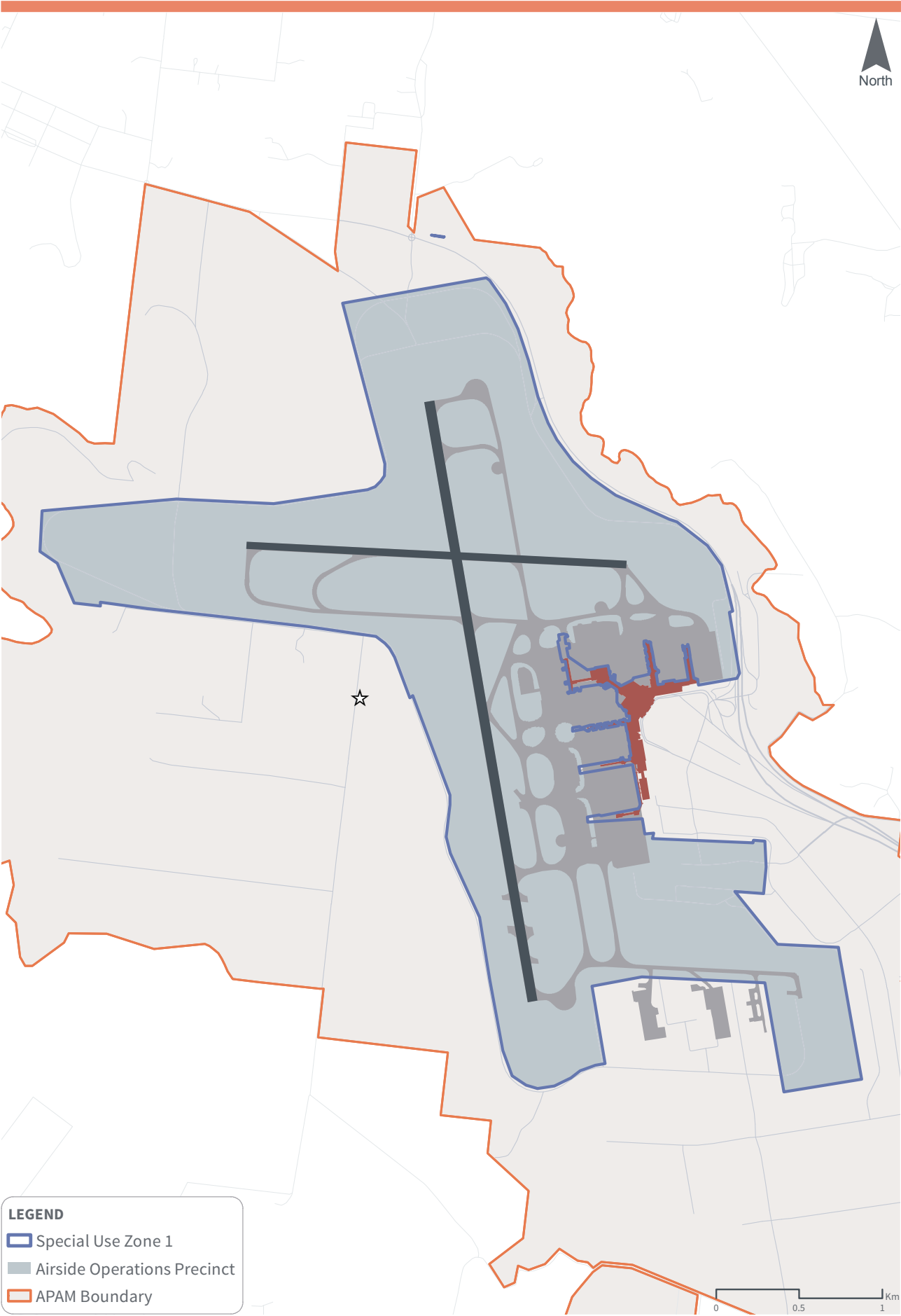
- To implement the Melbourne Airport Master Plan 2018.
- To provide for safe, secure and efficient airfield activities including the landing, take-off, taxiing and parking of aircraft.
- To accommodate the provision of aircraft navigation aids, aviation rescue and firefighting services and other facilities essential for safe and efficient aircraft operations.
- To provide for aircraft operations on a 24-hour-a-day, seven-day-a-week basis.
- To provide for the safe and secure operation of the airport.
- To optimise the efficient operation of the airport as an intermodal facility.
- To facilitate the long-term growth of the airport.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

## 2.0 Major Development Plan

Any activities listed in section 89 and 89A of the *Airports Act 1996* that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth Minister for Infrastructure and Transport.

## 3.0 Table of uses

|  |
|--|
| <b>Section 1: Permitted Uses</b>   |
| <i>Use</i>   |
| Airport  |
| Emergency service facility   |
| Fuel depot   |
| Heliport   |
| Road   |
| Transport terminal   |
| Utility installation   |
| <b>Section 2: Consent Uses (Airport Lessee Company approval required)</b>  |
| <i>Use</i>   |
| Any use not included in sections 1 or 3  |
| <b>Section 3: Sensitive Uses (Commonwealth Minister's approval required)</b>   |
| <i>Use</i>   |
| Residential dwelling (does not include accommodation for students studying at an aviation educational facility at the airport)   |
| Community care facility  |
| Preschool  |
| Primary, secondary, tertiary or other educational institution (does not include an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport) |
| Hospital (does not include a facility with the primary purpose of providing emergency medical treatment and that does not have inpatient facilities)   |





## 4.0 Approvals

### 4.1 Use of land

Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

### 4.2 Buildings and works

Planning and design approval, and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).

The airport-lessee company may specify buildings and works that are exempt from planning and design approval.

Planning and design approval is not required if a Major Development Plan is required.

### 4.3 Design and Development

- Design and development must be generally in accordance with the following:
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Planting Guidelines
- Melbourne Airport Development Manual
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

## 5.0 Application requirements

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- A description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land.
- Plans drawn to scale and dimensioned that show:
  - the siting and use of buildings
  - areas not required for immediate use
  - adjacent buildings
- The likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant.
- A written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

### 5.1 Buildings and works

An application to construct a building or construct or carry out works must be accompanied by the following information and / or any information specified by the airport-lessee company, as appropriate:

- Plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land

- » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
- » the layout of existing and proposed buildings and works
- » the internal layout and use of the proposed development
- » all access and pedestrian areas
- » all driveway, car parking and loading areas, including turning circles
- » existing and proposed vegetation
- » all external storage and waste treatment areas
- » the location of easements and services
- Elevation plans drawn to scale and dimensioned that show:
  - » the building form and scale
  - » setbacks to property boundaries
  - » finished floor levels and building heights to Australian Height Datum
- A schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences.
- A written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy.
- A landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area.
- Construction details of all drainage works, driveways, vehicle parking and loading areas.
- A stormwater management plan.

## 6.0 Decision guidelines

Land in this zone should continue to be used and developed for aircraft services and facilities including runways, taxiways, taxi lanes, aprons and associated navigation aids.

The land should not be used or developed for any purpose that may interfere or conflict with safe and secure aircraft operations.

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

### 6.1 General

- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding and Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes
- The framework plan
- The land use and development objectives
- The relevant precinct objectives and guidelines

## **6.2 Aircraft operations**

- Whether the proposal impacts on the safe and secure operation of the airport
- Whether the proposal complies with the Prescribed Airspace requirements (protection of OLS and PANS-OPS surfaces)
- Whether the proposal addresses the Australian Noise Exposure Forecast (ANEF) and AS2021 requirements

## **6.3 Access**

- The Melbourne Airport Ground Transport Plan (part of the Melbourne Airport Master Plan).
- Movements systems through and around the site including the movement of pedestrians, and vehicles providing for supplies, waste removal, emergency services.
- The provision of car parking, loading of vehicles and access to parking spaces and loading bays, including turning circles, where appropriate.

## **6.4 Use**

- The interim use of those parts of the land not required for the proposed use.
- Whether the use is compatible with adjoining and nearby land uses.
- Compatibility of the use with aircraft operations.

## **6.5 Design and built form**

- The consistency of the proposal with the Melbourne Airport Planning and Urban Design Strategy.
- Whether the proposal contributes to enhancing the amenity of the airport.

## **6.6 Environmental sustainability**

- The Melbourne Airport Environment Strategy (part of the Melbourne Airport Master Plan).

## **7.0 Advertising signs**

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

## **8.0 Reference documents**

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines
- Melbourne Airport Interior Fittings and Finishes Standard
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes

# Melbourne Airport Special Use Zone Schedule 2 – Airside Expansions Precinct

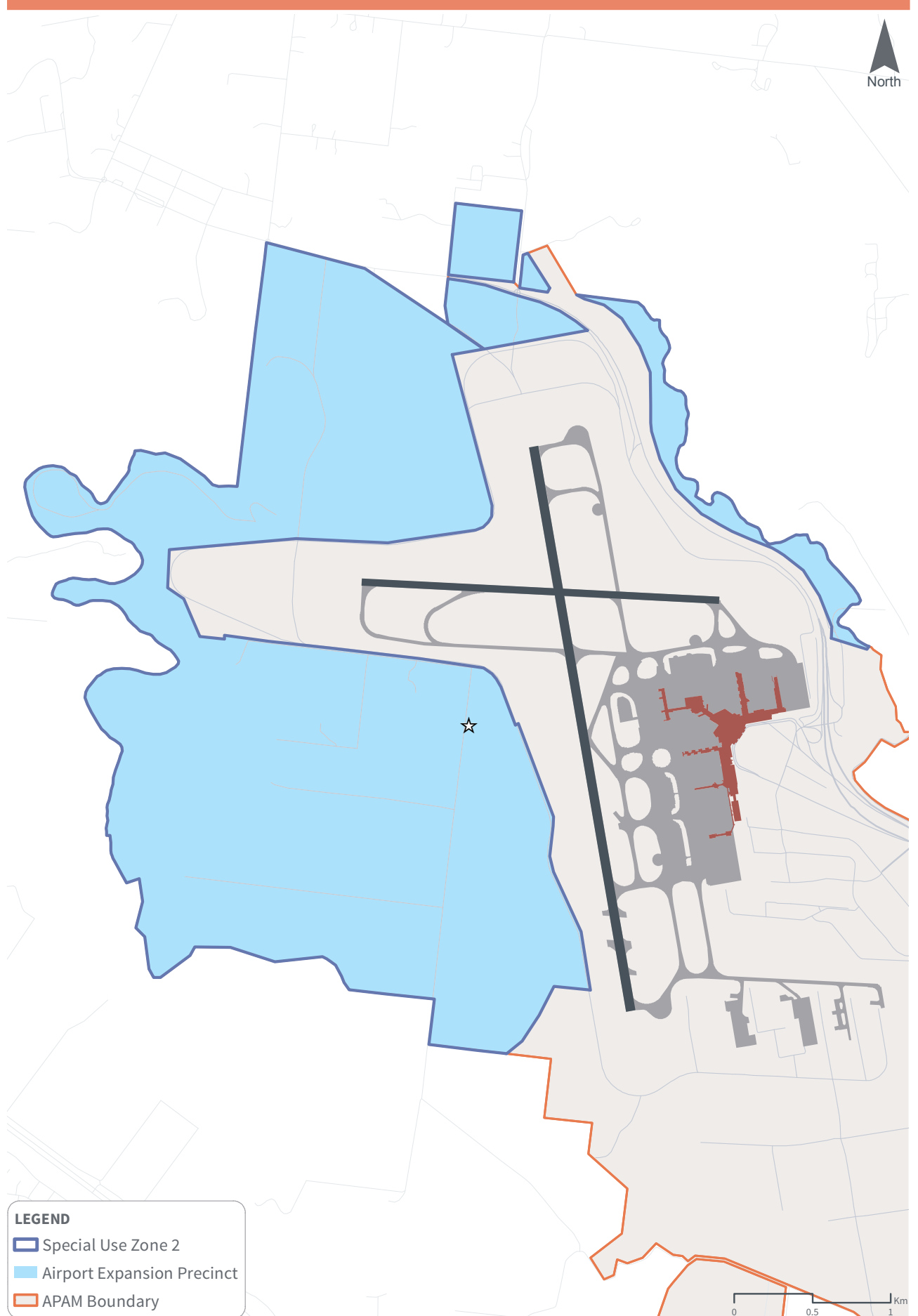
## 1.0 Purpose

- To implement the Melbourne Airport Master Plan 2018.
- To provide for the future expansion of the airport including additional future runways and taxiways and possible future terminal or aviation support services.
- To provide for the ongoing operation and growth of aviation-related organisations including Airservices Australia facilities (i.e. the control tower, air traffic control and fire training school).
- To provide for the conservation of environmentally significant land where such land is not required for future airport operations.
- To provide for the safe and secure operation of the airport.
- To optimise the efficient operation of the airport as an intermodal facility.
- To facilitate the long-term growth of the airport.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

## 2.0 Major Development Plan

Any activities listed in section 89 and 89A of the *Airports Act 1996* that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth Minister for Infrastructure and Transport.

Melbourne Airport Special Use Zone Schedule 2 – Airside Operations Precinct





### 3.0 Table of uses

|  |
|--|
| <b>Section 1: Permitted Uses</b>   |
| <i>Use</i>   |
| Airport  |
| Car park   |
| Emergency service facility   |
| Fuel depot   |
| Heliport   |
| Railway station  |
| Road   |
| Transport terminal   |
| Utility installation   |
| <b>Section 2: Consent Uses (Airport Lessee Company approval required)</b>  |
| <i>Use</i>   |
| Any use not included in sections 1 or 3  |
| <b>Section 3: Sensitive uses (Commonwealth minister's approval required)</b>   |
| <i>Use</i>   |
| Residential dwelling (does not include accommodation for students studying at an aviation educational facility at the airport)   |
| Community care facility  |
| Preschool  |
| Primary, secondary, tertiary or other educational institution (does not include an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport) |
| Hospital (does not include a facility with the primary purpose of providing emergency medical treatment and that does not have inpatient facilities)   |
|  |

### 4.0 Approvals

Applications for development must be in accordance with the CASA Manual of Standards Part 139 – Aerodromes, the Melbourne Airport Planning and Urban Design Strategy and Melbourne Airport Planting Guidelines.

#### 4.1 Use of Land

Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

#### 4.2 Buildings and Works

Planning and design approval, and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).

The airport-lessee company may specify buildings and works that are exempt from planning and design approval.

Planning and design approval is not required if a Major Development Plan is required.

#### 4.3 Design and Development

Design and development must be generally in accordance with the following:

- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Planting Guidelines

- Melbourne Airport Development Manual
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

## 5.0 Application requirements

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

### 5.1 Use

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- A description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land.
- Plans drawn to scale and dimensioned that show:
  - » the siting and use of buildings
  - » areas not required for immediate use
  - » adjacent buildings
- The likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant.
- A written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

### 5.2 Buildings and works

An application to construct a building or construct or carry out works must be accompanied by the following information and / or any information specified by the airport-lessee company, as appropriate:

- Plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land
  - » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
  - » the layout of existing and proposed buildings and works
  - » the internal layout and use of the proposed development
  - » all access and pedestrian areas
  - » all driveway, car parking and loading areas, including turning circles
  - » existing and proposed vegetation
  - » all external storage and waste treatment areas
  - » the location of easements and services
- Elevation plans drawn to scale and dimensioned that show:

- » the building form and scale
- » setbacks to property boundaries
- » finished floor levels and building heights to Australian Height Datum
- A schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences.
- A written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy.
- A landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area.
- Construction details of all drainage works, driveways, vehicle parking and loading areas.
- A stormwater management plan.

## 6.0 Decision guidelines

Land in this zone has been identified for airport expansion that in the future will include additional runways, taxiways and associated aviation support infrastructure.

The land should not be used or developed for any purpose that may prejudice or conflict with the zone purposes.

The land should not be used or developed for any purpose that may interfere or conflict with safe and secure aircraft operations.

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

### 6.1 General

- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding and Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes
- The framework plan
- The land use and development objectives
- The relevant precinct objectives and guidelines

### 6.2 Aircraft operations

- Whether the proposal impacts on the safe and secure operation of the airport
- Whether the proposal complies with the Prescribed Airspace requirements (protection of OLS and PANS-OPS surfaces)
- Whether the proposal addresses the Australian Noise Exposure Forecast (ANEF) and AS2021 requirements

### 6.3 Access

- The Melbourne Airport Ground Transport Plan (part of the Melbourne Airport Master Plan).
- Movements systems through and around the site including the movement of pedestrians, and vehicles providing for supplies, waste removal, emergency services.
- The provision of car parking, loading of vehicles and access to parking spaces and loading bays, including turning circles, where appropriate.

### 6.4 Use

- The interim use of those parts of the land not required for the proposed use.
- Whether the use is compatible with adjoining and nearby land uses.
- Compatibility of the use with aircraft operations.

### 6.5 Design and built form

- The consistency of the proposal with the Melbourne Airport Planning and Urban Design Strategy.
- Whether the proposal contributes to enhancing the amenity of the airport.

### 6.6 Environmental sustainability

- The Melbourne Airport Environment Strategy (part of the Melbourne Airport Master Plan).

## 7.0 Advertising signs

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

## 8.0 Reference documents

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines
- Melbourne Airport Interior Fittings and Finishes Standard
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes

# Melbourne Airport Road Zone

## 1.0 Purpose

- To implement the Melbourne Airport Master Plan 2018.
- To identify significant existing roads.
- To identify land that has been identified for a significant proposed road.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

## 2.0 Major Development Plan

Any activities listed in section 89 and 89A of the *Airports Act 1996* that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth Minister for Infrastructure and Transport.

## 3.0 Table of uses

| Section 1: Permitted Uses  |
|--|
| Use  |
| Railway  |
| Road   |
| Tramway  |
| Utility installation   |
| Section 2: Consent Uses (Airport Lessee Company approval required)   |
| Use  |
| Any use not included in sections 1 or 3  |
| Section 3: Sensitive Uses (Commonwealth Minister's approval required)  |
| Use  |
| Residential dwelling (does not include accommodation for students studying at an aviation educational facility at the airport)   |
| Community care facility  |
| Preschool  |
| Primary, secondary, tertiary or other educational institution (does not include an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport) |
| Hospital (does not include a facility with the primary purpose of providing emergency medical treatment and that does not have inpatient facilities)   |

## 4.0 Approvals

### 4.1 Use of land

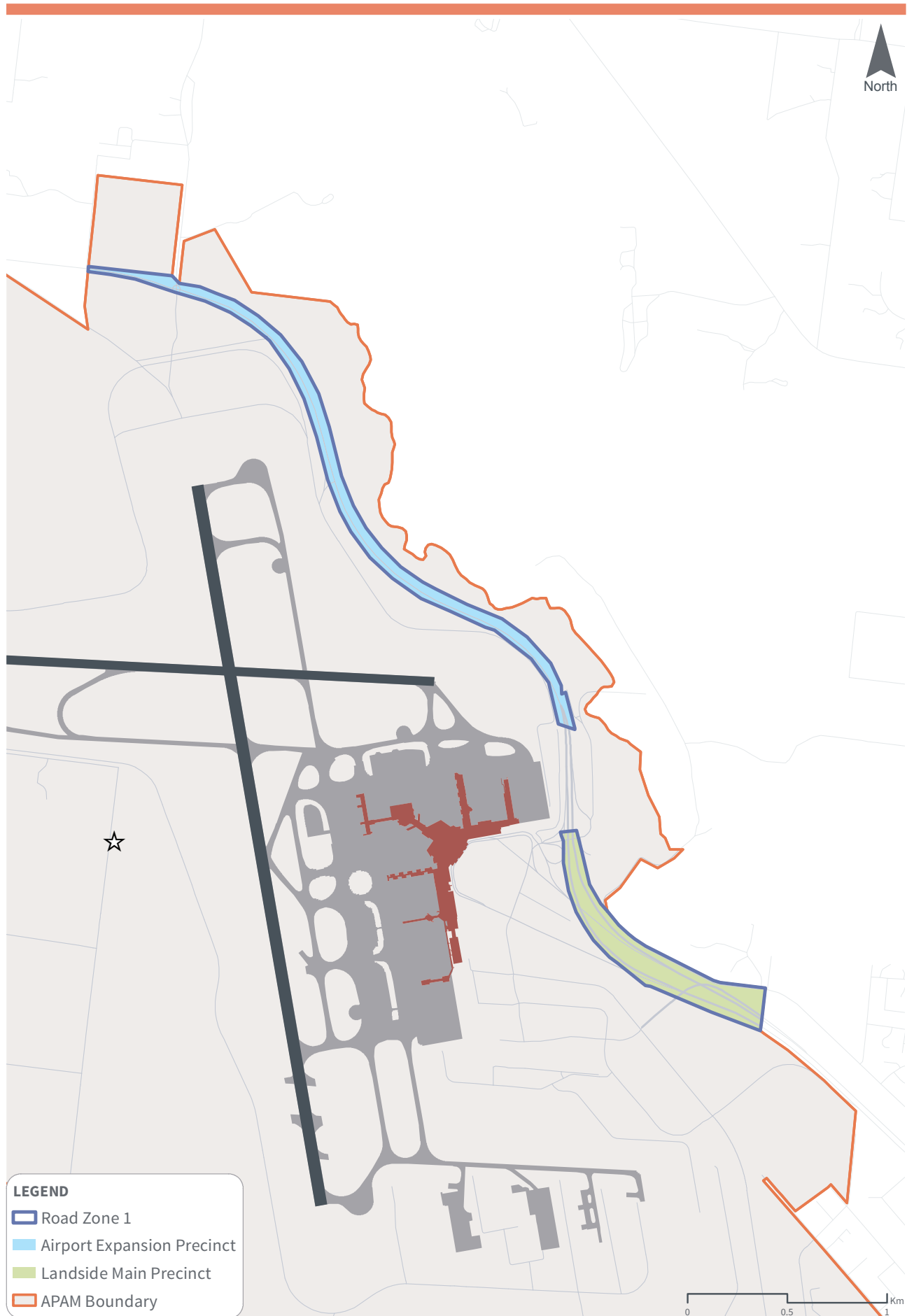
Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

### 4.2 Buildings and Works

Planning and design approval, and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).



**Melbourne Airport Road Zone**

The airport-lessee company may specify buildings and works that are exempt from planning and design approval. Planning and design approval is not required if a Major Development Plan is required.

#### **4.3 Design and Development**

Design and development must be generally in accordance with the following:

- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Planting Guidelines
- Melbourne Airport Development Manual
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

### **5.0 Application requirements**

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

#### **5.1 Use**

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- A description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land.
- Plans drawn to scale and dimensioned that show:
  - » the siting and use of buildings
  - » areas not required for immediate use
  - » adjacent buildings
- The likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant.
- A written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

#### **5.2 Buildings and works**

An application to construct a building or construct or carry out works must be accompanied by the following information and / or any information specified by the airport-lessee company, as appropriate:

- Plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land
  - » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
  - » the layout of existing and proposed buildings and works
  - » the internal layout and use of the proposed development
  - » all access and pedestrian areas
  - » all driveway, car parking and loading areas, including turning circles

- » existing and proposed vegetation
- » all external storage and waste treatment areas
- » the location of easements and services
- Elevation plans drawn to scale and dimensioned that show:
  - » the building form and scale
  - » setbacks to property boundaries
  - » finished floor levels and building heights to Australian Height Datum
- A schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences.
- A written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy.
- A landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area.
- Construction details of all drainage works, driveways, vehicle parking and loading areas.
- A stormwater management plan.

## 6.0 Decision guidelines

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

- The views of the relevant road authority
- The effect of the proposal on the operation of the road and on public safety
- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- The Melbourne Airport Ground transport Plan (part of the Melbourne Airport Master Plan 2018)
- The purpose of the zone

## 7.0 Advertising signs

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

## 8.0 Reference documents

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Guidelines
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines

# Melbourne Airport Industrial 3 Zone – Landside Main Precinct

## 1.0 Purpose

- To implement the Melbourne Airport Master Plan 2018.
- To advance Melbourne Airport as one of the state's key activity centres and transport gateways.
- To provide for the long-term and sustainable growth of Melbourne Airport.
- To encourage a mix of uses and the development of the industrial zone:
  - » to provide for industries and associated uses in specific areas where special consideration of the nature and impacts of industrial uses is required or to avoid inter-industry conflict.
  - » to support sustainable urban outcomes that optimise the use of infrastructure.
- To create an attractive, pleasant, safe, secure and stimulating environment through good urban design.
- To ensure that uses do not affect the safety and amenity of adjacent, more sensitive land uses, specifically the operations of Melbourne Airport.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

## 2.0 Major Development Plan

Any activities listed in section 89 and 89A of the *Airports Act 1996* that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth Minister for Infrastructure and Transport.

Melbourne Airport Industrial 3 Zone – Landside Main Precinct





### 3.0 Table of Uses

| Section 1: Permitted Uses  |  |
|--|--|
| Use  | Condition  |
| Airport  |  |
| Car park   |  |
| Cinema   |  |
| Cinema-based entertainment facility                                |  |
| Conference centre  |  |
| Convenience restaurant   |  |
| Education centre   | Must be an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport. |
| Emergency services facility  |  |
| Food and drink premises  |  |
| Freeway service centre   |  |
| Fuel depot   |  |
| Function centre  |  |
| Heliport   |  |
| Hotel  |  |
| Industry   | Must not be in Precinct 1. Must not be a use with adverse amenity potential.   |
| Medical centre   |  |
| Minor sports and recreation facility                               |  |
| Motel  |  |
| Office   |  |
| Place of assembly  |  |
| Place of worship   |  |
| Railway station  |  |
| Research and development centre                                    |  |
| Residential hotel  |  |
| Retail premises  |  |
| Road   |  |
| Service station  |  |
| Transport terminal   |  |
| Utility installation   |  |
| Warehouse  |  |
| Section 2: Consent Uses (Airport Lessee Company approval required) |  |
| Use  |  |
| Any use not included in sections 1 or 3                            |  |
| Any use in section 1 if the condition is not met                   |  |

| Section 3: Sensitive Uses (Commonwealth Minister's approval required)  |
|--|
| <i>Use</i>   |
| Residential dwelling (does not include accommodation for students studying at an aviation educational facility at the airport)   |
| Community care facility  |
| Preschool  |
| Primary, secondary, tertiary or other educational institution (does not include an aviation educational facility or a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport) |
| Hospital (does not include a facility with the primary purpose of providing emergency medical treatment and that does not have inpatient facilities)   |

## 4.0 Approvals

### 4.1 Use of Land

Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

### 4.2 Buildings and Works

Planning and design approval, and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).

The airport-lessee company may specify buildings and works that are exempt from planning and design approval.

Planning and design approval is not required if a Major Development Plan is required.

### 4.3 Design and Development

Design and development must be generally in accordance with the following:

- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Planting Guidelines
- Melbourne Airport Development Manual
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

## 5.0 Application requirements

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

### 5.1 Use

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- A description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land.
- Plans drawn to scale and dimensioned that show:
  - the siting and use of buildings
  - areas not required for immediate use
  - adjacent buildings
- The likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant.
- A written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

### 5.2 Buildings and works

An application to construct a building or construct or carry out works must be accompanied by the following information and / or any information specified by the airport-lessee company, as appropriate:

- Plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land
  - » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
  - » the layout of existing and proposed buildings and works
  - » the internal layout and use of the proposed development
  - » all access and pedestrian areas
  - » all driveway, car parking and loading areas, including turning circles
  - » existing and proposed vegetation
  - » all external storage and waste treatment areas
  - » the location of easements and services
  - » Elevation plans drawn to scale and dimensioned that show:
    - » the building form and scale
    - » setbacks to property boundaries
    - » finished floor levels and building heights to Australian Height Datum
- A schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences.
- A written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy.

- A landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area.
- Construction details of all drainage works, driveways, vehicle parking and loading areas.
- A stormwater management plan.

## 6.0 Decision guidelines

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

### 6.1 General

- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding and Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes
- The framework plan
- The land use and development objectives
- The relevant precinct objectives and guidelines

### 6.2 Aircraft operations

- Whether the proposal impacts on the safe and secure operation of the airport
- Whether the proposal complies with the Prescribed Airspace requirements (protection of OLS and PANS-OPS surfaces)
- Whether the proposal addresses the Australian Noise Exposure Forecast (ANEF) and AS2021 requirements

### 6.3 Access

- The Melbourne Airport Ground Transport Plan (part of the Melbourne Airport Master Plan).
- Movements systems through and around the site including the movement of pedestrians, and vehicles providing for supplies, waste removal, emergency services.
- The provision of car parking, loading of vehicles and access to parking spaces and loading bays, including turning circles, where appropriate.

#### **6.4 Use**

- The interim use of those parts of the land not required for the proposed use.
- Whether the use is compatible with adjoining and nearby land uses.
- Compatibility of the use with aircraft operations.

#### **6.5 Design and built form**

- The consistency of the proposal with the Melbourne Airport Planning and Urban Design Strategy.
- Whether the proposal contributes to enhancing the amenity of the airport.

#### **6.6 Environmental sustainability**

- The Melbourne Airport Environment Strategy (part of the Melbourne Airport Master Plan).

### **7.0 Advertising signs**

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

### **8.0 Reference documents**

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines
- Melbourne Airport Interior Fittings and Finishes Standard
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes



# Melbourne Airport Public Use Zone Schedule 1 and Schedule 7 – Landside Main Precinct

## 1.0 Purpose

- To implement the Melbourne Airport Master Plan 2018.
- To recognise or provide for the use and development of land for specific purposes as identified in a schedule to this zone:
- Schedule 1 to the Public Use Zone: Service and Utility
- Schedule 7 to the Public Use Zone: Other Public Use
- To recognise public land use for public utility and provide for associated uses that are consistent with the intent of the public land reservation or purpose.
- To facilitate use and development of land in accordance with the Melbourne Airport Framework Plan.

## 2.0 Major Development Plan

Any activities listed in section 89 and 89A of the *Airports Act 1996* that are classified as a major airport development or a sensitive development that require a Major Development Plan to be prepared are subject to approval by the Commonwealth.

## 3.0 Table of Uses

| Section 1: Permitted Uses   |  |
|---|--|
| Use   | Condition  |
| Railway   |  |
| Railway Station   |  |
| Tramway   |  |
| Any other use   | <p>The use must be for the purpose of public land use as follows:</p> <ul style="list-style-type: none"> <li>• Schedule 1 to the Public Use Zone: Service and Utility</li> <li>• Schedule 7 to the Public Use Zone: Other Public Use</li> </ul> <p>The use must be carried out by or on behalf of Melbourne Airport.</p> |
| Section 2: Consent Uses (Airport Lessee Company approval required)    |  |
| –   |  |
| Section 3: Sensitive Uses (Commonwealth Minister's approval required) |  |
| Nil   |  |



*Melbourne Airport Public Use Zone Schedule 7 – Landside Main Precinct*



## **4.0 Approvals**

### **4.1 Use of Land**

Planning and design approval is required from the airport-lessee company for any section 2 use of land.

Use of land must be consistent with the Melbourne Airport Master plan (including the Ground Transport Plan and Environment Strategy) and Melbourne Airport Planning and Urban Design Strategy.

### **4.2 Buildings and Works**

Planning and design approval, and building activity consent are required from the airport-lessee company and a building permit from the Airport Building Controller for all buildings and works (subject to exemptions).

The airport-lessee company may specify buildings and works that are exempt from planning and design approval.

Planning and design approval is not required if a Major Development Plan is required.

### **4.3 Design and Development**

Design and development must be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy, Melbourne Airport Planting Guidelines and the Melbourne Airport Development Manual.

Design and development must comply with the CASA Manual of Standards Part 139 – Aerodromes.

## **5.0 Application requirements**

These requirements relate only to applications for planning and design approval. Separate requirements apply to applications for the building activity consent and the building permit process.

### **5.1 Use**

An application to use land must be accompanied by the following information and/or any information specified by the airport-lessee company, as appropriate:

- A description of the proposed use and the types of activities that will be carried out and any proposed staging of use and activities on the land.
- Plans drawn to scale and dimensioned that show:
  - » the siting and use of buildings
  - » areas not required for immediate use
  - » adjacent buildings
- The likely effects, if any, on aircraft operations, traffic, infrastructure and any other matters that the airport-lessee company deems relevant.
- A written statement providing an assessment of the proposal's consistency with the relevant sections of the Melbourne Airport Master Plan and Melbourne Airport Planning and Urban Design Strategy.

## 5.2 *Buildings and works*

An application to construct a building or construct or carry out works must be accompanied by the following information and / or any information specified by the airport-lessee company, as appropriate:

- Plans drawn to scale and dimensioned that show:
  - » the boundaries and dimensions of the site
  - » adjoining roads
  - » the location and height of buildings and works on adjoining land
  - » levels of the site and the difference in levels between the site and surrounding properties to a defined point at the site boundaries or to Australian Height Datum
  - » the layout of existing and proposed buildings and works
  - » the internal layout and use of the proposed development
  - » all access and pedestrian areas
  - » all driveway, car parking and loading areas, including turning circles
  - » existing and proposed vegetation
  - » all external storage and waste treatment areas
  - » the location of easements and services
- Elevation plans drawn to scale and dimensioned that show:
  - » the building form and scale
  - » setbacks to property boundaries
  - » finished floor levels and building heights to Australian Height Datum
- A schedule of finishes for the proposed development detailing materials and colours of external surfaces including walls, roofs and fences.
- A written statement providing an assessment of the proposal against the relevant sections of the Melbourne Airport Planning and Urban Design Strategy.
- A landscape plan in accordance with the Melbourne Airport Planting Guidelines that includes the description of vegetation to be planted, the surfaces to be constructed, site works specification and method of preparing, draining, watering and maintaining the landscape area.
- Construction details of all drainage works, driveways, vehicle parking and loading areas.
- A stormwater management plan.



## 6.0 Decision guidelines

Before deciding on an application, the airport-lessee company must consider the following, as appropriate.

### 6.1 *General*

- The *Airports Act 1996* and Regulations
- The Melbourne Airport Master Plan 2018
- The Melbourne Airport Planning and Urban Design Strategy
- The Melbourne Airport Development Manual
- The Melbourne Airport Planting Guidelines
- Melbourne Airport Signage and Wayfinding and Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes
- The zone purpose
- Any guidelines in the schedule to this zone

### 6.2 *Aircraft operations*

- Whether the proposal impacts on the safe and secure operation of the airport.
- Whether the proposal complies with the Prescribed Airspace requirements (protection of OLS and PANS-OPS surfaces).
- Whether the proposal addresses the Australian Noise Exposure Forecast (ANEF) and AS2021 requirements.

### 6.3 *Access*

- The Melbourne Airport Ground Transport Plan (part of the Melbourne Airport Master Plan 2013).
- Movements systems through and around the site including the movement of pedestrians and vehicles providing for supplies, waste removal, emergency services.
- The provision of car parking, loading of vehicles and access to parking spaces and loading bays, including turning circles, where appropriate.

### 6.4 *Use*

- The interim use of those parts of the land not required for the proposed use.
- Whether the use is compatible with adjoining and nearby land uses.
- Compatibility of the use with aircraft operations.

### 6.5 *Design and built form*

- The consistency of the proposal with the Melbourne Airport Planning and Urban Design Strategy.
- Whether the proposal contributes to enhancing the amenity of the airport.

### 6.6 *Environmental sustainability*

- The Melbourne Airport Environment Strategy (part of the Melbourne Airport Master Plan).

## 7.0 Advertising signs

Applications for advertising signs should be generally in accordance with the Melbourne Airport Planning and Urban Design Strategy.

## 8.0 Reference documents

- Melbourne Airport Master Plan 2018
- Melbourne Airport Planning and Urban Design Strategy
- Melbourne Airport Development Manual
- Melbourne Airport Planting Guidelines
- Melbourne Airport Interior Fittings and Finishes Standard
- Melbourne Airport Signage and Wayfinding Guidelines
- Melbourne Airport Sustainable Buildings and Infrastructure Guide
- CASA Manual of Standards Part 139 – Aerodromes

Appendix E:

# Environmental Legislation

# Environmental legislation

| Aspect                               | Relevant legislation and policies   |
|--------------------------------------|---|
| Ecologically sustainable development | National Strategy for Ecologically Sustainable Development 1992 (Cwlth)   |
| Energy and climate change            | <i>National Greenhouse and Energy Reporting Act 2007 (Cwlth)</i><br>National Greenhouse and Energy Reporting Regulations 2008 (Cwlth)<br><i>Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (Cwlth)</i><br><i>Ozone Protection and Synthetic Greenhouse Gas (Import Levy) Act 1995 (Cwlth)</i><br>Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995 (Cwlth)   |
| Waste and resource management        | Airports (Environment Protection) Regulations 1997 (Cwlth)<br>Applying the Environment Protection Principles in Waste Management Regulation 2010 (EPA Victoria) (Vic)<br>Asbestos Transport and Disposal 2009 (EPA Victoria) (Vic)<br>Classification for Contaminated Soil – Industrial Waste Management Policy 2002 (EPA Victoria) (Vic)<br>Environment Protection (Industrial Waste Resource) Regulations 2009 (Vic)<br>Industrial Waste Resource Guidelines 2009 (EPA Victoria) (Vic)<br>National Environment Protection (Used Packaging Materials) Measure 2011 (Cwlth)<br>National Environment Protection (Movement of Controlled Waste between States and Territories) Measure, as varied in 2004<br><i>Occupational Health and Safety Act 2004 (Vic)</i><br>Occupational Health and Safety Regulations 2007 (Vic)<br>Waste Management Policy (Used Packaging Materials) 2012 (Vic)<br>Waste Management Policy (National Pollutant Inventory) 2012 (Vic)<br>Waste Management Policy (Movement of Controlled Waste between States and Territories) 2012 (Vic)<br><i>Water Act 1989 (Vic)</i> |

| Aspect                                   | Relevant legislation and policies   |
|--|---|
| Water quality – stormwater               | <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p>Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2002 (Environment Australia) (Cwlth)</p> <p><i>Catchment and Land Protection Act 1994</i> (Vic)</p> <p>National Environment Protection Council (2013), National Environment Protection Measure – Site Contamination</p> <p>State Environment Protection Policy (Waters of Victoria) 2003 and Schedules (Vic)</p> <p>Variation to the National Environment Protection (National Pollutant Inventory) Measure 2008 (No. 1) (Cwlth)</p> <p><i>Water Act 1989</i> (Vic)</p>   |
| Water quality – groundwater              | <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)</p> <p>EPA Publication IWRG701 – Sampling and Analysis of Waters, Wastewaters, Soils and Wastes 2009 (EPA Victoria)</p> <p>NEPC (2013) National Environment Protection Council (NEPC) (1999) National Environment Protection (Assessment of Site Contamination) Measure, as amended (registered on 15 May 2013)</p> <p>State Environment Protection Policy (Groundwaters of Victoria) 1997 (note variation in 2002) (Vic)</p> <p><i>Water Act 1989</i> (Vic)</p>  |
| Biodiversity and conservation management | <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p><i>Australian Heritage Council Act 2003</i> (Cwlth)</p> <p>Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance (2002) (Cwlth)</p> <p><i>Catchment and Land Protection Act 1994</i> (Vic)</p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)</p> <p>Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth)</p> <p>Significant Impact Guidelines 1.1: Matters of Environmental Significant 2013 (Cwlth)</p> <p>Significant Impact Guidelines 1.2: Actions on, or impacting upon, Commonwealth Land and actions by Commonwealth Agencies 2013 (Cwlth)</p> |



| Aspect            | Relevant legislation and policies  |
|-------------------|--|
| Cultural heritage | <p><i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (Cwlth)</p> <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p><i>Australian Heritage Commission Act 1975</i> (Cwlth)</p> <p><i>Australian Heritage Council Act 2003</i> (Cwlth)</p> <p><i>Australian Heritage Commission Amendment Act 1991 No. 17</i> (Cwlth)</p> <p><i>Australian Heritage Commission Amendment Act 1976</i> (Cwlth)</p> <p>Australian Heritage Commission – Ask First: A guide to respecting Indigenous heritage places and values 2002 (Department of Environment and Energy) (Cwlth)</p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)</p> <p>Environment Protection and Biodiversity Conservation Regulations 2000 (Cwlth)</p>   |
| Air quality       | <p>A Guide to the Sampling and Analysis of Air Emissions and Air Quality, Publication 440.1, December 2002 (EPA Victoria)</p> <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p>Air Navigation (Aircraft Engine Emissions) Regulations 1997 (Cwlth)</p> <p>Air Navigation (Fuel Spillage) Regulations 1999 (Cwlth)</p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)</p> <p>Environment Protection (Industrial Waste Resource) Regulations 2009 (Vic)</p> <p><i>Fuel Quality Standards Act 2000</i> (Cwlth)</p> <p>National Environment Protection (Ambient Air Quality) Measure, as amended February 2016 (Cwlth)</p> <p>National Environment Protection (Air Toxics) Measure, as amended October 2011 (Cwlth)</p> <p><i>National Environment Protection Council Act 1994</i> (Cwlth)</p> <p>National Environment Protection (Diesel Vehicle Emissions) Measure 2001, as varied June 2001 (Cwlth)</p> <p>National Pollutant Inventory Guide 2015 (Cwlth)</p> <p>Variation to the National Environment Protection (National Pollutant Inventory) Measure 1998, as varied, compilation prepared November 2008, taking into account amendments up to Variation 2008 (No. 1) (Cwlth)</p> |

| Aspect              | Relevant legislation and policies  |
|---------------------|--|
| Ground-based noise  | <p>Air Navigation (Aircraft Noise) Regulations 1984 (Cwlth)</p> <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p><i>Occupational Health and Safety Act 2004</i> (Vic)</p> <p>Occupational Health and Safety Regulations 2007 (Vic)</p>   |
| Land management     | <p><i>Airports Act 1996</i> (Cwlth)</p> <p>Airports (Environment Protection) Regulations 1997 (Cwlth)</p> <p><i>Catchment and Land Protection Act 1994</i> (Vic)</p> <p>Classification for Contaminated Soil – Industrial Waste Management Policy 2002 (EPA Victoria)</p> <p>Contaminated Soil – Organic Compounds – Classification for Reuse 2009 (EPA Victoria)</p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth)</p> <p>NEPC (2013) National Environment Protection Council (NEPC) (1999) National Environment Protection (Assessment of Site Contamination) Measure, as amended (registered on 15 May 2013)</p> <p>PFAS National Environmental Management Plan, The Heads of Environmental Protection Authorities, Australia and New Zealand, January 2018</p> |
| Hazardous materials | <p><i>Asbestos Safety and Eradication Agency Act 2013</i></p> <p>Asbestos Transport and Disposal 2009 (EPA Victoria)</p> <p>Australian Dangerous Goods Code 2010 (7th edition) (Cwlth)</p> <p>Australian Explosives Code (3rd edition) 2009 (Cwlth)</p> <p>Australian Standard 1940 The Storage and Handling of Flammable and Combustible Liquids 2004 (Standards Australia) (Cwlth)</p> <p>Australian Standard 4977, Australian Standard 4897 and Australian Standard 4976 (Cwlth)</p> <p>Environment Protection (Industrial Waste Resource) Regulations 2009 (Vic)</p>   |

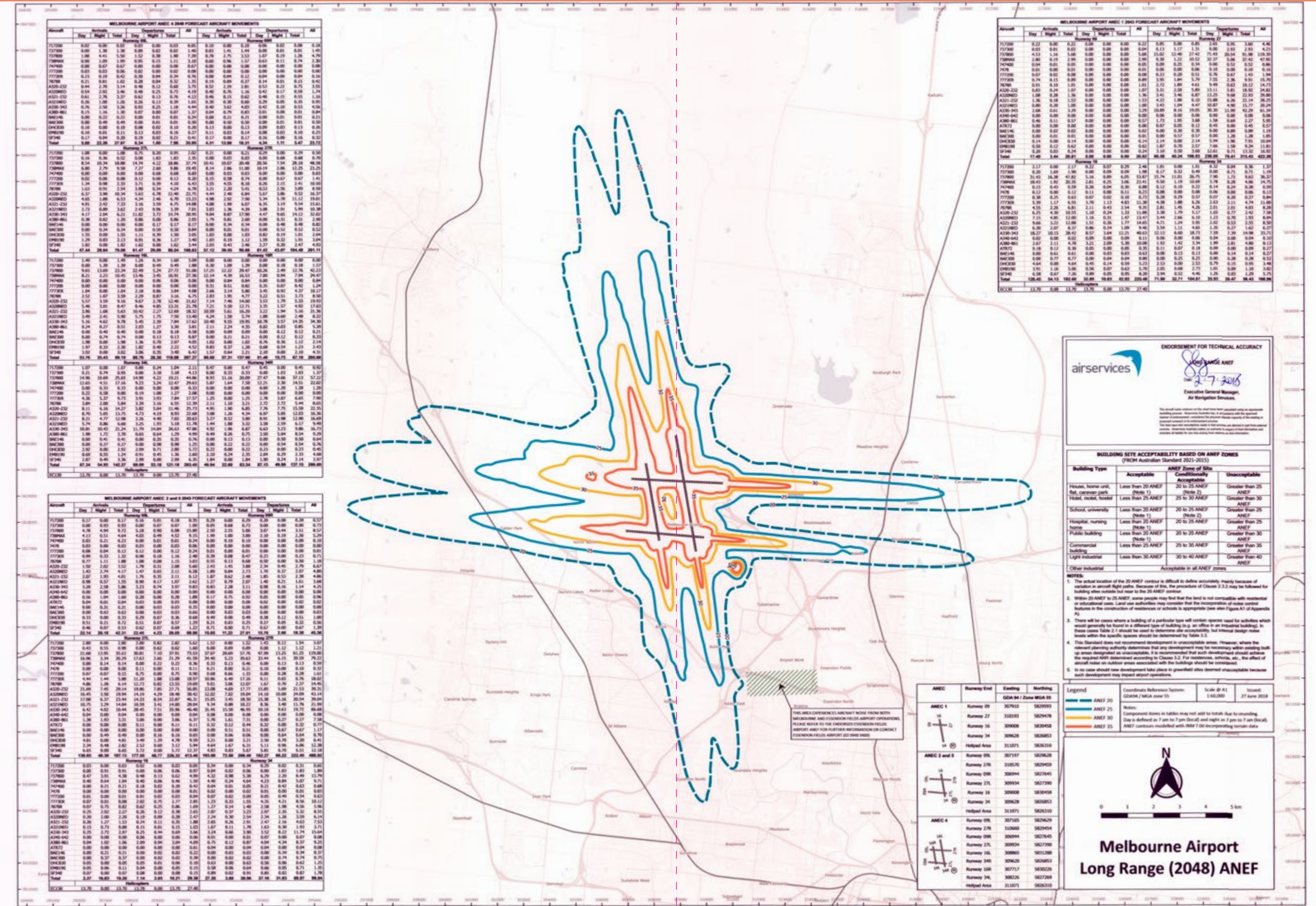
| Aspect                     | Relevant legislation and policies  |
|----------------------------|--|
| Hazardous materials (cont) | <p>EPC (2013) National Environment Protection Council (NEPC) (1999) National Environment Protection (Assessment of Site Contamination) Measure, as amended (registered on 15 May 2013)</p> <p><i>Civil Aviation Act 1988</i> (Cwlth)</p> <p>Classification for Contaminated Soil – Industrial Waste Management Policy 2002 (EPA Victoria)</p> <p><i>Dangerous Goods Act 1985</i> (Vic)</p> <p>Dangerous Goods (Storage and Handling) Interim Regulations 2011 (Vic)</p> <p>Dangerous Goods (HCDG) Regulations 2005 (Vic)</p> <p>National Strategic Plan for Asbestos Management and Awareness 2014–18 (Cwlth)</p> <p><i>Occupational Health and Safety Act 2004</i> (Vic)</p> <p>Occupational Health and Safety Regulations 2007 (Vic)</p> <p><i>Public Health and Wellbeing Act 2008</i> (Vic)</p> <p>Public Health and Wellbeing Regulations 2009 (Vic)</p> <p><i>Work, Health and Safety Act 2011</i> (Cwlth)</p> <p>Work Health and Safety (How to Manage and Control Asbestos in the Workplace) Code of Practice 2016 (Cwlth)</p> <p>Work Health and Safety (How to Safely Remove Asbestos) Code of Practice 2016 (Cwlth)</p> <p>Work, Health and Safety Regulations 2011 (Cwlth)</p> |

Appendix F:

# Australian Noise Exposure Forecast (2018)



Melbourne Airport Long Range (2048) ANEF





# Australian Noise Exposure Forecast (2018) notes

## Figure 12-2: ANEF for Melbourne Airport notes

AS 2021 - 2015

Table 2.1: Building Site Acceptability Based On ANEF Zones (to be used in conjunction with Table 3.3)

| Building type                        | ANEF zone of site            |                          |                      |
|--------------------------------------|------------------------------|--------------------------|----------------------|
|                                      | Acceptable                   | Conditionally acceptable | Unacceptable         |
| House, home unit, flat, caravan park | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF (Note 2)   | Greater than 25 ANEF |
| Hotel, motel, hostel                 | Less than 25 ANEF            | 25 to 35 ANEF (Note 2)   | Greater than 30 ANEF |
| School, university                   | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF            | Greater than 25 ANEF |
| Hospital, nursing home               | Less than 20 ANEF (Note 1)   | 20 to 25 ANEF            | Greater than 25 ANEF |
| Public building                      | Less than 20 ANEF (Note 1)   | 20 to 30 ANEF            | Greater than 30 ANEF |
| Commercial building                  | Less than 25 ANEF            | 25 to 35 ANEF            | Greater than 35 ANEF |
| Light industrial                     | Less than 30 ANEF            |                          | Greater than 40 ANEF |
| Other industrial                     | Acceptable in all ANEF zones |                          |                      |

### NOTES:

- The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, the procedure of Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.*
- Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the ‘incorporation of noise control features in the construction of residences or schools is appropriate (see also Figure A1 of Appendix A).*
- There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.*
- This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.*
- In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.*

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Appendix G:

# Melbourne Airport Environs Overlay Notes

# Melbourne Airport Environs Overlay Notes

## 45.08 Melbourne Airport environs overlay

26/11/2015 VC107

Shown on the planning scheme map as **MAEO** with a number.

### Purpose

To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

To ensure that land use and development are compatible with the operation of Melbourne Airport in accordance with the relevant airport strategy or master plan and with safe air navigation for aircraft approaching and departing the airfield.

To assist in shielding people from the impact of aircraft noise by requiring appropriate noise attenuation measures in dwellings and other noise sensitive buildings.

To provide for appropriate levels of noise attenuation depending on the level of forecasted noise exposure.

### 45.08-1 Use of land

14/05/2007 VC30

Any requirement in a schedule to this overlay must be met.

### 45.08-2 Buildings and works

26/11/2015 VC107

Any requirement in a schedule to this overlay must be met.

Any building for which a permit is required under this overlay must be constructed so as to comply with any noise attenuation measures required by Section 3 of Australian Standard AS 2021-2015, Acoustics - Aircraft Noise Intrusion - Building Siting and Construction, issued by Standards Australia Limited.

*Note: In Section 3 of Australian Standard AS 2021-2015, Table 3.3 refers to both building types and activities within those buildings. Each building type listed has its ordinary meaning and should not be interpreted as defined in this scheme.*

### 45.08-3 Subdivision

14/05/2007 VC30

A permit is required to subdivide land.

Subdivision must occur in accordance with any lot size or other requirement specified in a schedule to this overlay.

## 45.08-4 Decision guidelines

26/11/2015 VC107

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- Whether the proposal will result in an increase in the number of dwellings and people affected by aircraft noise.
- Whether the proposal is compatible with the present and future operation of the airport in accordance with the current Melbourne Airport Master Plan approved in accordance with the *Airports Act 1996*.
- Location of the development in relation to the criteria set out in Table 2.1 Building Site Acceptability Based on ANEF Zones in Australian Standard AS 2021-2015.

## 45.08-5 Exemption from notice

15/09/2008 VC49

An application under this overlay is exempt from the notice requirements of Section 52(1)(a), (b) and (d) of the Act.

## 45.08-6 Notification requirements

15/09/2008 VC49

In accordance with Section 52(1)(c) of the Act, notice of an application under this overlay to use land, subdivide land or to construct a building or construct or carry out works must be given to the airport lessee company of Melbourne Airport in accordance with the *Commonwealth Airports Act 1996*, unless otherwise agreed in writing between the responsible authority and the airport lessee. The notice must be accompanied by a copy of the application, existing condition and development plans.

*Notes: Refer to the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement, for strategies and policies which may affect the use and development of land.*

*Check the requirements of the zone which applies to the land.*

*Other requirements may also apply. These can be found at Particular Provisions.*

Appendix H:

# Abbreviations and Glossary



# Abbreviations

|                      |  |
|----------------------|--|
| ANEC                 | Australian Noise Exposure Concept  |
| ANEF                 | Australian Noise Exposure Forecast   |
| ANEI                 | Australian Noise Exposure Index  |
| APAM                 | Australia Pacific Airports (Melbourne) Pty Ltd                               |
| AS2021               | Australian Standard 2021:2015 Acoustic Aircraft Noise Intrusion              |
| CASA                 | Civil Aviation Safety Authority  |
| CEMP                 | Construction Environmental Management Plan                                   |
| DIRDC                | Department of Infrastructure, Regional Development and Cities (Commonwealth) |
| EMS                  | Environmental Management System  |
| ESD                  | Ecologically sustainable development   |
| FTE                  | Full-time equivalent   |
| GSE                  | Ground support equipment   |
| ISO                  | International Standards Organisation   |
| LED                  | Light-emitting diode   |
| LEED                 | Leadership in Energy and Environmental Design                                |
| MAEO                 | Melbourne Airport Environs Overlay   |
| MAESP                | Melbourne Airport Environs Strategy Plan                                     |
| MDP                  | Major Development Plan   |
| MNES                 | Matters of National Environmental Significance                               |
| NASF                 | National Airports Safeguarding Framework                                     |
| OLS                  | Obstacle Limitation Surfaces   |
| OEMP                 | Operational Environmental Management Plan                                    |
| PANS-OPS             | Procedures for Air Navigation Services – Aircraft Operations                 |
| PTV                  | Public Transport Victoria  |
| RET                  | Rapid Exit Taxiway   |
| T1                   | Terminal 1   |
| T2                   | Terminal 2   |
| T3                   | Terminal 3   |
| T4                   | Terminal 4   |
| The airport          | Melbourne Airport  |
| Airports Act         | <i>Airports Act 1996 (Cwlth)</i>   |
| Environment Strategy | The Melbourne Airport Environment Strategy 2018                              |
| Master Plan          | Melbourne Airport Master Plan 2018   |
| VPP                  | Victoria Planning Provisions   |

# Glossary

|   |  |
|---|--|
| <b>Aerobridge</b>   | An enclosed, movable connector that extends from an airport terminal gate to an aircraft.  |
| <b>Airport Master Plan</b>                                  | The principal planning document required under the <i>Airports Act 1996</i> that sets out a 20-year plan for each leased federal airport.  |
| <b>Aircraft noise contours</b>                              | Contours that display the existing or forecast aircraft noise exposure patterns around an airport. These contours help land-use planning authorities decide on acceptable development in close proximity to the airport.   |
| <b>Aircraft throughput</b>                                  | Equals aircraft demand.  |
| <b>Airservices Australia</b>                                | The Australian Government agency providing air traffic control management and related airside services to the aviation industry.   |
| <b>Airservices Noise Complaints and Information Service</b> | A toll-free enquiry line operated by Airservices to provide the public with information on noise levels at major airports.   |
| <b>Airside</b>  | The aircraft movement area of an airport and adjacent land and buildings that are access-controlled.   |
| <b>Aircraft apron</b>                                       | The part of an airport where aircraft are parked and serviced, enabling passengers to board and disembark and freight to be loaded and unloaded.   |
| <b>Australian Noise Exposure Concept (ANEC)</b>             | A set of contours based on hypothetical aircraft operations at an airport in the future. As ANEC maps are based on hypothetical assumptions and may not have been subject to review or endorsement, they have no official status and cannot be used for land-use planning. However, an ANEC can be turned into an ANEF.  |
| <b>Australian Noise Exposure Forecast (ANEF)</b>            | <p>A system developed as a land-use planning tool aimed at controlling encroachment on airports by noise-sensitive buildings. The system underpins Australian Standard AS2021 'Acoustics – Aircraft noise intrusion – Building siting and construction'.</p> <p>The standard contains advice on the acceptability of building sites based on ANEF zones. ANEFs are the official forecasts of future noise exposure patterns around an airport because they constitute the contours on which land-use planning authorities base their controls.</p> |
| <b>Australian Noise Exposure Index (ANEI)</b>               | Contours developed under the ANEF framework showing historic noise exposure patterns used in environmental reporting and benchmarking.   |
| <b>Busy day</b>   | The representative 'busy day' is based on International Air Transport Association methodology and is defined as the second busiest day of the average week in the peak month. The methodology considers both domestic and international activity separately and in combination to ensure that both are properly represented.   |
| <b>Civil Aviation Safety Authority (CASA)</b>               | An independent statutory body responsible for regulating aviation safety in Australia and the safety of Australian aircraft overseas.  |
| <b>Code C aircraft</b>                                      | An aircraft that has a wingspan of between 24 metres and up to but not including 36 metres. Examples are the Airbus A320 series and Boeing 737-700/800 series.   |
| <b>Code D aircraft</b>                                      | An aircraft that has a wingspan of between 36 metres and up to but not including 52 metres. An example is the B767-300.  |
| <b>Code E aircraft</b>                                      | An aircraft that has a wingspan of between 52 metres and up to but not including 65 metres. Examples are the Airbus A330 or A340 and Boeing 747 or 777/787.  |

|   |   |
|---|---|
| <b>Code F aircraft</b>  | An aircraft that has a wingspan of between 65 metres and up to but not including 80 metres. An example is the Airbus A380.  |
| <b>Contact bay, contact gate, contact stand</b>                               | An aircraft stand with direct access to and from the terminal building, typically via an aerobridge.  |
| <b>Prescribed Airspace</b>  | Airspace of defined dimensions within which air traffic control services are provided in accordance with airspace classifications.  |
| <b>Curfew</b>   | A restriction on certain flights taking off or landing from specified airports at designated times.   |
| <b>Green Wedge Zone</b>   | A land use zone to control use of the land and to recognise, protect and conserve green wedge land for its agricultural, environmental, historic, landscape, recreational and tourism opportunities, and mineral and stone resources.   |
| <b>Ground-Based Augmentation System</b>                                       | A satellite-based precision landing system recognised by the International Civil Aviation Organization as a replacement for current instrument landing systems.   |
| <b>Ground support equipment (GSE)</b>   | Airport support equipment – for example, aircraft pushback tractors, baggage tugs, ground power units and engine air start units.   |
| <b>Instrument landing system</b>  | Instruments capable of providing both directional and glide slope guidance.   |
| <b>International Air Transport Association (IATA)</b>                         | An international organisation representing and serving the airline industry worldwide.  |
| <b>International Civil Aviation Organization</b>                              | A specialised United Nations agency that brings together key industry organisations to determine areas of strategic priority; develops policies and standards; coordinates global monitoring, analysis and reporting initiatives; and delivers targeted assistance and capacity building. |
| <b>Joint user hydrant installation</b>  | Provides critical aviation support infrastructure in the form of a jet fuel storage facility and the Jet Fuel Hydrant Pipeline Network Facility.  |
| <b>Landside</b>   | The area of an airport and buildings to which the public normally has free access.  |
| <b>Leased federal airports</b>  | The 21 airports privatised under the Airports Act, where the airport operators lease the airport land from the Australian Government.   |
| <b>Major Development Plan</b>   | A requirement under the Airports Act for airport-lessee companies to provide information to the Australian Government and the public about significant planned development on leased federal airport sites.   |
| <b>Multiple-Aircraft Ramp System</b>  | This system allows two smaller aircraft to be parked on a single large aircraft stand.  |
| <b>Non-aviation development</b>   | Non-aviation commercial developments, such as retail outlets and office buildings, on airport sites.  |
| <b>Obstacle Limitation Surfaces (OLS)</b>                                     | A series of surfaces that define the volume of airspace at and around an aerodrome to be kept free of obstacles in order to permit the intended aircraft operations to be conducted safely and to prevent the aerodrome from becoming unusable by the growth of obstacles.                |
| <b>Precision Approach Path Indicator</b>                                      | A visual aid that provides guidance information to help a pilot acquire and maintain the correct approach (in the vertical plane) to an airport.  |
| <b>Procedures for Air Navigation Services – Aircraft Operations (PAN-OPS)</b> | A set of International Civil Aviation Organization rules for designing instrument approach and departure procedures at aerodromes.  |
| <b>Rapid Exit Taxiway (RET)</b>   | Taxiways linked to runways at an angle that permit aircraft to exit the runway at high speeds.  |

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| <b>Specialised Activity Centre</b> | Important economic precincts that provide a mix of economic activities and generate high numbers of work and visitor trips.  |
| <b>Taxiway</b>                     | A path on an airport connecting runways with ramps, hangars, terminals and other facilities.   |
| <b>Trunk infrastructure</b>        | Key infrastructure such as water, electricity and sewerage.  |
| <b>Urban Growth Boundary</b>       | A regional boundary set to control urban sprawl by mandating that the area inside the boundary be used for higher density urban development, and the area outside be used for lower density development. |
| <b>Walk-out pier</b>               | Aircraft stand without direct access to and from the terminal building, typically via a short apron walk or bus trip.  |





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