

Adelaide Airport Master Plan 2019

Preliminary
Draft

A 3D rendering of a white, curved sign structure against a blue sky background. The sign features the Adelaide Airport logo at the top and the text 'Airport Business District' in blue, bold, sans-serif font. The sign is supported by a green and blue structure. The background is a clear blue sky with a few wispy clouds. There are decorative diagonal stripes in green and blue on the left and right sides of the page.

**Airport
Business
District**



This document is the Adelaide Airport Preliminary Draft Master Plan 2019.

In accordance with the requirements of the *Airports Act 1996*, the Preliminary Draft Master Plan 2019 is available for public review and comment for a period of 60 business days.

Public comment submissions are to be made in writing and sent to Adelaide Airport before close of business on 28 October 2019.

Master Plan 2019 Submission

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This Master Plan has been prepared by Adelaide Airport Limited (AAL) ACN 075 176 653 for the purpose of satisfying the statutory requirements of the *Airports Act 1996*.

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Foreword

I am pleased to present Adelaide Airport's 2019 Preliminary Draft Master Plan, which sets the course for future development over the next 20 years.

Adelaide Airport is a dynamic and diverse environment that links local and global communities, creates jobs and fosters economic development.

Adelaide Airport Ltd (AAL), as the operator of the airport, has a great responsibility in planning for the future and managing the many moving parts of an international airport precinct. This Master Plan is one of our most important documents in that it is our primary planning tool for the next eight years, while presenting our long-term strategic plans from now until 2039.

We have overseen a period of extraordinary growth since AAL began operations in 1998. In that time, our passenger numbers have more than doubled to more than 8.5 million per year, well ahead of original expectations. International passenger numbers have more than quadrupled over the same period and we now cater for more than one million international passengers per annum.

We have more than 300 excellent one-stop connections across Asia, Europe, North America and Africa via global hubs such as Singapore, Guangzhou, Hong Kong, Dubai, Doha, Auckland and Kuala Lumpur.

Since the 2014 Master Plan, we have witnessed significant progress in terms of aeronautical and non-aeronautical infrastructure development. This Master Plan builds on this progress, but with no significant deviations from previous plans.

We have started construction on a \$165 million terminal expansion, which will see a significant upgrade of international passenger processing and dwell areas, and create more retail and dining options for both domestic and international travellers. Meanwhile, our new Atura Hotel is open for business and providing quality accommodation and associated facilities for our leisure and business travellers.

Such developments are about prioritising the customer experience to create a seamless and enjoyable journey from the minute you drive into the airport until you are ready for take-off.

As a major business centre, Adelaide Airport is progressing effectively and strategically to execute its vision to be a globally connected, next generation hub with designated industry clusters. In the past couple of years alone, our Airport Business District has attracted major companies including OZ Minerals, Kennards Self Storage, Otis, Aldi, AFL Max and Australian Clinical Laboratories.

We have overseen significant aeronautical investment on the western boundary, with Royal Flying Doctor Service and Medstar opening new facilities and construction of a Pilatus aircraft base well underway.

Adelaide Airport is the major gateway to South Australia and a major economic generator, contributing \$2.98 billion – or 3.1 per cent – towards Gross State Product. The airport directly employs more than 10,000 people both on and off the airport, and contributes to the generation of a further 12,700 full-time equivalent jobs.

All of this helps facilitate growth in our State's key sectors including defence, food and wine, and we act as an important catalyst for our rapidly expanding tourism industry.

AAL's vision is to be a top tier airport business in Asia Pacific, recognised for delivering exceptional outcomes to its customers, partners, shareholders and community.

The Adelaide Airport of tomorrow will feature new technologies and processes that make the customer experience faster, easier and more intuitive. At the same time, the safety and security of all airport users is paramount, and our facilities are constantly evolving based on regulatory outcomes.

Freight access and distribution to domestic and global networks also requires thoughtful long-term planning, and we continue to develop a dedicated freight, transport and logistics hub in our Airport East Precinct.

We place a high value on the sustainability of our business. We were the first airport in Australia to be recognised by the global Airport Carbon Accreditation program in 2015 for optimising our management and reduction of carbon emissions, and we have secured platinum status for our environmental initiatives for the past two years running from Airport Councils International Asia-Pacific.

Current initiatives include trialling crop irrigation on the airfield and 'cool pavement' technology to reduce the temperature of the aerodrome, particularly on very hot days.

Access to and from Adelaide Airport is a critical component of our future planning. We are well connected to Adelaide's Central Business District and major arterial routes, but it is essential we maintain and improve these links for all ground transport users, including customers, staff, tenants, taxis and ride share operators, public transport users, freight and cyclists.





AAL recognises the vital role our local community and stakeholders play in the operation of the airport. This Master Plan provides our stakeholders with a detailed vision and a level of certainty that any future development is compatible with surrounding land uses.

This document covers all aspects of airport planning and operations – from forecast aeronautical growth and associated development through to ground transport, airport safeguarding, land uses, environment strategies, airport safeguarding, aircraft noise and commercial development.

The Master Plan, while an essential blueprint for our forecast development, is just one component of our wide-ranging stakeholder management strategy. We will continue to engage and consult with our stakeholders on a regular basis.

I encourage you to read this Preliminary Draft Master Plan 2019, and more importantly invite you to participate in the consultation process by providing your feedback on any aspects of this document.

Mark Young

Managing Director, Adelaide Airport Ltd

AAL's vision is to be
a top tier airport
business in Asia Pacific,
recognised for delivering
exceptional outcomes to
its customers, partners,
shareholders and
community.



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Executive Summary

Introduction

Adelaide Airport is the aviation gateway to Adelaide and South Australia. The airport's significance to both Adelaide and South Australia continues to increase; not only in terms of being an essential passenger and freight hub situated only six kilometres from the Adelaide CBD, but also as a major employment and business centre.

Adelaide Airport is operated by Adelaide Airport Ltd (AAL). Adelaide Airport was transferred from the Commonwealth Government to AAL in May 1998, with a 50-year lease and an option to extend the lease for a further 49 years. The lease requires AAL to operate the site as an airport, as well as allowing for other development to support the economic viability of the airport.

AAL has an excellent track record in delivering on previous Master Plans, with significant investment in passenger and commercial facilities and infrastructure since privatisation of the airport, including construction recently commencing on a \$165 million terminal expansion.

The Adelaide Airport Master Plan 2019 (Master Plan 2019) outlines the vision for the growth of Adelaide Airport over the next 20 years, in terms of both aviation capacity and commercial developments. It sets out the requirements for future facilities, infrastructure, ground transport and services that will ensure that the airport continues to deliver on investments to meet customers and passenger needs and continues to develop as an airport that South Australians can be proud of.

Delivering Exceptional Outcomes

AAL's vision is:

"...to be a top tier airport business in Asia Pacific, recognised for delivering exceptional outcomes to its customers, partners, shareholders and community".

In delivering on AAL's vision for the airport, developments outlined in this Master Plan focus on achieving greater customer experience, striving for innovative solutions and achieving sustainable outcomes.

The following development objectives guide future investments in facilities and infrastructure for the airport.



Contribute to Adelaide and South Australia's economic growth



Work closely with airlines, government, and the community



Embed sustainability in all that we do



Prioritise customer experience



Protect the safety and security of assets and people



Deliver innovative solutions for all airport users



Deliver infrastructure to support operations and the commercial viability of the airport

Driving South Australia's Economy

Adelaide Airport is a significant transport hub, moving passengers and freight to and from destinations in South Australia, nationally and internationally. The airport connects people, places, communities and businesses, and makes a significant contribution to the State's economy.

Since Master Plan 2014, total employment at Adelaide Airport (direct and induced) has significantly grown by over 5,000 jobs, and the airport's contribution to the Gross State Product (GSP) has risen by over \$1 billion to some \$2.98 billion equivalent to 3.1 per cent of South Australia's economic growth.

During this period, annual passenger movements have steadily increased from almost 7.5 million to 8.5 million now connecting to over 300 destinations directly or via one stop

The following is a snapshot of Adelaide Airport in 2018.

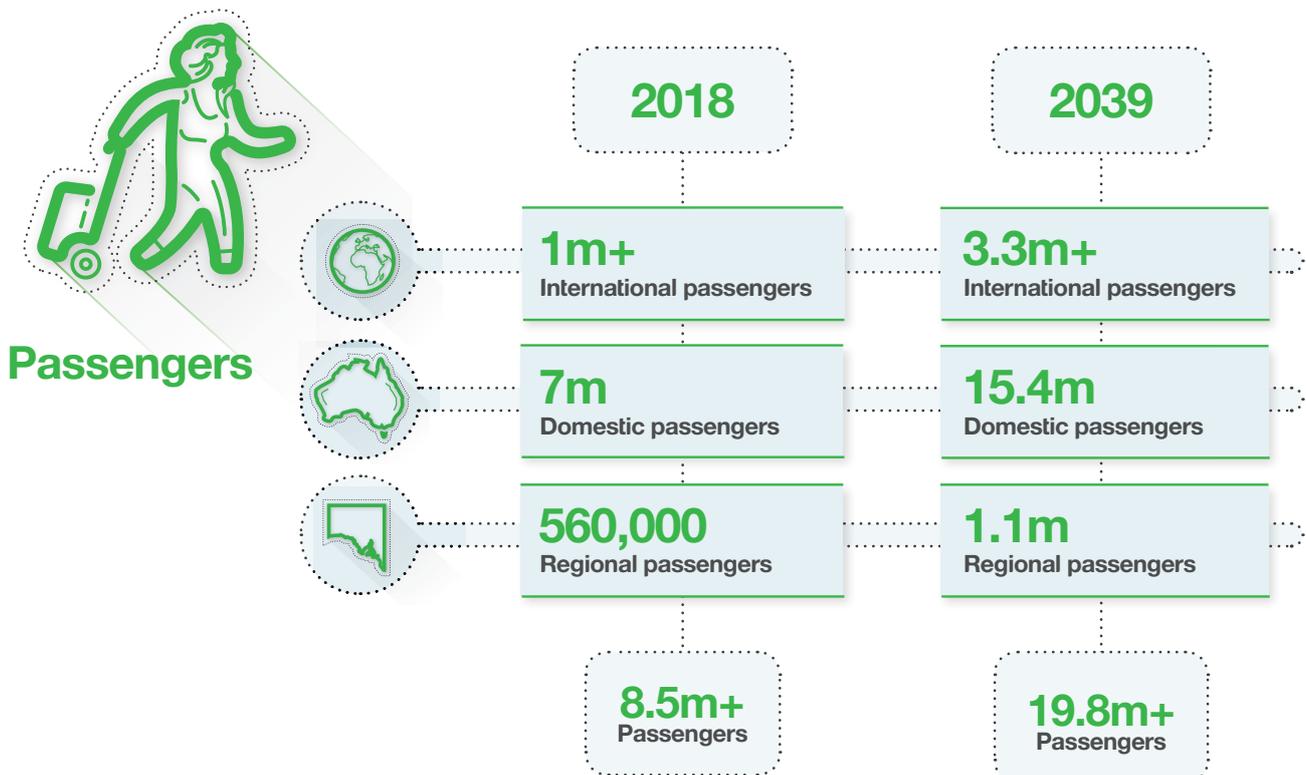
Snapshot of Adelaide Airport in 2018



Planning for Growth

Passenger movements at Adelaide Airport are forecast to increase from 8.5 million in 2018 to 19.8 million in 2039. This passenger growth is supported by additional aircraft movements, however aircraft movement growth is anticipated to grow at a significantly lower rate from 106,000 movements in 2018 to 168,500 movements in 2039.

Passenger and aircraft movement forecasts fundamentally influence the development and timing of infrastructure.



Aircraft Movements



Freight



Economic Contribution





Facilitating Sustainable Growth in Air Freight

Adelaide Airport will continue to develop Airport East as a major freight, transport and logistics hub with direct access to major arterial routes including the North-South Corridor.

South Australia's total air freight in 2018 was 58,000 tonnes. Air freight capacity at Adelaide Airport is expected to increase as air traffic movements increase. Air freight is expected to more than double over the next 20 years to 146,000 tonnes in 2039, with the majority to continue to be in the cargo hold of scheduled passenger flights.

Air freight also plays a key factor in the sustainability of passenger services – particularly international services – with the success of any new routes or increased capacity predicated on the ability to match passenger growth with air freight growth.

Delivering Exceptional Customer Experience

The Adelaide Airport Terminal 1 is an integrated terminal for all international, domestic and regional passenger flights. The 71,000 square metre terminal building, over three levels, provides aesthetic, modern and efficient facilities to meet the needs of the travelling public, airlines and operators. It was opened in 2005.

Construction commenced in August 2018 on the \$165 million Terminal Expansion Project (TEx). TEx will significantly upgrade international arrivals and departures and create more retail and dining options for domestic and international travellers. TEx will ensure Adelaide Airport continues to provide the highest level of customer experience for all travellers well into the future. TEx aims to upgrade and expand the main terminal at Adelaide Airport to support the continued increase of international passengers and is scheduled for completion in mid-2021.

Adelaide Airport will continue to develop and expand Terminal 1 to:

- Meet the growth in new or expanded services
- Improve customer experience and delight customers
- Reduce processing times and ensuing streamlined flows from drop off to aircraft and vice versa
- Adapt to new legislation
- Improve safety, and
- Adapt to new and emerging technologies

No major runway developments are foreseen in the 20-year planning period for this Master Plan. AAL continues to preserve and maintain land for a future third runway.



Exciting Commercial Developments

Supporting its role as a major transport, employment and economic hub, Adelaide Airport is a major 'business activity centre' within Metropolitan Adelaide. It is vital that any developments on Adelaide Airport land are developed in a manner that is compatible with adjacent land uses and also without compromising the airports operational integrity and economic viability.

The Adelaide Airport Business District, which covers the entire airport site, is divided into seven distinct precincts, including:

- Runways Precinct
- Terminals & Business Precinct
- Airport East Precinct
- Morphett Precinct
- Tapleys Precinct
- West Beach Precinct
- Torrens Precinct

Throughout the seven precincts there are currently over 130 businesses operating at Adelaide Airport. AAL will continue to develop the airport land for both aviation and commercial activities by attracting world class businesses which support employment and economic growth in Adelaide and South Australia.

Key focus areas will be the development of the Airport Business District Office Park in the Terminals & Business Precinct and continued development of Airport East to facilitate streamlined freight and logistic operations.

Getting to and from Adelaide Airport

Ground transport planning is critical to the efficient operation of Adelaide Airport. Ground transport consists of roads for passenger, staff, taxi/rideshare and freight vehicles, pick-up/drop-off facilities, public transport and cycleways.

Each day there are approximately 54,000 vehicle movements into and out of the airport, and by 2039 this is expected to reach 126,000 daily vehicle movements. As Adelaide Airport grows, it is essential that ground transport infrastructure is expanded or developed to cater for this growth.

Adelaide Airport will continue to work closely with the South Australian Government and surrounding Local Government Authorities to make sure future Adelaide Airport operations are reflected in strategic network planning. In particular, connectivity of the airport to the major North-South Corridor and the Adelaide CBD for both passenger and freight movement together with the introduction of a primarily one-way road network servicing Terminal 1.

The increased use of public transport to Adelaide Airport continues to be a high priority for both the airport and the South Australian Government. Provision for a high capacity public transport corridor servicing the airport is included in this Master Plan.

There have and will continue to be substantial developments in emerging and innovative transport technologies, some of which include autonomous vehicles, air taxis (airborne rideshare) and the use of drones for parcel delivery. While these technological advances have the potential to improve access and connectivity, they may also create challenges for ground transport systems and other infrastructure associated with the airport. Adelaide Airport will continue to monitor and respond to such emerging technologies.



Safeguarding the Airport

The safety of aircraft operations to and from Adelaide Airport, and the capacity of the airport to operate and respond to growing demand, can be directly impacted by inappropriate land use and activities that occur on the land surrounding the airport.

Long-term and effective protection and safeguarding of Adelaide Airport is critical to ensuring ongoing aviation operations and safety. The safeguarding of the airport, which refers to measures taken to minimise inappropriate land uses and activities, is the shared responsibility of Adelaide Airport and all levels of government.

This Master Plan has been prepared taking into consideration the National Airports Safeguarding Framework (NASF), guidelines to protect the ongoing operation of Australian airports.

Protection of the airspace around Adelaide Airport is critical to ensure safe and ongoing operations of the airport. Adelaide Airport will endeavour to work with development proponents to ensure buildings are below the Obstacle Limitation Surfaces (OLS), but will not support developments which potentially infringe the Procedures for Air Navigation Services – Operations (PANS-OPS) protected airspace.

Managing Aircraft Noise

The Master Plan outlines current and future aircraft noise exposure of areas surrounding Adelaide Airport and details the airport's approach to aircraft noise management.

The existing curfew operating at Adelaide Airport between 11:00pm and 6:00am remains unchanged. The *Adelaide Airport Curfew Act (2000)* allows some approved aircraft to operate during curfew hours, mainly for medical emergency flights and delivery of freight and mail.

There are a broad range of programs in place to manage aircraft noise around the airport.

The Australian Noise Exposure Forecast (ANEF) system is the aircraft noise exposure forecasting system currently adopted in Australia for land use planning. The ANEF system provides a scientific measure of noise exposure from aircraft operations around airports, providing guidance on the siting and construction of new buildings against aircraft noise intrusion and on the acoustical adequacy of existing buildings in areas near airports. A revised ANEF for Adelaide Airport is included in the Master Plan.





Looking After the Environment

Adelaide Airport has developed the Environment Strategy in accordance with the *Airports Act 1996* (Airports Act) and the Airports (Environmental Protection) Regulations 1997 (AEPR). The Airports Act establishes an environmental management regime that focuses on a cooperative approach, supporting and ensuring compliance with environmental standards at federally-leased airports.

Sustainability is at the core of the way Adelaide Airport does business. AAL has developed a Corporate Sustainability Strategy, which is underpinned by the Sustainability Policy and provides a framework for integrating sustainability throughout the business and aims to deliver value to all stakeholders.

The Environment Strategy, building on the recent environmental commitments and achievements of AAL, covers ground-based environmental aspects associated with the operation of Adelaide Airport for the next 8-years, including:

- Energy
- Water resources
- Stormwater and aquatic ecology
- Soil and groundwater
- Ground based noise
- Local air quality
- Waste
- Land and heritage management

AAL is committed to the effective management of environmental impacts across the airport site and Environmental Action Plans are in place for the above environmental aspects.

Central to Adelaide Airport's Environmental Management is the Environmental Management System (EMS). The EMS conforms to the requirements of ISO 14001:2015 and provides a structure for planning, implementing, monitoring, reporting and reviewing environmental management at Adelaide Airport.

Working Closely with the Community

Adelaide Airport's approach to consultation is focused on creating robust, transparent and collaborative communications, using creative, innovative and engaging techniques to interact with the community.

This Master Plan has been developed in consultation with a wide range of stakeholders. Adelaide Airport will continue to engage with Commonwealth, State and Local Government authorities, aviation operators, airport tenants and the community through a range of techniques and forums.



Abbreviations

ABBREVIATIONS	
AACC	Adelaide Airport Consultative Committee
AAL	Adelaide Airport Limited
ABC	Airport Building Controller
AEO	Airport Environment Officer
AEPR	Airport (Environmental Protection) Regulation 1997
Airport	Adelaide Airport
Airports Act	<i>Airports Act 1996</i> (Commonwealth)
ANEI	Australian Noise Exposure Index
ANEF	Australian Noise Exposure Forecast
APA Regulations	Airports (Protection of Airspace) Regulations 1996
ARFF	Aviation Rescue and Fire Fighting
ANZECC	Australian and New Zealand Environment and Conservation Council
ASQ	Airport Service Quality
ATC	Air Traffic Control
BITRE	Bureau of Infrastructure, Transport and Regional Economics
CAGR	Compound Annual Growth Rate
CASA	Civil Aviation Safety Authority
CBD	Central Business District
CEMP	Construction Environmental Management Plan
DITCRD	Department of Infrastructure, Transport, Cities and Regional Development (Commonwealth)
DPTI	Department of Planning, Transport and Infrastructure (SA)
EAP	Environmental Action Plan
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environment Protection Authority (SA)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)



ABBREVIATIONS	
FAC	Federal Airports Corporation
GRP	Gross Regional Product
GSP	Gross State Product
HLS	Helicopter Landing Site
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
JOSF	Joint Oil Storage Facility
LAHSO	Land and Hold Short Operations
MARS	Multiple Aircraft Ramp Systems
NASAG	National Airports Safeguarding Advisory Group
NASF	National Airports Safeguarding Framework
NEMP	National Environment Management Plan
OECD	Organisation for Economic Co-operation and Development
OEMP	Operational Environment Management Plan
OLS	Obstacle Limitation Surfaces
PANS-OPS	Procedures for Air Navigational Services – Aircraft Operations
PCF	Planning Coordination Forum
PFAS	Per and Poly-fluro Alkyl Substances
PFAS NEMP	PFAS National Environmental Management Plan
RAAF	Royal Australian Air Force
RPT	Regular Passenger Transport
SA	South Australia
SAPN	South Australian Power Network
TEx	Terminal Expansion Project
TFI	Tourism Futures International



Glossary

GLOSSARY	
Aerodrome/Airport	A defined area on land or water (including any buildings installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Ancillary Development	<p>Structures and/or uses that are subordinate or subservient to the dominant structure and/or use. If a component serves the dominant purpose, it is ancillary to that dominant purpose; whereas if a component serves its own purpose, it is not a component of the dominant purpose but an independent use on the same land (a dominant use in its own right).</p> <p>Examples of ancillary uses include: car parking, roads, driveways, utilities, civil works, fire safety equipment, fencing, lighting, landscaping, flood mitigation measures, security, surveillance, monitoring, signage, technical instruments (such as navigational aids and meteorological instruments), facilities with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport and sleeping quarters/respice facilities (temporary accommodation associated with business operations).</p>
Airport Operator	The airport operator is the person(s) or organisation whose name appears on the licence document and/or in aeronautical aviation publication En Route Supplement Australia. (For the purposes of this Master Plan, Adelaide Airport Limited, ACN-075176653, is the airport operator at Adelaide Airport).
Air Traffic Control	Airspace management provided by Airservices Australia.
Airport Master Plan	The principal planning document required under the <i>Airports Act 1996</i> , setting out a 20-year plan for each leased Commonwealth airport.
Airservices Australia	The Australian Government agency that provides air traffic control management and related airside services to the aviation industry.
Airside	The aircraft movement area of an airport, adjacent land and buildings that is access controlled.
Aircraft Apron	The part of an airport where aircraft are parked and serviced, enabling passengers to board and disembark and cargo to be loaded and unloaded.
Aviation-Related Support Industry	Includes aircraft hangars, catering services, freight terminals, car rental and valet facilities, car parking, vehicle storage, taxi holding area amenities, fuel depots and hydrants, storage facilities, warehousing, offices, engineering support, and maintenance activities, passenger terminals and aviation educational establishments.
Aviation Security	A combination of measures and human and material resources intended to safeguard civil aviation against acts of unlawful interference.
Australian Noise Exposure Index (ANEI)	A set of aircraft noise contours based on actual aircraft operations at an airport.
Australian Noise Exposure Forecast (ANEF)	A system developed as a land-use planning tool aimed at controlling encroachment on airports by noise-sensitive buildings. The system underpins <i>Australian Standard AS2021 'Acoustics – Aircraft noise intrusion – Building siting and construction'</i> . 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 and they constitute the contours on which land-use planning authorities base their controls.

GLOSSARY

Brand Outlet Centre	A shopping centre in which is located one or more discount retail outlets used by retailers to centralise the distribution and sale of excess or damaged stock, test limited amounts of new product and provide inventory control together with associated support retail activities such as fast food, restaurants and ancillary retailing and services, either as independent shops or as alternative activities within the Brand Outlet shops themselves. Normally this would involve a shop, or group of shops, with a floor area exceeding 500 square meters, that offers discount clothing, sporting goods and personal effects by retail.
Bulky Goods Retailing	Includes premises that are used for the display, sale and rental of automotive parts, camping and recreational supplies, curtains and fabrics, homewares, hardware, stationary and office supplies and that do not sell food stuffs, personal effects or clothing (other than sold incidentally to the primary purpose of the shop) and retail showrooms and service trade premises.
Civil Aviation Safety Authority (CASA)	An independent statutory body responsible for regulating aviation safety in Australia and the safety of Australian aircraft overseas.
Control Tower	A unit established to provide air traffic control service to airport traffic.
Depot	A building or place used for the storage (but not sale or hire) of plant, machinery or other goods (that support the operations of an existing undertaking) when not required for use but does not include a farm building.
Earthworks or Engineering Works	Works associated with earthworks or engineering works such as flood mitigation works, land reshaping and filling and utility installation.
Emergency Service Facility	A building or place (including a helipad) used in connection with the provision of emergency services by an emergency services organisation.
Environmental Protection Works	Works associated with the rehabilitation of land towards its natural state or any work to protect land from environmental degradation, and includes bush regeneration works, wetland protection works, erosion protection works, dune restoration works and the like, but does not include coastal protection works.
Event Activities	An event to be held on airport land such as a circus, live entertainment activity or outdoor deckchair or drive-in cinema
Freight and Distribution Centre	Generally, office/warehousing premises used for storage, but can also focus upon the regular handling of goods within the facility itself for regular and contract distribution by courier or truck to other specific destinations, on other transport services such as aircraft, rail or heavy road transport.
In-flight	In-flight commences when the last external door of the aircraft is closed in preparation for the first movement of the aircraft for the purpose of taking off; or if the aircraft moves before all doors are closed for the purpose of taking off, when it first so moves, until the first external door of the aircraft is opened after the aircraft comes to rest.
Instrument Landing System (ILS)	Instruments capable of providing both directional and glide slope guidance for aircraft on approach to a runway.
Landside	The area of an airport and buildings to which the public normally has free access.
Major Development Plan	A requirement under the <i>Airports Act 1996</i> for airport lessee-companies to gain approval for significant developments on leased Commonwealth airport sites.
Manoeuvring Area	Those parts of an airport used for the take-off, landing and taxiing of aircraft, excluding aprons.

GLOSSARY

Movement Area	That part of an airport used for the surface movement of aircraft, including manoeuvring areas and aprons.
Retail Showroom	Premises used primarily for the sale, display or offer by retail of furniture, floor coverings, computers, electrical goods and appliances, lighting, outdoor furniture and white goods.
Renewable Energy Generation Facility	Includes wind turbines, field solar arrays, roof-mounted solar panels and other renewable energy generation and storage facilities.
Runway-Related Activities/Facilities	Activities and facilities include runways, taxiways, aprons, clearways, compass swing and engine run-up areas, glide path facilities, helicopter landing, parking and servicing, landing equipment, radar and all aircraft navigational aids.
Taxiway	A path on an airport connecting runways with ramps, hangars, terminals and other facilities.
Temporary Uses and Structures	Temporary structures for private or community events, as well as the following specified temporary uses of land and buildings.
Secretary	The Secretary of the Department of Infrastructure, Transport, Cities and Regional Development.
Soil Treatment Facility	A facility that allows for silt and soil to be removed from watercourses to be stockpiled, tested and safely removed from the site.







A

About Adelaide Airport

A

About Adelaide Airport

1



Introducing the Adelaide Airport Master Plan

Introduces the Master Plan including its purpose and the regulatory context.

2



Adelaide Airport Today

Provides details about Adelaide Airport including its role, location, history, and development.

3



Significance of the Airport

Highlights the economic and strategic significance of Adelaide Airport through employment, business, freight, tourism and the community.

1

Introducing the Adelaide Airport Master Plan



1.1. Welcome to the Master Plan

Adelaide Airport Limited (AAL) is pleased to share with you its plans for the next 20 years. The Adelaide Airport Master Plan 2019 (Master Plan 2019) outlines the vision for the development of Adelaide Airport to support the continued growth of air travel and the State economy. By continuing to focus on sustainable outcomes, improved customer experience and finding innovative solutions, short and longer-term planning and delivery of facilities, infrastructure, ground transport and utilities will ensure that the airport continues to serve the people of South Australia.

AAL has an excellent track record in delivering on previous Master Plans, with significant investments in passenger and commercial facilities and infrastructure, including the modern multi-user passenger terminal in 2005. AAL continues this commitment with construction commencing on the \$165 million Terminal

Expansion Project (TEx) which will see expanded and improved facilities. AAL has also delivered commercial, retail and office developments which support the South Australian economy.

More than one million international passengers passed through Adelaide Airport in 2018, the first time this milestone has been reached, while just over 7.5 million domestic and regional passengers passed through the terminal in the same year. Over 130 businesses also operate from Adelaide Airport.

Building on AAL's past performance and to support growth in passengers, freight and business, AAL is proud to present its Master Plan as the blueprint to develop and operate Adelaide Airport which all South Australians can be proud of.

This version is the Preliminary Draft Master Plan 2019, which has been prepared for public review and comment.

AAL welcomes feedback on the plans for growth at Adelaide Airport.

Feedback received will be considered by AAL and updates made to the Master Plan 2019 prior to it being submitted to the Minister for Infrastructure, Transport and Regional Development for consideration.

1.2. Purpose of the Master Plan

Adelaide Airport is located on land owned by the Commonwealth Government and leased to AAL to operate the airport in accordance with the *Airports Act 1996* (Airports Act). The Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) is responsible for administering the Airports Act and associated Regulations.

The Airports Act provides control over the following areas of operation at Adelaide Airport:

- Land-use planning and development controls
- Building and construction approvals
- Environmental management, and
- Pricing and quality of service monitoring

As the operator of Adelaide Airport, AAL is required to prepare a Master Plan in accordance with the Airports Act for approval by the Commonwealth Government.

Under the provisions of the Airports Act, AAL must produce a final Master Plan that has been approved by the Minister for Infrastructure, Transport and Regional Development (the Minister) that:

- a. Establishes the strategic direction for efficient and economic development at the airport over the next 20 years
- b. Provides for the development of additional uses at Adelaide Airport
- c. Indicates to the public the intended uses of the site
- d. Reduces potential conflicts between uses on-site, and to ensure that those uses are compatible with the areas surrounding the airport
- e. Ensures that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards
- f. Establishes a framework for assessing compliance at the airport with relevant environmental legislation and standards, and
- g. Promotes the continual improvement of environmental management at the airport

Since privatisation of Adelaide Airport in 1998, a Master Plan has been prepared every five years: 1999, 2004, 2009 and 2014. Due to amendments to the Airports Act in 2018, following the approval of this Master Plan 2019 all subsequent master plans for Adelaide Airport will be produced every eight years.

1.3. Contents of the Master Plan

Master Plan 2019 has been prepared in accordance with the Airports Act and is the primary planning document for the eight years to 2027. It also presents the long-term strategic plans for the 20-year period through to 2039.

Master Plan 2019 is presented in four sections, which are outlined on the following pages.

A

About Adelaide Airport

1

Introducing the Adelaide Airport Master Plan

Introduces the Master Plan including its purpose and the regulatory context.



2

Adelaide Airport Today

Provides details about Adelaide Airport including its role, location, history, and development.



3

Significance of the Airport

Highlights the economic and strategic significance of Adelaide Airport through employment, business, freight, tourism and the community.



B

How Adelaide Airport is Planned

4

Planning Framework

Provides the planning framework for Adelaide Airport and the process required for preparing a master plan.



5

Planning Development Approach

Provides a vision for Adelaide Airport with a development approach and objectives. Further details how consultations with stakeholders and the community are delivered.



6

Aviation Forecasts

Details the forecasts for growth in passenger, aircraft and freight movements. These forecasts allow Adelaide Airport to consider how to respond to this growth while delivering on the vision.





The Plan for Adelaide Airport

7

Land Use Plan

Sets out the Land Use Plan for Adelaide Airport, which is used to guide all on-airport development and is used to assess non-aviation development proposals.



8

Aviation Development

Describes the Aviation Development Plans for both airfield and terminal facilities.



9

Commercial Development

Outlines the proposed airport commercial developments within the first eight years of the Master Plan.



10

Ground Transport Plan

Outlines the Ground Transport Plan for Adelaide Airport based on the infrastructure needed to cater for increased travel to the airport for passengers, employees, freight and commercial vehicles. It sets out the actions required to address the forecast increases in vehicle trips to and within Adelaide Airport.



11

Services Infrastructure

Outlines the existing and future service infrastructure requirements for Adelaide Airport.



12

Safeguarding the Airport

Provides the measures required for safeguarding the ongoing operations and growth of Adelaide Airport.



13

Aircraft Noise

Outlines current and future aircraft noise exposure for areas surrounding Adelaide Airport and details AAL's approach to aircraft noise management.



14

Environment Strategy

Outlines the Environment Strategy and the objectives for environmental management, the impacts of aviation operations on the environment and AAL's approach to prevent, control and reduce environmental impacts.



C1

D

Implementing the Plan

15



Development Program

Provides details of future key developments covered by this Master Plan, based on the vision, strategic objectives, anticipated aviation growth forecasts, commercial development opportunities, transport and access requirements and environmental commitments.



2

Adelaide Airport Today

2.1. Background

Adelaide Airport is the aviation gateway to Adelaide and South Australia and processed 8.5 million passengers in 2018. Passenger numbers have more than doubled since privatisation of the airport in 1998, with international passenger numbers more than quadrupling over this period to one million.

With this growth in passenger movements, Adelaide Airport's significance to both Adelaide and South Australia continues to increase; not only in terms of being an essential passenger and freight hub situated only six kilometres from the Adelaide CBD, but also as a major employment and business centre.

Adelaide Airport's location provides significant and unique advantages:

- Within six kilometres of the Adelaide CBD
- Centrally located within the Adelaide metropolitan area
- Well linked to nearby major sea and rail ports
- Well connected to major road corridors, connecting to local, metropolitan and regional areas
- Sufficient land to accommodate a growing aviation market

The airport's proximity to the city and its suburbs also means that careful planning and consultation is required to ensure that the aviation considerations of the airport are protected, while also ensuring that operational requirements are balanced with the community's needs.

Adelaide Airport is operated by Adelaide Airport Ltd (AAL). Adelaide and Parafield Airports were transferred from the Commonwealth Government to AAL in May 1998, with a 50-year lease for both airports and an option to extend the lease for a further 49 years. The lease requires AAL to operate the site as an airport, as well as allowing for other developments to support the economic viability of the airport.

As a significant private company in South Australia, AAL helps create vibrant communities and appreciates that commercial success is inseparable from the responsibility to make a significant and positive contribution to the community and the State. Nearly 84 per cent of AAL shares are held by superannuation funds for the benefit of Australian citizens. AAL makes important contributions to organisations that benefit the local and wider community, and the Adelaide Airport Community Investment Initiatives incorporates partnerships across various sectors including the arts, business development, people empowerment enterprises and remote emergency services.

Since privatisation, Adelaide Airport has grown to serve as an important transport hub, moving passengers and freight to and from destinations in South Australia, nationally and internationally. It is also the State's largest employment site outside of the Adelaide CBD, with more than 130 businesses and more than 7,100 employees onsite.

Snapshot of Adelaide Airport in 2018

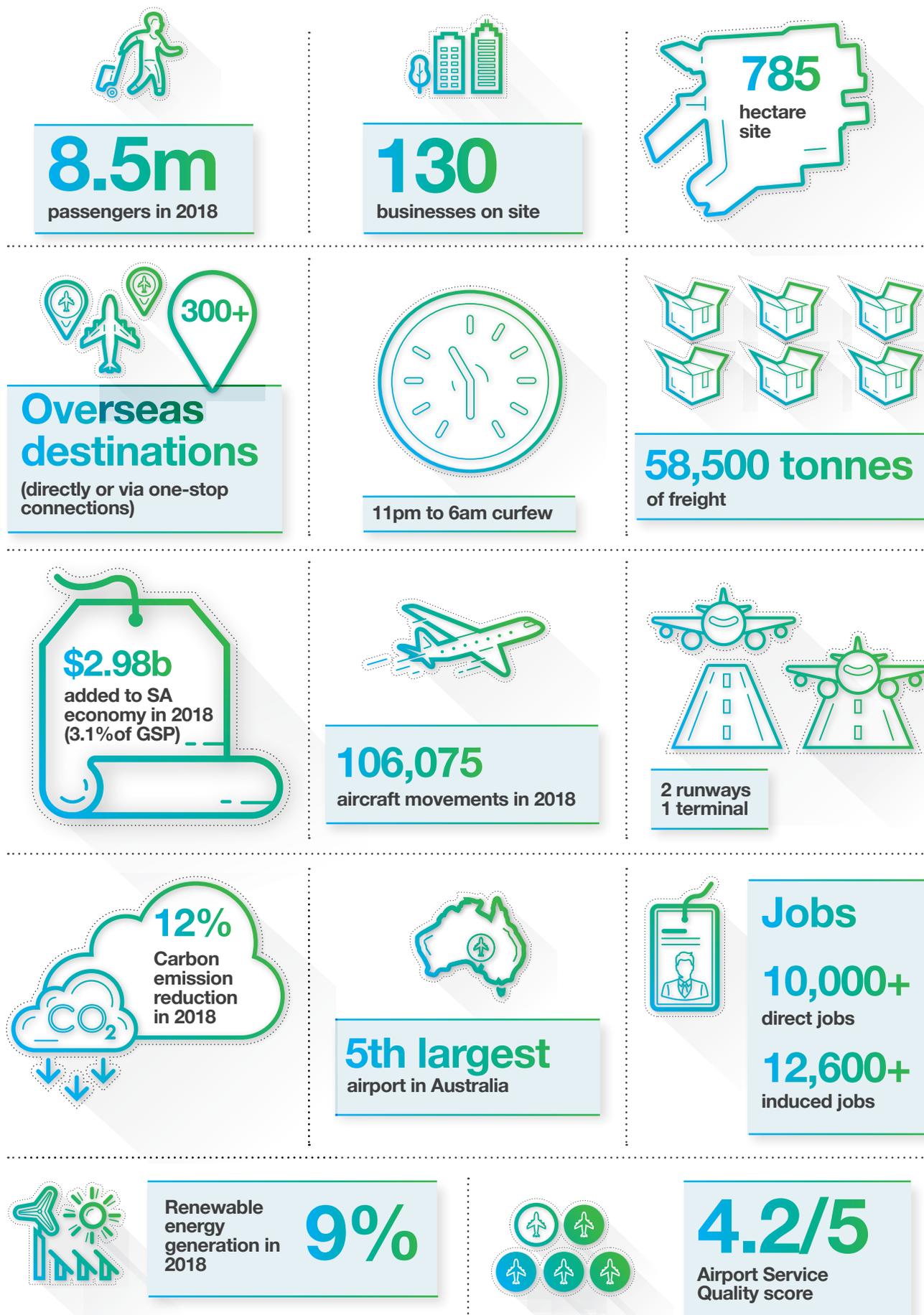


Figure 2-1: Snapshot of Adelaide Airport Today

2.2. Airport Site

Adelaide Airport is located approximately six kilometres west of Adelaide's CBD with its western boundary one kilometre from the shores of Gulf St Vincent.

The airport occupies a site of approximately 785 hectares and is well connected to the CBD, surrounding suburbs and other major locations in the Adelaide metropolitan area and throughout the State (see Figure 2-2).

The airport site is bordered by Sir Donald Bradman Drive to the north; Tapleys Hill Road to the west; and James Melrose Road to the south; with sections of the airport to the west of Tapleys Hill Road: north-west to Burbridge Road; and south-west to Military Road.

The airport site is located within the Local Government Area of the City of West Torrens; with a small portion of approximately three hectares being in the City of Charles Sturt. The southern boundary of the airport is adjacent to the City of Holdfast Bay. Figure 2-3 shows the boundaries of the Local Government Areas surrounding the airport site.

Since the establishment of the airport site in the 1940s, urban uses in surrounding areas have increased in intensity. The airport is surrounded by a mix of open space, in the form of recreational facilities such as sports fields, golf courses and recreational reserves, low and medium density residential areas, and light to heavy industrial complexes. The West Beach Parks Complex (formerly known as Adelaide Shores), a significant holiday and recreational area, is located immediately to the west of the site.

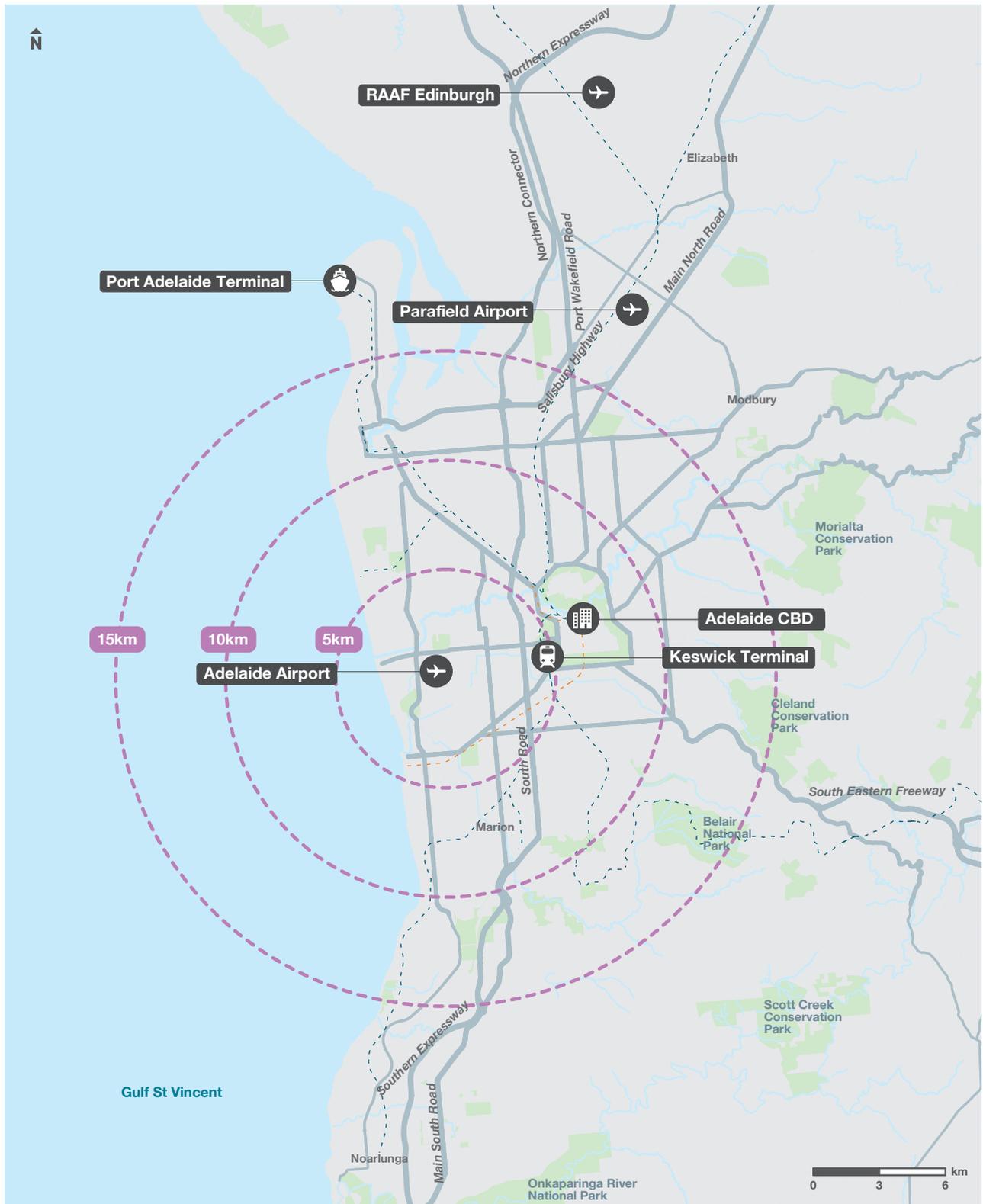
South Road is located two kilometres to the east of the airport, accessed via Sir Donald Bradman Drive and Richmond Road. The South Australian Government has committed to a 10-year plan to convert the remaining sections of South Road into a high capacity motorway as part of the North-South Corridor, leading to a 78-kilometre non-stop route from Gawler to Old Noarlunga, providing an important transport and freight connection to local and regional destinations.

Adelaide Airport is the largest of three airports within the Adelaide metropolitan area. Parafield Airport, used for general aviation and pilot training, and Royal Australian Air Force (RAAF) Base Edinburgh are located 17 and 27 kilometres to the north of Adelaide Airport, respectively (see Figure 2-2).

The entire Adelaide Airport site is designated as the Adelaide Airport Business District which aligns with the State Government's approach to land use planning. The Adelaide Airport Business District is divided into seven precincts, akin to a suburb and each with specific development intent. These precincts are shown in Figure 2-4 and comprise:

- Runways Precinct
- Terminals & Business Precinct
- Airport East Precinct
- Morphett Precinct
- Tapleys Precinct
- West Beach Precinct
- Torrens Precinct

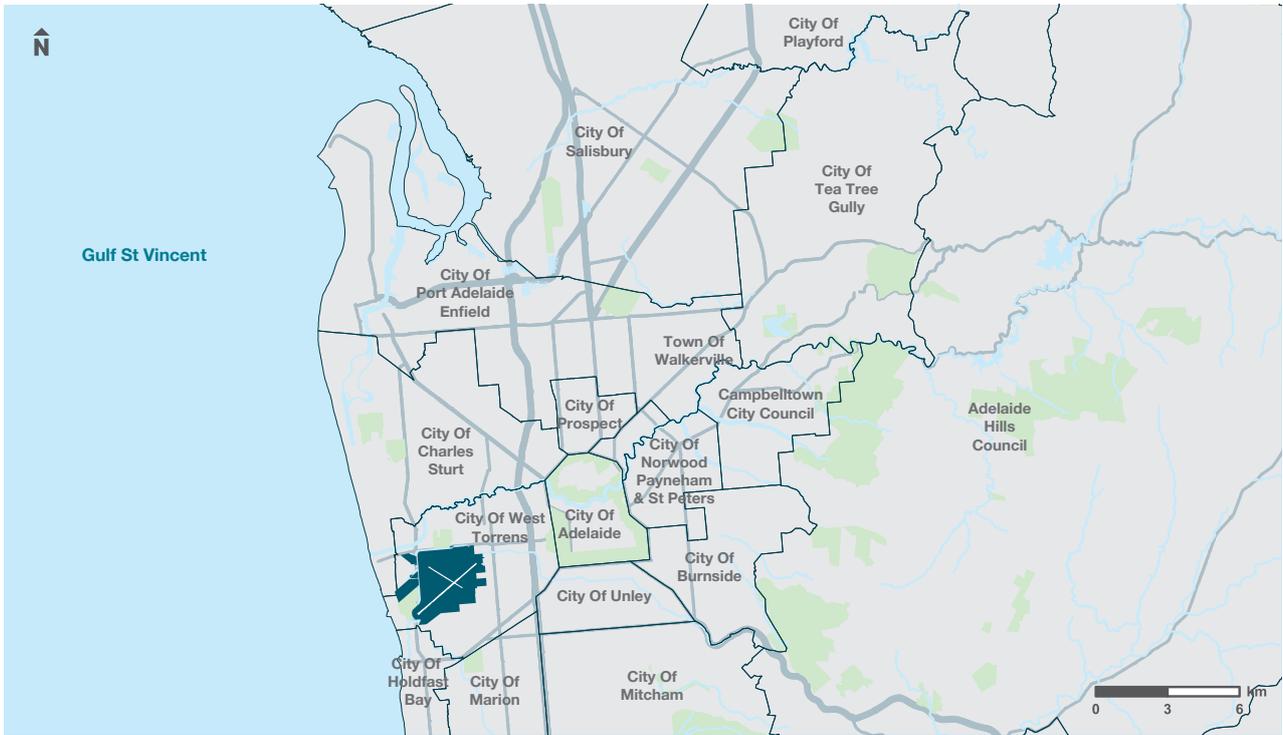
AAL also owns residential properties that are outside of the airport boundary. These properties have been purchased by AAL to ensure the long-term protection of current and future runway approach lighting requirements. The freehold land is not subject to the airport lease arrangements or Airports Act regulatory framework.



LEGEND

- Railway
- - - Tram Line
- Major Transport Routes
- Parks, Forests and Reserves
- Watercourses

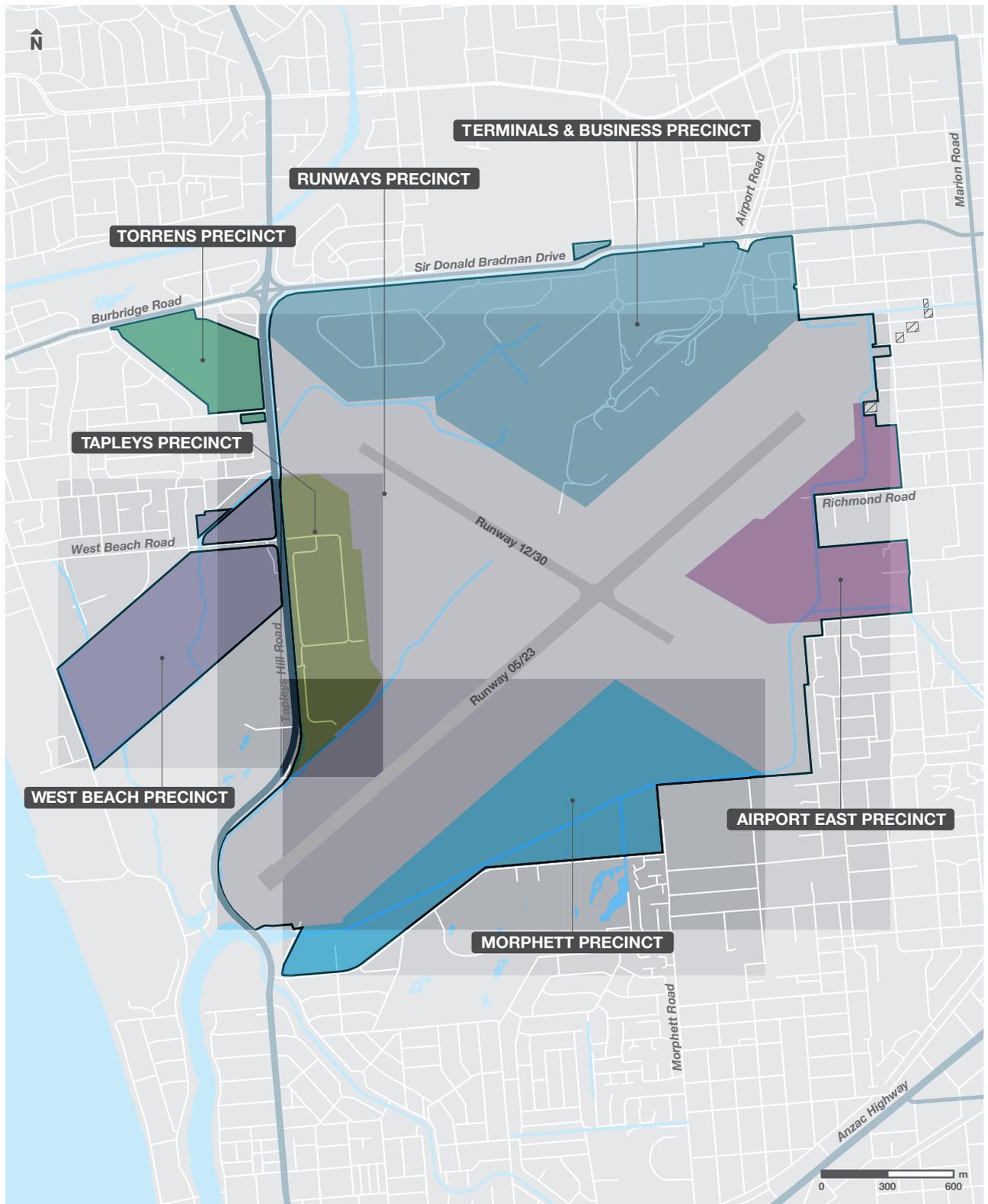
Figure 2-2: Adelaide Airport Location



LEGEND

- Airport Site
- Runways
- Local Government Authority
- Major Transport Routes
- Parks, Forests and Reserves
- Watercourses

Figure 2-3: Local Government Areas Around Adelaide Airport



C2

LEGEND

- Adelaide Airport Business District Boundary
- Freehold Land
- Runways
- Airport Terminal

- Watercourses
- Arterial Roads
- Local Roads

ADELAIDE AIRPORT PRECINCTS

- Runways Precincts
- Terminals & Business Precinct
- Airport East Precinct
- Morphett Precinct
- Tapleys Precinct
- West Beach Precinct
- Torrens Precinct

Figure 2-4: Adelaide Airport Precincts



2.3. Airport History

Following the end of World War I, Adelaide's original aerodrome was developed by the Commonwealth Government in 1921. Known as Captain Butler's Aerodrome, the site was located at what is now the suburb of Hendon, nine kilometres from the CBD, and was used as the base for airmail services between Adelaide and Sydney. Adelaide's aviation needs continued to grow and in 1927, the existing Parafield Airport site was acquired. By 1941, it had become evident that the site's location was operationally unsuitable for Adelaide's aviation needs so investigations for an alternate site for the city's major airport commenced.

Following several years of topographical, geographical and meteorological studies, the present site between the Adelaide CBD and the coast was chosen.

2.3.1. Early Airport Development

World War II slowed the acquisition and development program for the Adelaide Airport site, but the 10 years following the war saw it developed for domestic air services.

Work on the new airport began in 1947, with construction completed seven years later. The first regular transport services commenced in February 1955 following the granting of the airport's licence to operate.

It was not until 1957 that the Commonwealth funded and built a temporary passenger terminal, with a lean-to constructed on one of the large hangars at the airport.

Adelaide Airport continued to be expanded to accommodate the larger and more frequent air services needed to meet the increased demands of the South Australian community. In the late 1960s, the main runway was first extended, along with one of many extensions to the original domestic terminal.

Regular international services began in November 1982 with the construction of a separate international terminal building to accommodate the growing influx of overseas visitors.

In 1982, the then Department of Aviation released a Provisional Master Plan for Adelaide Airport that catered for growth and incorporated a draft environmental impact statement. This provisional plan was issued to airport users and interest groups but not finalised.

The Commonwealth Government began laying the foundations for privatisation of its airports in the 1980s with legislative processes for the first stage of the program put in place.

The original site was located at what is now the suburb of Hendon, nine kilometres from the CBD, and was used as the base for airmail services between Adelaide and Sydney.



Figure 2-5: View of the Original Adelaide Airport Site 1947

In 1988 the management of Adelaide Airport was transferred to the Federal Airports Corporation (FAC), a Commonwealth Government business enterprise.

In July 1991, the FAC commissioned a redraft of the 1982 Provisional Master Plan. The new plan identified opportunities for the development of commercial precincts within the airport site.

In the mid-1990s, the FAC undertook a significant upgrade of the airport's facilities. It extended the main runway and invested a further \$20 million over a 10-year period to improve roads, power, water and sewerage capacity, terminal development and aircraft aprons and taxiways.

2.3.2. Privatisation

In May 1998, operation and management of Adelaide Airport was transferred from the Commonwealth Government to AAL for 50 years, with an option of extending the lease for a further 49 years.

As a requirement of privatisation, AAL prepared its first master plan, Master Plan 1999, for public comment and Commonwealth Government approval. The Master Plan 1999 identified that a multi-user integrated terminal was planned for the airport site.

2.3.3. Major Airport Expansion

Since taking over the management and operation of Adelaide Airport in 1998, to position Adelaide Airport as one of the most modern and accessible airports in Australia. AAL has invested over \$640 million on infrastructure upgrades.

Construction of the \$260 million Adelaide Airport multi-user integrated terminal (Terminal 1) – one of South Australia's largest and most significant privately funded civil infrastructure projects – commenced in November 2003 and was officially opened in October 2005.

In 2011, AAL completed a major resurfacing of runways and aprons.

Between 2012 and 2018, AAL invested approximately \$15 million in capital projects to service taxi, bus and chauffeur vehicles. AAL designed and constructed the multi-level car park alongside Terminal 1 that was opened in August 2012. The area between Terminal 1 and the car park was developed as a pedestrian plaza, which was completed in March 2013. Along with the terminal and car park developments, AAL has also reconfigured the internal road network to provide enhanced accessibility to terminal precinct infrastructure and external roads.

September 2018 saw the opening of the \$50 million, 165-room Atura Adelaide Airport Hotel, a seven-storey facility directly connected to Terminal 1.

Adelaide Airport continues to grow. Passenger numbers have steadily increased, with 8.5 million passengers passing through Adelaide Airport in 2018.

Currently underway is the \$165 million Terminal Expansion Project (TEEx), which will significantly upgrade international arrivals and departures, and create more retail and dining options for both domestic and international travellers. Due for completion in 2021, the terminal expansion is the biggest infrastructure project at Adelaide Airport since the completion of the existing terminal in 2005.

As a major economic and employment generator, the growth of Adelaide Airport is inextricably linked to the development of South Australia. Adelaide Airport currently hosts 130 businesses across the Airport Business District. The airport is recognised as a key business and logistics hub with strong connections to major regional areas, all capital cities and key global hubs, resulting in significant growth in commercial developments.



Prime Minister John Howard at the opening of the existing terminal in 2005

Terminal Expansion Project (TEx)

The \$165 million Terminal Expansion Project (TEx) will significantly improve the arrivals and departures experience for international passengers, with:

- A second, longer baggage belt for arrivals
- More space for emigration and immigration processing
- Expanded security screening
- A larger duty free precinct for arrivals and departures
- Expanded dining and retail options

Retail areas will be expanded and refurbished throughout the terminal, resulting in more than 80 per cent increase in the overall size of the terminal's retail and dining precinct across domestic and international areas.

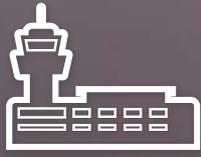
Other improvements include:

- A new common user premium international lounge
- New VIP facilities for international arrivals and departures
- Relocation of the Virgin Australia Lounge
- Expansion of office space for terminal tenants, including airlines and regulatory agencies



Figure 2-6: Overview of Terminal Expansion Project

Overview of Terminal Expansion Project



Expansion of
terminal footprint
16,500m²



Total retail
footprint increase

80%+

(Domestic & International)



Project value
\$165 million



Completion
2021

C2



History of Adelaide Airport

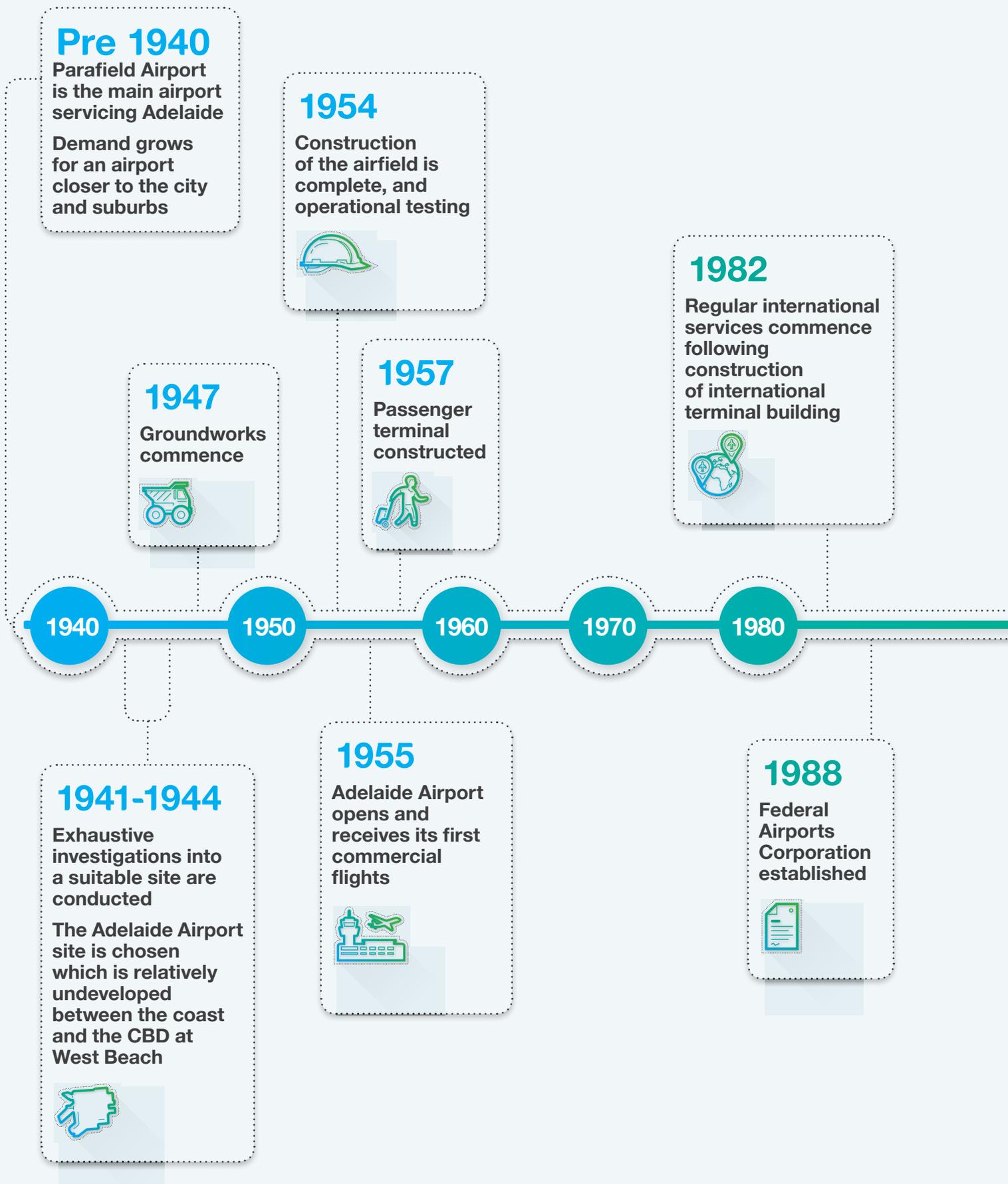
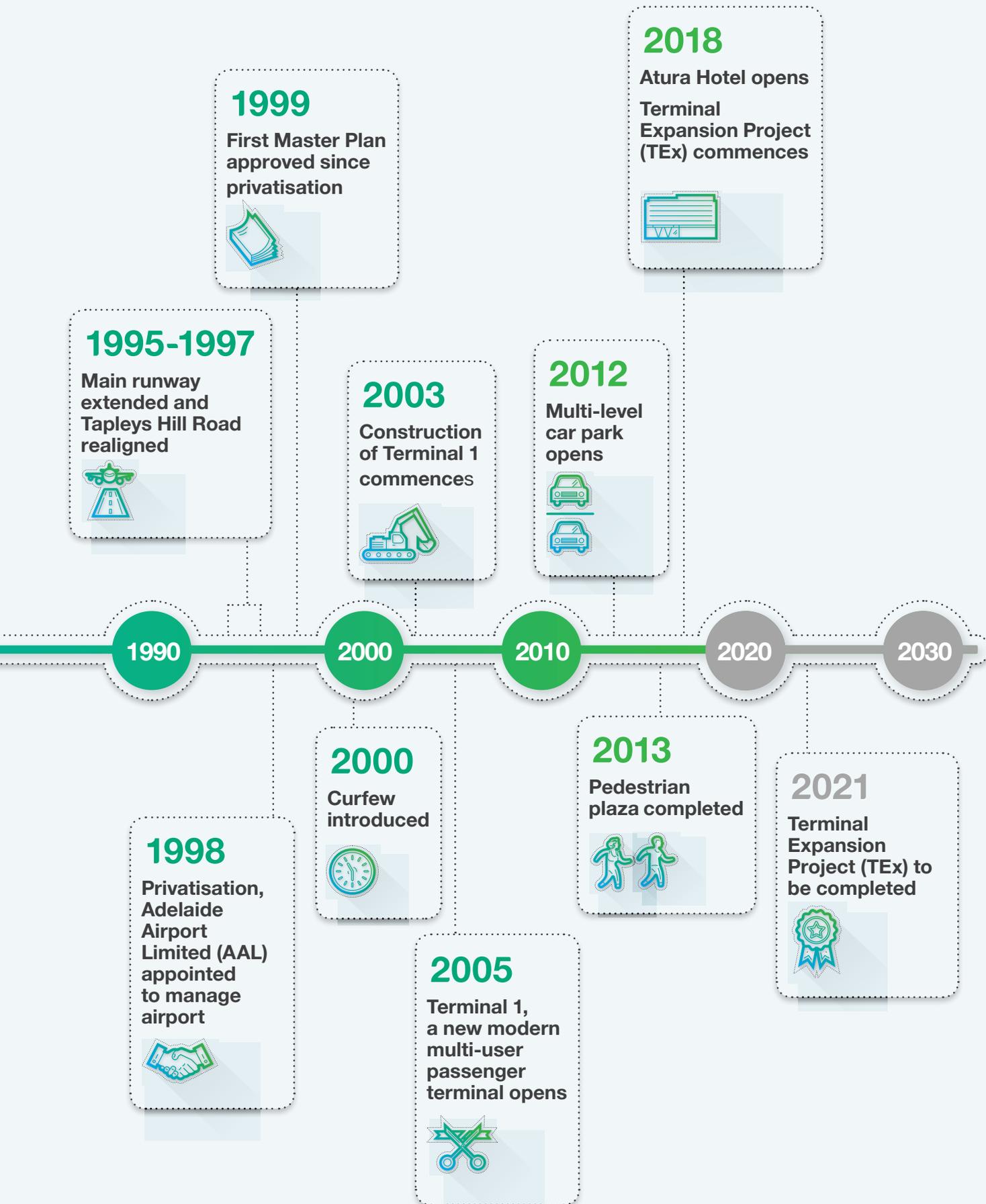


Figure 2-7: Planning Timeline of Adelaide Airport





2.4. Achievements Since 2014

Adelaide Airport has continued to evolve and develop in line with the requirements and opportunities identified in Master Plan 2014. Many of the developments outlined in the previous Master Plan have been realised. The Atura Hotel has been built and opened, while the Terminal Expansion Project (TEx) has commenced.

Commercially, new development and businesses have progressed including the Hotel, the Pet Hotel and AFL Max; while others have been approved or are in the planning phase. These offerings add to the commercial ecology at the Airport Business District and attract additional people and businesses that are drawn to the strengths of the location and access to transport, freight and logistics.

The forecast growth and subsequent plans for aviation and airside facilities identified in the Master Plan 2014 have ensured that the airport facilities keep pace and continue to offer a great customer experience. AAL has continued to update facilities including planning for aviation-support facilities, and improved efficiencies of existing aircraft pavement areas.

2.5. Airport Ownership

In 1998, AAL commenced the long-term leases of Adelaide and Parafield Airports from the Commonwealth of Australia.

The current shareholder equity of AAL, as at March 2019, is shown in Figure 2-8. Superannuation funds make up nearly 84 per cent of the ownership. A key strategy of superannuation funds is investment in long-term infrastructure projects that provide a continuing inflow of funds, such as the continued development of Adelaide Airport.

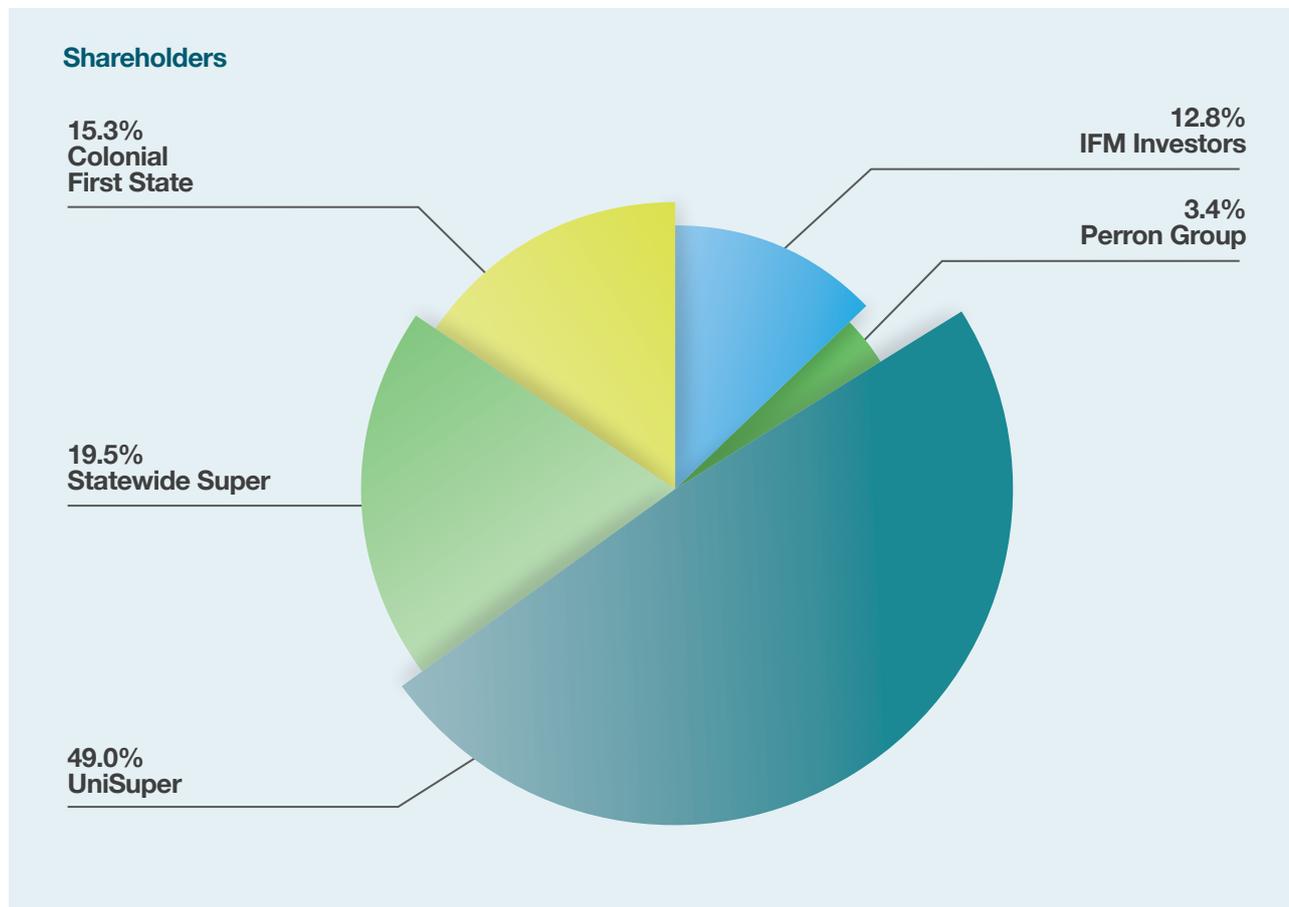


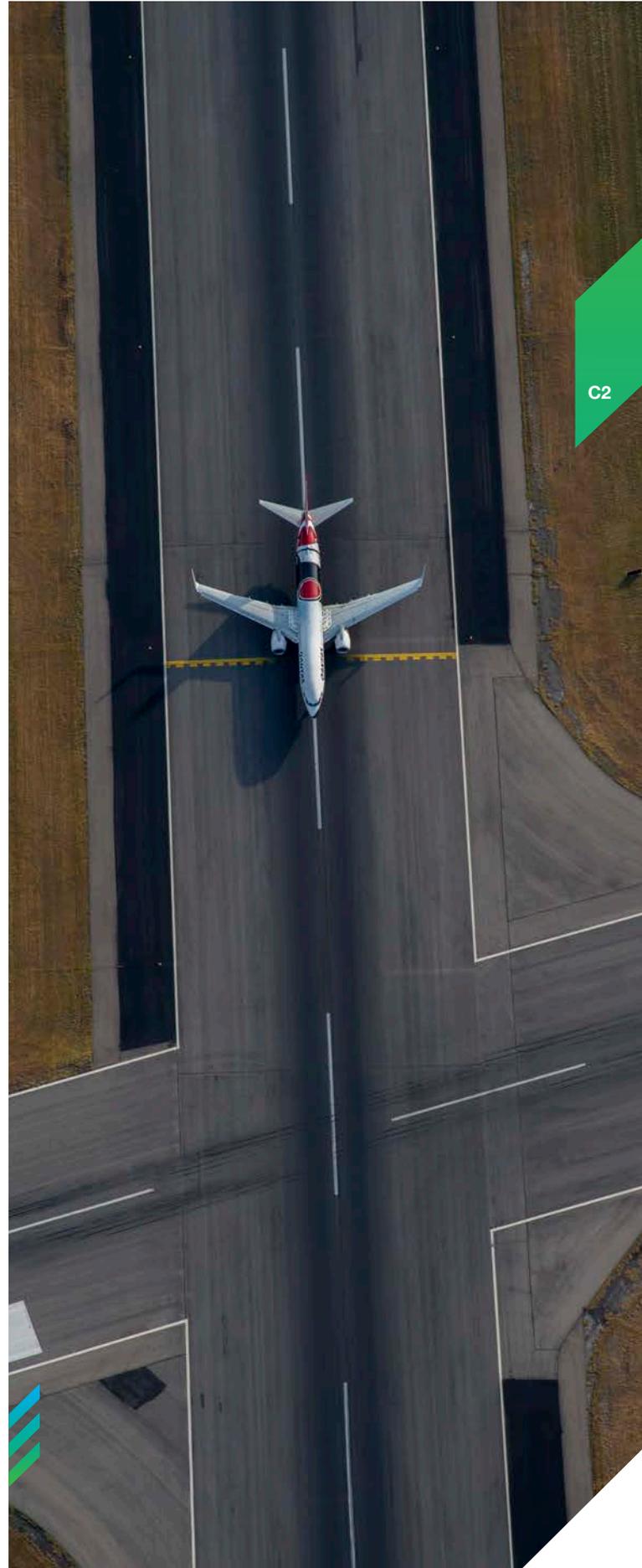
Figure 2-8: Adelaide Airport Shareholders

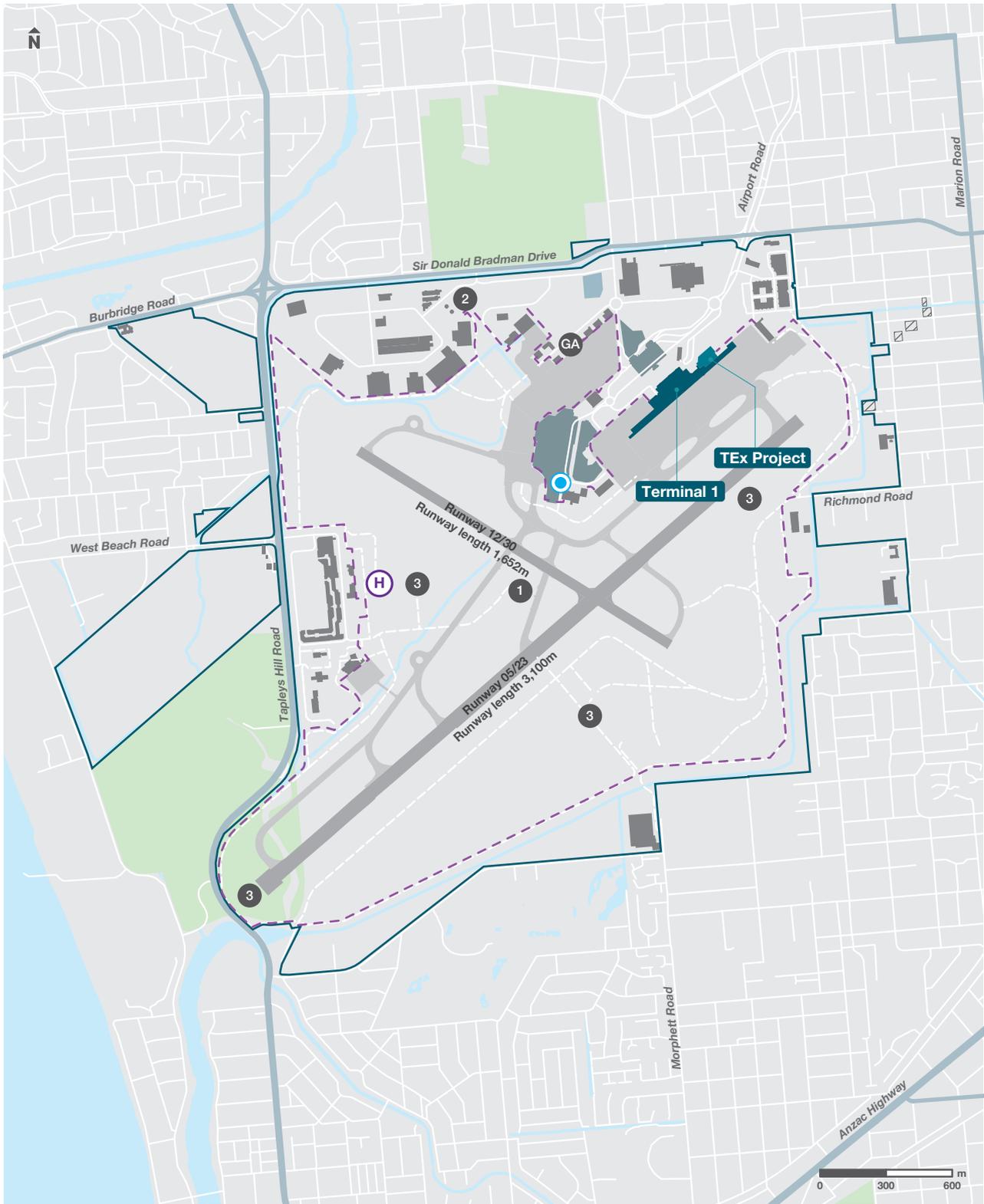
2.6. Facilities

Adelaide Airport has extensive aviation infrastructure. The principal aviation-related facilities include:

- A two-runway system comprising the main runway 05/23, which is 3,100 metres long (Category 1 instrument landing system), and the cross-runway 12/30, which is 1,652 metres long
- Extensive network of taxiway and aircraft apron
- A multi-user integrated terminal serving international, domestic and regional customers
- Car parking, offering short-and-long-stay car parking
- Taxi, car rental, rideshare, car-share, public bus and cycling facilities
- Air freight facilities, including direct airside access and cold storage
- Aircraft maintenance hangars and associated facilities
- In-flight catering
- General aviation (including terminal) and helicopter facilities
- Aviation rescue and firefighting facilities
- Air traffic control
- Meteorological services
- Aviation fuel infrastructure

Current aviation infrastructure at Adelaide Airport is shown in Figure 2-9.





LEGEND

- | | | |
|----------------------------|--------------------|---------------------------|
| Airport Boundary | Buildings | Arterial Roads |
| Freehold Land | Airport Car Parks | Local Roads |
| Runways | Taxi Lay-off Area | Airside Roads |
| Taxiways/Aprons | Parks and Reserves | Security Fenceline |
| Airport Terminal | Watercourses | Air Traffic Control Tower |
| Terminal Expansion Project | | Helipad West |

ELEMENT DESCRIPTION

- General Aviation
- Aviation Rescue and Fire Fighting Service
- Joint Oil Storage Facility
- Navigation Systems

Figure 2-9: Layout of Existing Facilities at Adelaide Airport

2.7. Airport Operations

Adelaide Airport currently operates on a 24-hour basis, with curfew restrictions 7 days a week, and caters for a wide variety of aircraft operations and services.

To minimise aircraft-noise exposure for nearby residents, the current Adelaide Airport curfew was introduced in August 2000. The current curfew does not prevent all aircraft movements during the curfew period. It limits aircraft movements between 11:00pm and 6:00am by restricting the types of aircraft that can operate, the number of flights permitted, and the types of operation allowed.

On average, there are currently 10 aircraft movements per night during curfew hours, the majority of which involve emergency services aircraft. During the current curfew period, all aircraft take-off and land over the Gulf St Vincent using the main runway (Runway 05 for arrivals and Runway 23 for departures). Under Chapter 15 of the *Adelaide Airport Curfew Act 2000*, Runway 23 can be used for arrivals only when Runway 05 is declared by Airservices Australia (Airservices) to not be operationally acceptable for arrivals.

From April to October, some curfew schedules are moved to meet curfews at overseas airports (which begin earlier, in line with changes in northern summer time zones). As a result, a limited number of international aircraft arrivals are allowed in the morning curfew shoulder period between 5:00am and 6:00am.

The airport's current curfew arrangements are detailed in Chapter 13.



3

Significance of the Airport



3.1. Introduction

Adelaide Airport plays an essential role in the economic prosperity and development of South Australia through creating jobs and supporting business, tourism and leisure activities.

As part of this Master Plan, AAL commissioned Hudson Howells to undertake a detailed analysis of the economic and social impacts of Adelaide Airport both today and after the implementation of the proposed plans as outlined in this Master Plan.

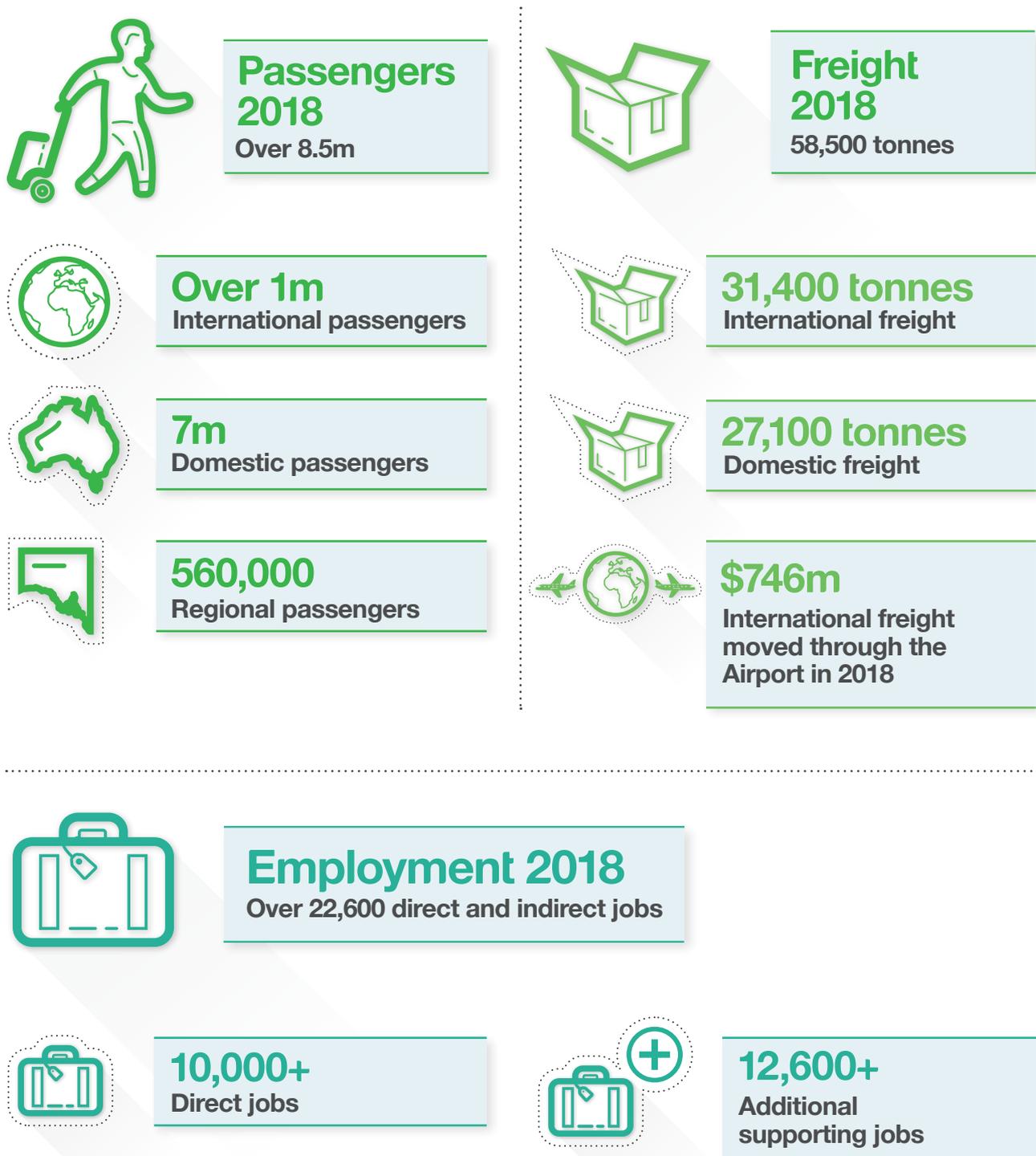


Figure 3-1: Snapshot of Adelaide Airport's Economic Contribution



Economic Contribution 2018



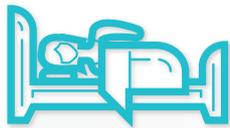
\$2.98b
Airport economic activity



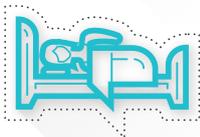
3.1%
Gross State Product

Adelaide Airport plays an essential role in the economic prosperity and development of South Australia through creating jobs and supporting business, tourism and leisure activities.

C3



Visitor Economy 2018



5.73 days
average visitor stay



\$1.2b
tourism spending in South Australia in 2018



3.2. Domestic and International Connections

Adelaide Airport caters for more flights to and from more destinations than ever before. It is serviced by 32 routes, which connect to regional, domestic and international locations. Domestic services connect to 11 airports around Australia including all capital cities and significant tourism destinations. Adelaide Airport is an important aviation hub for South Australia's major regional centres. Regional flights connect to 12 destinations.

International services connect to nine cities: Auckland, Denpasar, Doha, Dubai, Guangzhou, Hong Kong, Kuala Lumpur, Nadi and Singapore. International carriers connect South Australia to more than 300 cities around the globe (either direct or via a one-stop connection). The number of international flights has increased in recent years, with around 50 international flights a week providing non-stop links to Asia Pacific and the Middle East.

Regional routes are shown in Figure 3-2, and international and domestic routes shown in Figure 3-3.

AAL works closely with the South Australian Tourism Commission to attract new international carriers and services. The success of the growth in services has been recognised by the Routes Asia Marketing Awards, with AAL winning awards in 2017 and 2018 for its excellence in airport and destination marketing.

New services that have commenced in recent years include:

- In March 2016, Jetstar commenced flights to Avalon (Melbourne)
- Qatar Airways made its inaugural flight to South Australia in May 2016, providing a daily service to Doha
- In September 2016, Jetstar introduced direct flights to the Sunshine Coast three times per week
- The inaugural flight of the world's third-largest carrier (China Southern Airlines) landed at Adelaide Airport on 13 December 2016, with the State's first direct service from Guangzhou currently operating three times per week
- Fiji Airways commenced twice-weekly directed services between Adelaide and Nadi from June 2017. These flights will cease operation effective 22 July 2019
- Cathay Pacific Airways increased to six weekly flights to Hong Kong, starting July 2017
- Starting November 2017, Jetstar introduced three weekly services to Hobart, the first direct flights between Adelaide and Hobart since 2010
- QantasLink commenced services to Kangaroo Island in December 2017, operating five times per week over summer and three times per week over winter

- FlyPelican introduced the first regular airline service to Newcastle in March 2018, operating three flights per week (this ceased in April 2019)
- Malaysia Airlines introduced a fifth weekly service to Kuala Lumpur from July 2018
- From April 2019, Malindo Air operates four weekly flights to Bali, connecting to Kuala Lumpur

Adelaide Airport operates as an important freight hub, with most air freight being transported in the cargo hold of commercial aircraft. The growing number of international airlines introducing wide-body aircraft for passenger services out of Adelaide has greatly improved South Australia's direct air-freight capacity to markets in Asia, the Pacific and the Middle East. Up to 60 per cent of exports are now carried direct out of Adelaide to destinations such as Singapore, Hong Kong, Guangzhou, Kuala Lumpur, Dubai and Doha.

Adelaide Airport has the added benefit of being well connected to major road freight routes, resulting in Adelaide Airport playing an important part in transporting South Australia's goods and produce quickly and efficiently to destinations interstate and overseas.

AAL continues to work in partnership with all airlines, State Government agencies, the freight and cargo industry and the tourism and hospitality industry to develop sustainable services that meet the air travel, import and export needs and social demands of South Australia.



Adelaide Airport is an important aviation hub for South Australia's major regional centres.

Figure 3-2: Existing International and Domestic Destinations Serviced by Adelaide Airport



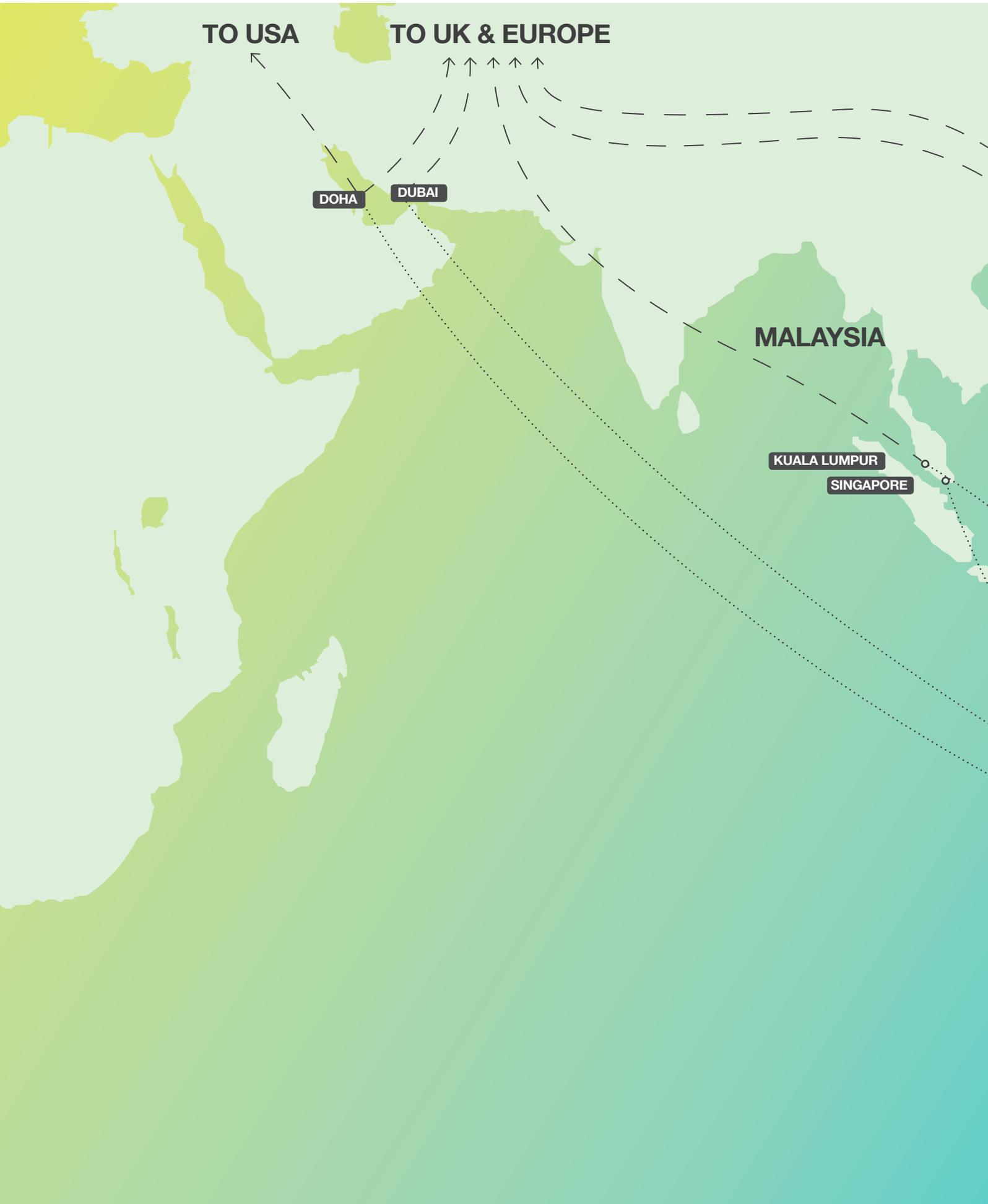


Figure 3-3: Existing Regional Destinations Served by Adelaide Airport







Adelaide CBD at night



3.3. Economic Contribution

Adelaide Airport makes an important contribution to the South Australian economy through employment and value-added production associated with the airport's business activities (both aviation and non-aviation related businesses).

In 2018, the airport contributed an estimated \$2.98 billion to the South Australian economy, equivalent to 3.1 per cent of Gross State Product (GSP), an increase from 2.1 per cent in 2013. This increase is related to the growth in activity at the airport, including aircraft and passenger movements, as well as the development of commercial activities on airport land.

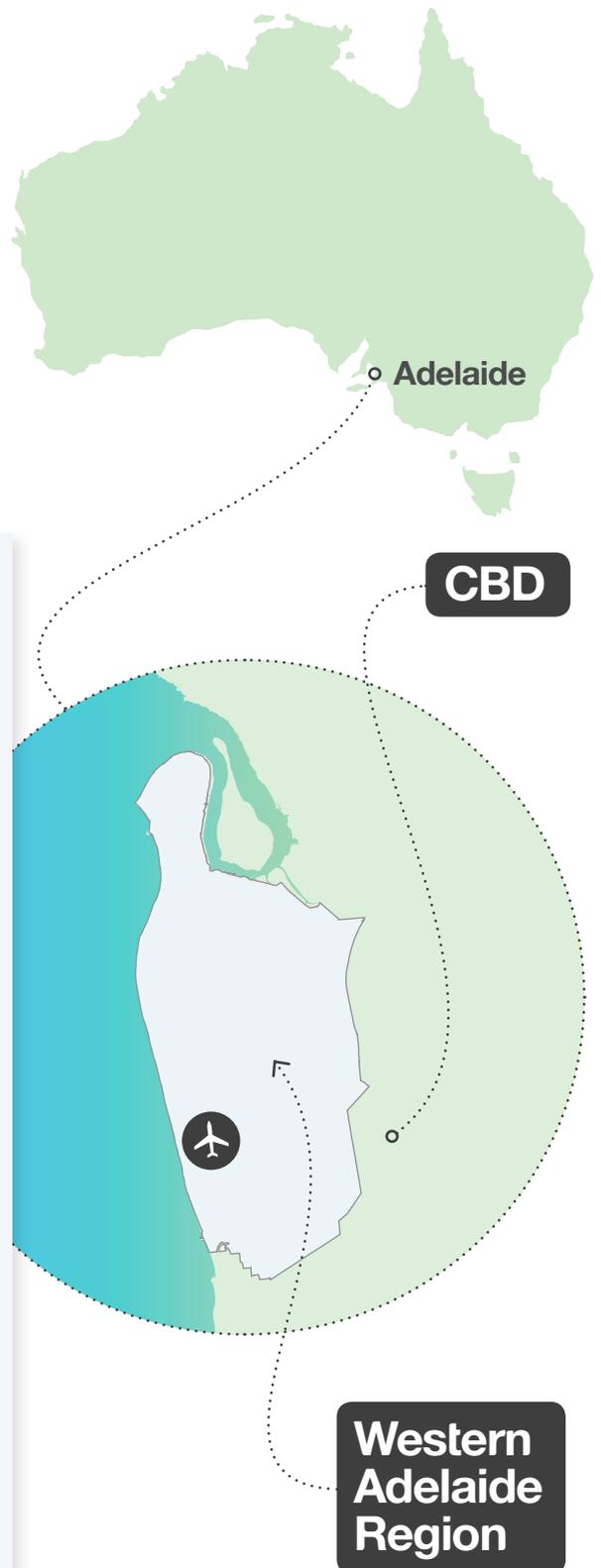


Figure 3-4: Airport's contribution to state GSP and western region's GRP



Adelaide Airport is South Australia’s largest employment precinct outside the Adelaide CBD. Since 2014, total employment (direct and indirect) has grown by almost 30 per cent.

In 2018, the airport directly employed 10,137 people both on and off the airport. In addition, it is estimated that the airport contributes to the generation of a further 12,673 full-time equivalent jobs through purchases by airport operators and spending of direct employee wages. It is estimated that the airport generates a total of 22,810 full-time equivalent jobs, increasing from 17,759 full-time equivalent jobs in 2013 (as shown in Figure 3-6).

The airport is located in the Western Region of Adelaide, consisting of the Local Government areas of the City of West Torrens, the City of Charles Sturt and the City of Holdfast Bay. The airport plays a significant economic and employment role within this region. In 2018, the airport contributed an estimated \$1.99 billion to Gross Regional Product and provided support for 15,144 full-time equivalent jobs within the region, representing 13.8 per cent of the region’s economic activity.

In recent years the airport has successfully transitioned from an aviation and infrastructure facility to a broad-based economic activity hub encompassing a variety of services, facilities and developments. There are an estimated 130 businesses located on the airport.

Going forward, Adelaide Airport will continue to develop as a major economic generator in South Australia. Taking into consideration the developments outlined in the first eight years of this Master Plan it is anticipated that by 2027 the airport will contribute \$4.73 billion annually to the State’s economy and 35,412 full-time equivalent jobs, including almost 17,000 direct on and off-airport employees.

Since 2014, total employment has grown by almost

30%

Recognising the proposed developments over the 20-year planning period, it is forecast that the airport’s economic contribution will continue to grow and by 2039 the contribution to the GSP will be \$7.48 billion and more than 56,000 full-time equivalent jobs, including more than 28,000 airport employees. Refer to Table 3-1, Figure 3-5, and Figure 3-6.

	2018	2027	2039
Direct On-Airport Employment	7,134	11,513	19,523
Direct Off-Airport Employment	3,003	5,435	8,829
Induced Airport Employment	12,673	18,464	27,826
Total Airport Employment (Direct and Induced)	22,810	35,412	56,178

Table 3-1: Forecast Employment Growth





Figure 3-5: Forecast Contribution to South Australia's GSP



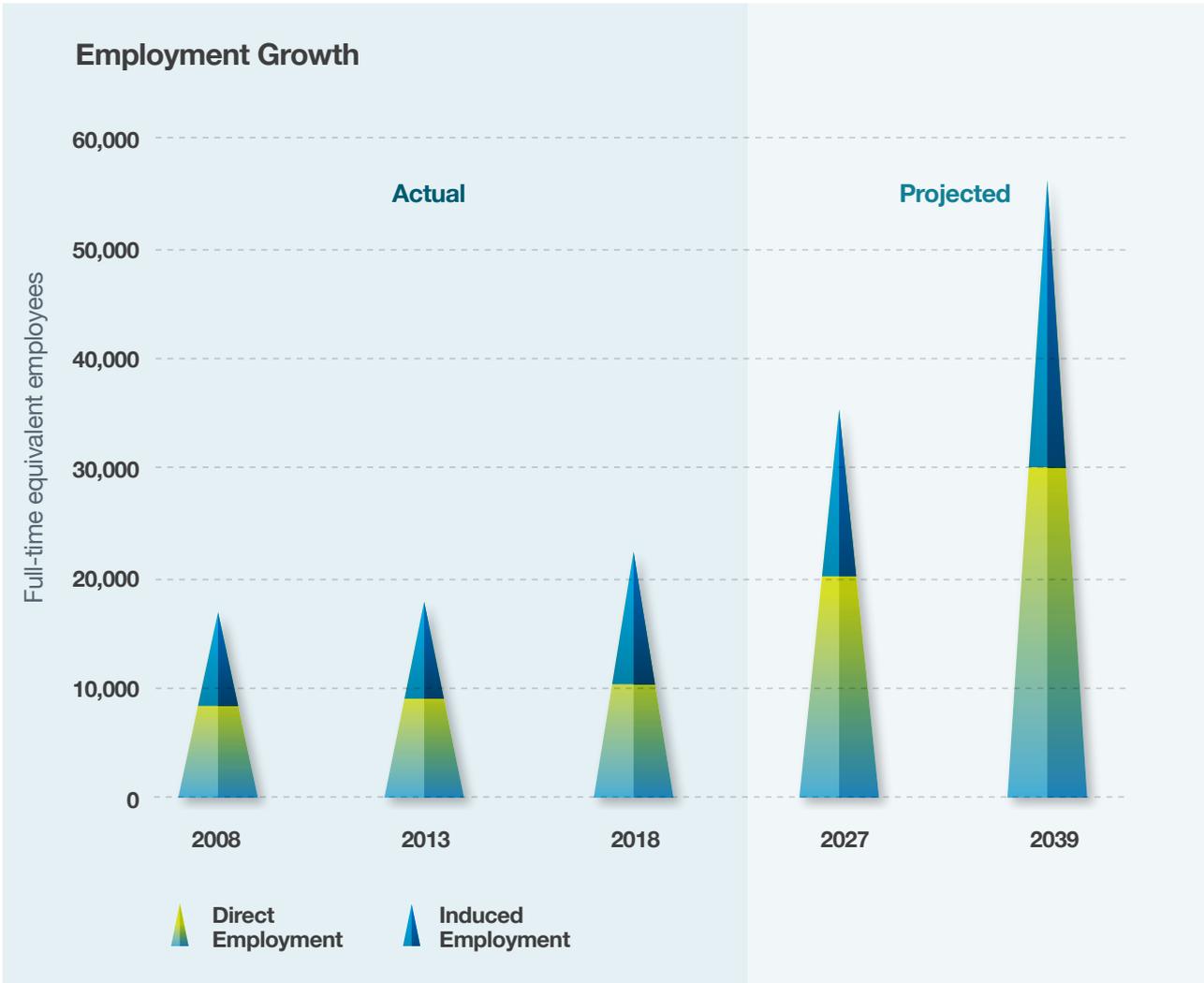


Figure 3-6: Past and Forecast Employment Growth 2008-2039

The division of the Adelaide Airport Business District into a number of precincts is detailed in Chapter 7. Most employees are based in the Terminals & Business Precinct, with 5,937 full-time equivalent jobs in 2018. With the anticipated developments in this precinct, employment is expected to grow to almost 13,200 full-time equivalent positions by 2039. The Tapleys Precinct had 680 full-time equivalent jobs in 2018. With further developments, employment is expected to grow to almost 4,700 full-time equivalent by 2039. Employment figures per precinct are shown in Table 3-2.

	2018	2027	2039
Terminals & Business Precinct	5,937	8,633	13,173
Airport East Precinct	516	950	1,207
Tapleys Precinct	680	1,893	4,649
Morphett Precinct	0	36	494
Total Direct On-site	7,133	11,512	19,523

Table 3-2: Direct On-site Employment Forecasts by Precinct



3.4. Visitor Economy

The South Australian tourism sector is highly reliant on airline journeys that connect the State with other locations, therefore the airport operations support much of the tourism industry. For example, following the introduction of Emirates services in 2012, European tourism spend in Adelaide grew by nearly 50 per cent. Similarly, Cathay Pacific's direct scheduling to Hong Kong (which enabled same-day connecting flights to and from mainland China) grew Adelaide's Chinese inbound market by 20 per cent in its first year. AAL works with the South Australian Tourism Commission and airlines to maintain and expand airline routes to support visitor growth.

South Australia's visitor economy is expected to increase from \$6.3 billion (36,000 jobs) in 2018 to \$12.8 billion by 2030 (52,000 jobs). Adelaide Airport is a key driver of the tourism economy. Air transport is a major travel choice for many visitors (including regional). It is estimated that inbound and regional tourism facilitated by the airport in 2018 is worth \$685 million of Gross State Product, supporting a further 5,350 full-time equivalent jobs. Net economic activity linked to tourism that is facilitated by the airport in 2018 is estimated at \$92 million of GSP, supporting a further 713 jobs.

It is expected that as passenger numbers grow, so will the contribution that the airport makes to the visitor economy.

Estimate of inbound and regional tourism facilitated by Adelaide Airport

\$685
Million

of Gross State Product

5,350

Full-time jobs supported

3.5. Social and Community

Adelaide Airport is committed to being part of the Adelaide and South Australian community, and makes important contributions to several organisations that benefits the local and wider community.

Adelaide Airport's Community Investment Initiatives incorporates partnerships across various sectors including the arts, business development, people empowerment enterprises and remote emergency services. A few of the key recent contributions and support include:

- Supporting remote communities via the Royal Flying Doctor Service which provides emergency medical and primary health-care services to people in rural and remote Australia
- Key supporter of local and international art festivals including the Adelaide Fringe, SA Living Artists Festival, Adelaide Festival and OzAsia. AAL is a presenting partner of the Adelaide Festival which showcases an outstanding mix of internationally acclaimed theatre productions, an eclectic array of world-class musicians, as well as outstanding dance, writing and visual art displays. Many of the Adelaide Festival events are free to attend such as Adelaide Writer's Week, Australia's largest free literary festival offering both writers and readers a unique opportunity to spend time sharing ideas
- Major partner of the Australian Dance Theatre Company, a pre-eminent contemporary dance company based in Adelaide
- Supporting Foodbank, Australia's largest food relief organisation to provide over 60 million meals a year to multiple charities and schools around the country. AAL directly assists with Foodbank pop-up stores and hamper packing
- Supporting Dress for Success, a company that provides professional attire to empower disadvantaged women to achieve economic independence through employment. Coupled with this, AAL partners with the Power Community, which delivers programs that create education and employment outcomes for disadvantaged and disengaged youth



B

How Adelaide Airport is planned





B

How Adelaide Airport is Planned

4



Planning Framework

Provides the planning framework for Adelaide Airport and the process required for preparing a master plan.

5



Planning Development Approach

Provides a vision for Adelaide Airport with a development approach and objectives. Further details how consultations with stakeholders and the community are delivered.

6



Aviation Forecasts

Details the forecasts for growth in passenger, aircraft and freight movements. These forecasts allow Adelaide Airport to consider how to respond to this growth while delivering on the vision.

4

Planning Framework



Introduction

Adelaide Airport recognises that the land use and infrastructure decisions made both within and outside of the airport site can impact the ability of the airport to provide the capacity, efficiency and level of service expected of a major airport.

Planning at Adelaide Airport is governed by Commonwealth legislation, with a number of strategic documents at the State and Local Government level influencing the current arrangements and future development of the airport.

As part of the development of the Master Plan, consideration is given to the context, legislative and planning environment in which Adelaide Airport operates.

4.1. Commonwealth Policy and Legislative Frameworks

4.1.1. Airports Act 1996

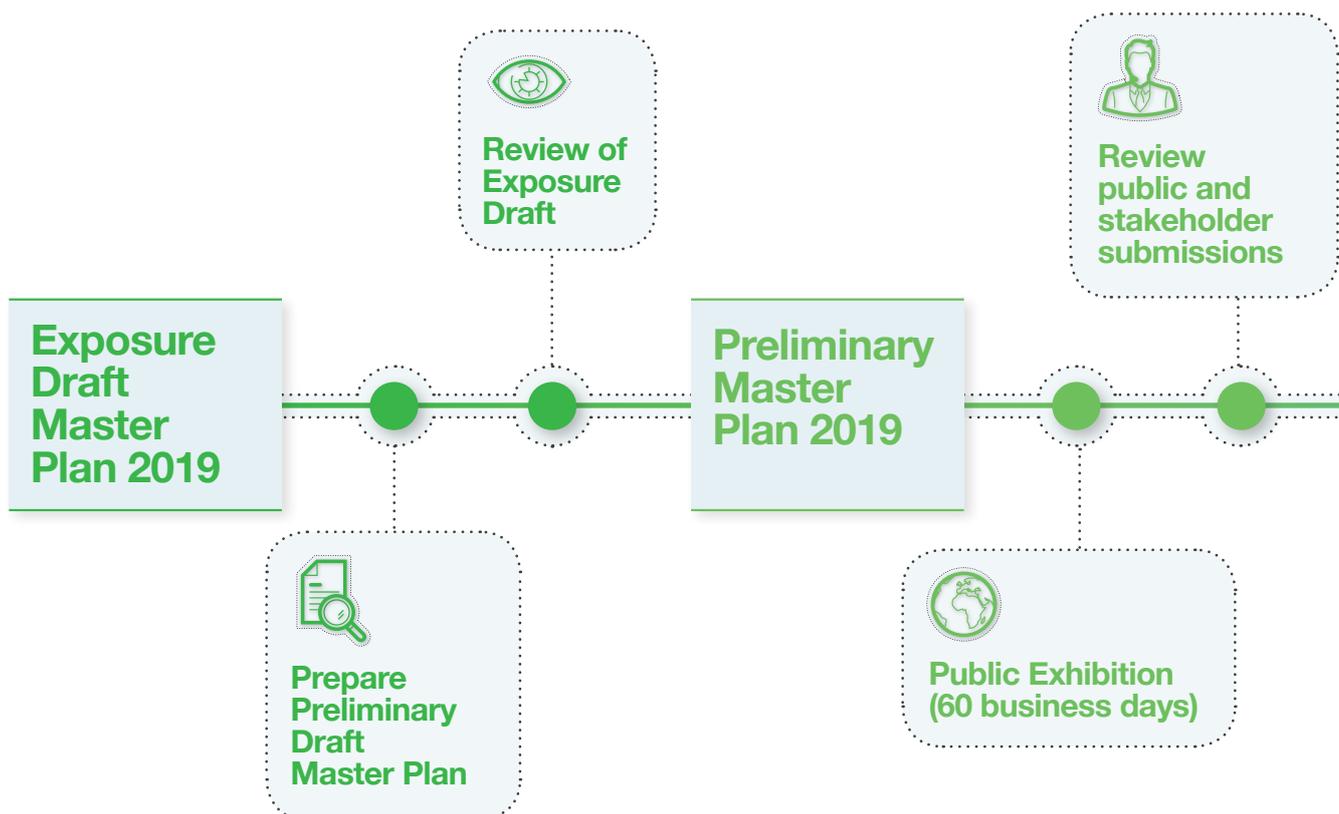
The Airports Act is the principal legislation regulating the ownership, management and operation of leased Commonwealth airports. Parts 5 and 6 of the Airports Act prescribe controls over land-use planning, development control and environmental management at airports. The key controls required under the Airports Act comprise:

- An airport master plan
- A major development plan (MDP) for any major airport developments
- Building activity approvals

4.1.1.1. Master Plan Requirements of the Act

Under Section 70 of the Airports Act, each airport is required to produce a final Master Plan. The final master plan is one that has been approved by the relevant Commonwealth Minister. Prior to submitting a Master Plan to the Minister, the airport is required to consider all written feedback received during a 60-business day public exhibition period.

The Master Planning Process



In accordance with Section 70 of the Airports Act, there must be a final Master Plan that has been approved by the Commonwealth Minister for Infrastructure, Transport and Regional Development. Subsequent developments at the airport must be consistent with the final Master Plan.

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 eight 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

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

Recent amendments to the Airports Act now require Adelaide Airport's Master Plan to be prepared every eight years instead of every five years. When approved by the Commonwealth Minister, the Master Plan 2019 will replace the Master Plan 2014.

The master planning process for airports as defined in the Airports Act is illustrated in Figure 4-1.



Figure 4-1: The Master Planning Process

A key component of the Master Plan process is the requirement for extensive consultation with Commonwealth, State and Local Governments, aviation operators, airport tenants, and the community. A Preliminary Draft Master Plan is released for a public exhibition period of 60 business days, where stakeholders and the general public can provide feedback.

Where possible, the concerns and issues raised during the public consultation period are incorporated into the Draft Master Plan that is presented to the Commonwealth Minister for consideration.

The Commonwealth Minister will consider:

- The extent to which the Master Plan meets the present and future requirements of civil aviation users of the airport, and other users of services and facilities of the airport
- The likely effect on the use of the land within the airport site and areas surrounding the airport
- The consultations undertaken in preparing the Master Plan and the outcome of the consultations
- The views of the Civil Aviation Services Australia (CASA) and Airservices regarding the safety and operational aspects of the Master Plan

4.1.1.2. Major Development Plan

It is important to note that once a Master Plan is approved by the Commonwealth Minister this does not provide automatic approval for development to occur. Section 90 of the Airports Act requires a major development plan (MDP) to be prepared prior to commencement of any development classified as a 'major development' under the Airports Act. Major developments include construction of a new runway or runway extension; construction of new buildings where the construction value exceeds a certain value; and development that is likely to have a significant environmental impact or significant impact on the local or regional community.

Under the Airports Act, an MDP is to be considered by the Minister following a 60-business-day public comment period. Section 91 of the Airports Act requires the MDP to be consistent with the approved master plan. Section 160 of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires advice to be sought from the Commonwealth Minister for the Environment for the adoption or implementation of an MDP.

4.1.1.3. Building Activity Approvals

Under the Airports Act and Airports (Building Control) Regulations 1996 (Airports Regulations), building activity approvals are required to be obtained from the Airport Building Controller (ABC) with advice from the Airport Environment Officer (AEO). Both positions are appointed by the DITCRD and are independent of AAL.

The consent of AAL is required before any approval can be given by the ABC. In considering its consent, which may be granted with conditions, AAL must ensure that the proposal is consistent with the approved Master Plan and associated Environment Strategy, and, where relevant, a MDP. AAL will assess the impact of any proposed activity on airport infrastructure, operations, and environmental controls.

4.1.2. Other Regulatory Frameworks

Although the Airports Act is the primary Commonwealth legislation that guides the airport planning, land use and development control at Adelaide Airport, there is a range of other legislation that are applicable and therefore must be considered, including:

- Airports Regulations 1997
- Airports (Building Control) Regulations 1996
- Airports (Control of On-Airport Activities) Regulations 1997
- *Adelaide Airport Curfew Act 2000*
- Airports (Environment Protection) Regulations 1997
- Airports (Protection of Airspace) Regulations 1996
- *Airspace Act 2007*
- *Aviation Transport Security Act 2004*
- *Civil Aviation Act 1988*
- Civil Aviation Regulations 1988
- Civil Aviation Safety Regulations 1998
- *Environment Protection and Biodiversity Conservation Act 1999*
- Environment Protection and Biodiversity Conservation Regulations 2000

4.1.3. National Airports Safeguarding Framework

The Commonwealth Government recognises that the current and future viability of aviation operations at Australian airports can be impacted by inappropriate developments in areas beyond the airport boundary.

In July 2012, the National Airports Safeguarding Advisory Group (NASAG, which comprises high-level Commonwealth, State and Territory transport and planning officials) prepared and released the National Airports Safeguarding Framework (NASF). The NASF aims to safeguard airports and the communities in their vicinity; and to develop, with State, Territory and Local Governments, a national land-use planning regime.

Chapter 12 describes how AAL implements NASF guidance in its planning.

A key component of the Master Plan process is the requirement for extensive consultation with the community.

4.2. State and Metropolitan Context

4.1.4. National Freight and Supply Chain Strategy

The Australian Government is seeking to improve freight and supply-chain efficiency and capacity and to reduce the costs of transporting goods. Airports are a key part of the freight and supply chain sector, which connects Australian industries, communities and regions, and international suppliers and consumers. Australia's freight task is expected to grow by around 50 per cent over the next two decades,

On 18 May 2018, the Council of Australian Governments' Transport and Infrastructure Council agreed a framework for developing a 20-year National Freight and Supply Chain Strategy. The Strategy will build on the outcomes of the recommendations of the Inquiry into National Freight and Supply Chain Priorities, which identified that land-use conflicts near airports can result in regulations that restrict access (including curfews and aircraft movement caps) which reduce efficiency and limit the amount of air freight that can be carried.

Air freight is important to many South Australian industries including manufactured goods, electronic, medical products and consumables. Most of Adelaide's air freight is carried in the cargo hold of passenger aircraft, with 63 per cent of domestic and 94 per cent of international air freight transported this way. Therefore, ensuring streamlined, efficient and timely processing of freight is a critical but often unheralded component of airport operations and contributor to the State's economy.

Chapters 7, 8 and 9 describe how AAL is aligned with the overarching intent of the National Freight and Supply Chain Strategy through the plans to consolidate and grow freight through Adelaide Airport, and continued developments of the Airport East Precinct.

State and Local Government land-use planning legislation and policy do not apply to Commonwealth land; however, the Airports Act and associated Regulations require that the Master Plan, where possible, describes proposals for land use planning and zoning in a format consistent with the State or Territory in which the airport is located. This Master Plan has considered State planning requirements and has used land use descriptions that are aligned as far as practicable to the South Australian planning system.

Consideration has been given to the following:

- *Development Act 1993* and Development Regulations 2008
- *Planning, Development and Infrastructure Act 2016*
- The Planning Strategy – 30 Year Plan for Greater Adelaide, 2017
- Integrated Transport and Land Use Plan 2015
- Relevant Development Plans and Council strategic documents

A comparison between the Commonwealth framework and the South Australian planning system is included in Figure 4-2.

The South Australian planning system recognises the importance of Adelaide Airport within the State and Metropolitan context, recognising the benefits of a city-based airport and the significant infrastructure investment on the site.

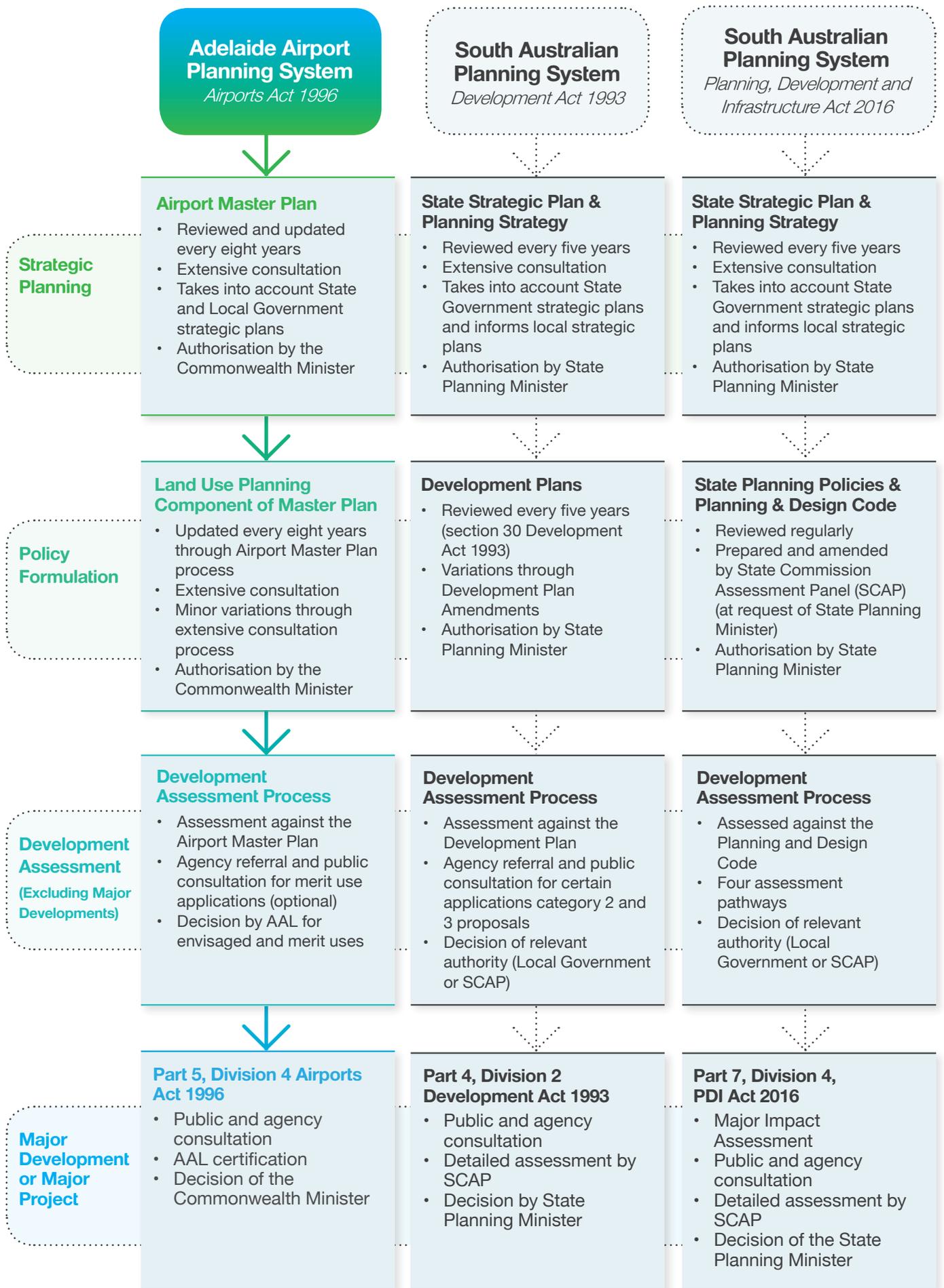
Most of Adelaide's air freight is carried in the cargo hold of passenger aircraft:

63%

Domestic air freight

94%

International air freight



Note* The *Development Act 1993* will be superseded by the *Planning, Development and Infrastructure Act 2016* by 2020

Figure 4-2: Comparison of Airport with State and Local Government Planning

4.2.1. South Australian Planning Context

As a major economic and employment generator, the growth of Adelaide Airport is inextricably linked to the development of South Australia and vice versa. Adelaide Airport's role in the strategic development of Adelaide and South Australia is addressed within several strategic plans that guide the future of the State.

4.2.1.1. Development Act 1993

Currently, the South Australian planning system is established under the *Development Act 1993* (Development Act) and associated Development Regulations 2008 (Development Regulations). The object of the Act is to provide for proper, orderly and efficient planning and development in the State.

Development which surrounds the airport can have significant impact on the function, safety and ongoing operations of the airport. The Development Act provides the mechanisms for safeguarding airport operations from inappropriate off-airport development. Among other aims, the Development Act provides for:

- The establishment of objectives and principles of planning and development
- A system of strategic planning governing development
- The creation of development plans with policies to guide and control development
- Appropriate public participation in the planning process and the assessment of development proposals
- The establishment of various decision-making bodies

4.2.1.2. Planning, Development and Infrastructure Act 2016

The South Australia Government is renewing the South Australian planning system.

The new *Planning, Development and Infrastructure Act 2016* (PDI Act) was passed by the South Australian Parliament in April 2016 and will gradually be implemented by July 2020. Once fully operational, the PDI Act repeals the Development Act.

The new planning system seeks to achieve better outcomes for South Australia's economy, environment and communities. The PDI Act applies to the use, development and management of land and buildings, rules with respect to the design, construction and use of buildings, and other initiatives to facilitate

the development of infrastructure, facilities and environments that will benefit the community.

The PDI Act recognises Adelaide Airport as essential infrastructure.

4.2.1.3. The 30-Year Plan for Greater Adelaide

The *30-Year Plan for Greater Adelaide* (30-Year Plan), first prepared in 2010 and later updated in 2017, provides directions for urban and regional development for business, industry, infrastructure provision, utility supply and government agencies. The 30-Year Plan provides a framework for how Adelaide can grow to become a more liveable, competitive and sustainable city. It guides the long-term growth of the city and its surrounds over the next 30 years.

The 30-Year Plan acknowledges Adelaide Airport as a key economic and employment cluster. It also recognises the airport's potential to maximise the economic benefits of export infrastructure through its strategic employment site and land which have direct access to major freight routes.

The policy directions of promoting infill development along main roads (including those close to the airport and under flight paths) and further urban regeneration and consolidation within the surrounding suburbs is anticipated to increase the number of people living near the airport who may be affected by its ongoing operations. However, the 30-Year Plan does recognise the need for all sensitive land uses permitted adjacent to airports and under flight paths to mitigate the impact of noise and air emissions.

4.2.1.4. Integrated Transport and Land Use Plan 2015

The Integrated Transport and Land Use Plan 2015 identifies key transport challenges facing South Australia. This includes the provision of efficient connections for freight movement as well as the development and maintenance of a planning system that ensures integrated transport and land use.

The Plan identifies actions for the entire State, including actions that consider Adelaide Airport.

A key action is for the State Government to work with Local Governments to implement NASF within council Development Plans to ensure the future of Adelaide, Edinburgh and Parafield Airports.

4.3. Local Government Context

4.2.1.5. Infrastructure SA

The South Australian Government has recently established Infrastructure SA as an independent body to develop a 20-Year State Infrastructure Strategy and a 5-Year Infrastructure Plan for South Australia.

4.2.1.6. Integrated Movement Systems: Policy Discussion Paper 2018

The State Department of Planning, Transport and Infrastructure (DPTI) published the Integrated Movement Systems Policy Discussion Paper in 2018.

The Discussion Paper considers the key issues and opportunities associated with managing the interfaces between South Australia's transport systems and surrounding land uses. It focuses on the role the planning system can play in achieving optimal land use and development outcomes that complement and support the function of all transport modes. The Discussion Paper acknowledges that the State Government's strategic transport facilities and networks, including major airports (and associated flightpaths) are critical in connecting people with places and goods with markets. It states that planning policies should protect the major transport corridors and strategic transport facilities from incompatible development to ensure their ongoing, uninterrupted and efficient operation.

The Discussion Paper supports an improved approach to the planning policy in areas surrounding Adelaide Airport to protect ongoing aviation operations in line with NASF.

4.2.1.7. Productive Economy: Policy Discussion Paper 2018

The Productive Economy Policy Discussion Paper investigates the key issues and opportunities associated with enhancing South Australia's economic competitiveness as the State moves into its new planning system. In particular, it focuses on the role that the planning system can play in protecting and growing key industries; linking people to jobs, goods and services; providing infrastructure to enhance liveability; and facilitating greater opportunities for innovation.

As a key gateway for South Australia, Adelaide Airport provides critical infrastructure to support the growth of new industries as well as existing key industries such as primary production, tourism, mining and defence.

Adelaide Airport is located within the Local Government area of the City of West Torrens, with a small portion being in the City of Charles Sturt. The southern boundary of the airport is adjacent to the City of Holdfast Bay.

AAL works with the Local Government authorities to provide compatible land uses and efficient transport networks within the airport and the surrounding areas. The planning for Adelaide Airport has regard for the planning frameworks of the Local Government authorities.

4.3.1. City of West Torrens 'Towards 2025' Community Plan 2014

The City of West Torrens 'Towards 2025' Community Plan is a strategic management plan that helps to achieve the community's vision of becoming the best place to live, work and enjoy.

Adelaide Airport is recognised as the largest employment base in the City of West Torrens. The Community Plan considers furthering community growth and development through various strategies which include encouraging economic growth and productivity; and facilitates retail, commercial and industrial activity that is compatible with neighbouring land uses.



4.3.2. West Torrens Council Development Plan

Adelaide Airport is located within the *West Torrens Council Development Plan* (consolidated 12 July 2018) which covers the entire City of West Torrens. The Development Plan is updated regularly to reflect current policy directions and best planning practices. Adelaide Airport is currently identified in an 'Airfield Zone'.

The primary objective of the Airfield Zone is "A zone primarily accommodating aircraft operations, passenger terminals, airport and aviation-related light industrial, service industrial, warehouse and storage purposes".

The objectives are supported by a 'Desired Character Statement' for the Airfield Zone which seeks:

- A range of services and facilities necessary for the safe, convenient and efficient operation of aviation activities at Adelaide Airport
- To continue to accommodate a range of airport and export-related industrial and commercial uses, and recreational activities of an open character on land reserved for long term aviation needs
- Development compatible with the principle aviation function of the airport and maintaining the long-term operational and safety needs of the airport
- Development promoting the economic improvement of the State and the City of West Torrens by maintaining the airport as the international, national and regional gateway to South Australia; enhancing the airport as a major element of public infrastructure; and facilitating the movement of time sensitive freight and passengers by infrastructure improvements
- The adoption of adequate separation distances between non-aviation and aviation development on airport land, and between development on airport land and off-airport uses
- Recognition of the ongoing commitment for stormwater harvesting on the Adelaide Airport site
- The zone provisions also contain a number of Principles of Development Control that support the attainment of the Objectives and Desired Character Statement; recognising the long-term operational, safety and commercial aviation requirements of Adelaide Airport; and providing guidance for building heights within the airspace surrounding the airport (through the 'Building Near Airfields' General Section module)

The overall planning policy provisions for the Airfield Zone, although generic in nature, remain generally compatible with the land use framework in this Master Plan.

The zoning and land uses surrounding the airport are detailed in Chapter 7.

4.3.3. City of Charles Sturt Development Plan

The Adelaide Airport site is located directly to the west of the City of Charles Sturt, with a small portion within the Airfield Zone of the City of Charles Sturt. The adjoining zones include the Coastal Open Space and Adelaide Shores Zones, with areas of the Residential Zone north of the West Beach Parks complex.

The zoning surrounding the airport site is generally compatible with the Master Plan.

4.3.4. City of Holdfast Bay Development Plan

The Adelaide Airport site is located directly to the north-east of the Holdfast Bay Council area. The adjoining zones include Residential and Open Space zones. These zones are located some distance south of the Runways Precinct, and south-west of the Morphett Precinct.

The zoning surrounding the airport site is generally compatible with the Master Plan.





5

Planning and Development Approach

5.1. Airport Vision

AAL's vision is "to be a top-tier airport business in Asia Pacific, recognised for delivering exceptional outcomes to its customers, partners, shareholders and community".

To realise this vision, AAL will consistently:

- Nurture strong relationships with stakeholders
- Offer a great customer experience
- Develop the expertise of its talented team
- Deliver high quality facilities and services that are regarded as best in class, safe, secure and sustainable
- Strive for innovative solutions and continuous improvement
- Partner responsibly with the community



5.2. Development Approach

Key focus areas for the development and execution of this Master Plan include: delivering a great customer experience; striving for innovative solutions; and achieving sustainable outcomes. These underpin the day-to-day operations of the airport and what AAL strives towards.

5.2.1. Customer Experience

AAL recognises that customer service is more than infrastructure, efficiency, cleanliness, people, ambience and retail. It encompasses the entire airport experience. This is evident in AAL's Customer Service Charter that is shown in Figure 5-1.

Airport customers – which include travellers, meet and greeters, business partners, stakeholders and employees – have unique demographics, needs, wants and expectations. In recognition of this, AAL has established a Promoting Airport Customer Excellence Working Group that includes representatives across the entire airport community.

Recent customer service initiatives at Adelaide Airport include:

- Obtaining certification from the Customer Service Institute of Australia
- Adelaide Airport's Ambassador Program, which has been operating for 13 years, was extended in November 2016 to include Mandarin-speaking volunteers who provide assistance and information to Chinese and other passengers in the international departures and arrivals areas
- Accessibility improvements for mobility-impaired customers
- Terminal events including live music performances and Adelaide Fringe exhibitions
- Daily parking customer survey

The customer journey starts before arriving at the airport and includes the experience from entering the Airport Business District all the way to boarding the aircraft. Opportunities to enhance the airport's customer experience are considered at all stages of planning, design and operations. AAL has established service policies, protocols and guidelines for service delivery to make the whole experience seamless, connected and consistent. The key areas for prioritising customer initiatives and company-wide projects are shown in Figure 5-2.

For more than 10 years, Adelaide Airport has participated in the Airport Council International's passenger satisfaction benchmarking programme, Airport Service Quality (ASQ). ASQ enhances AAL's understanding of passengers' needs, priorities and expectations. The monthly survey results allow AAL to monitor performance over time, which assists in prioritising improvements to customer services and

Our Customer Service Charter

Your experience made easy

- We will provide services and facilities that are Top Tier within Asia Pacific.
- We aim to entertain, delight and exceed your expectations.
- We will provide efficient, friendly and helpful services.
- We will make your experience as safe, seamless and comfortable as possible.
- We will assist you with the rules and regulations that affect us.

We are listening

- We welcome your feedback.
- We will continue to find better and more responsive ways to communicate with you.

Figure 5-1: Adelaide Airport Customer Service Charter

facilities. The global nature of the survey also permits benchmarking of performance against local and international peers.

Since commencing the programme, Adelaide Airport has consistently rated in the top three places among all Australian and New Zealand airports for overall customer satisfaction.

AAL regularly releases the quality of service report on the AAL website. The results of a recent report are shown in Figure 5-3. Customer feedback (through ASQ and other forms) also informs upgrade and development planning.

AAL recognises that Customer Experience is not just about the passengers. AAL also strives to ensure that businesses and their visitors have an exceptional experience through efficient land use planning, design and delivery of commercial developments.

Adelaide Airport participates in a global airport benchmarking passenger survey program - Airport Service Quality (ASQ). We also welcome customer feedback and are always happy to hear your thoughts on your experience at Adelaide Airport. An overview of our recent survey and feedback results can be seen on the next page.

Customer Experience Journey

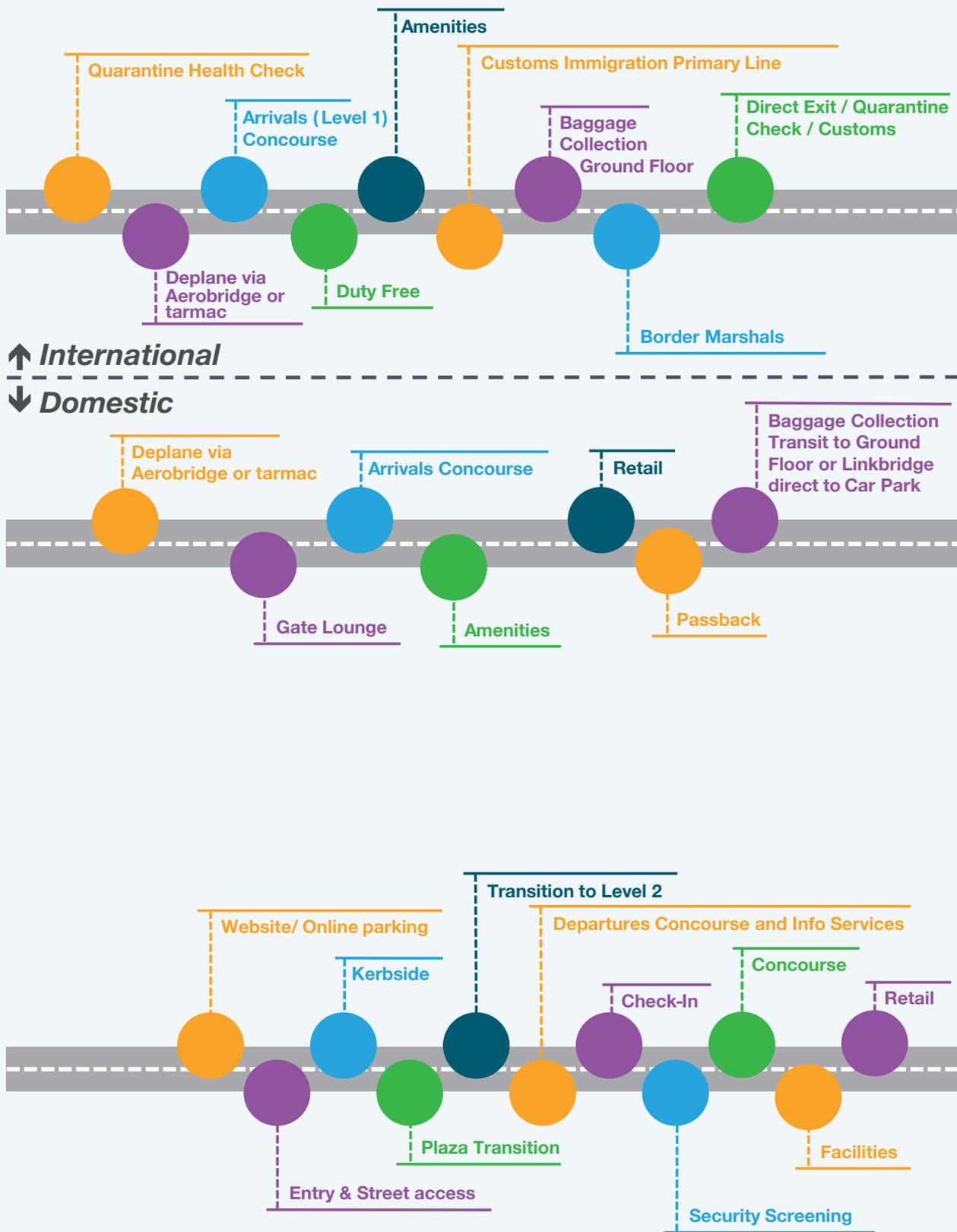
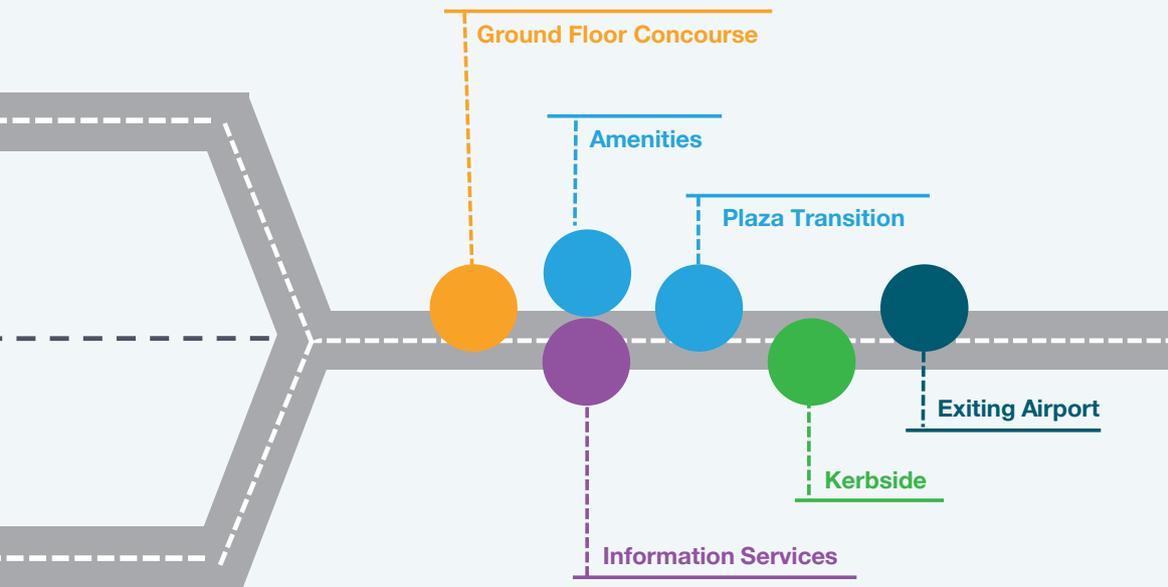


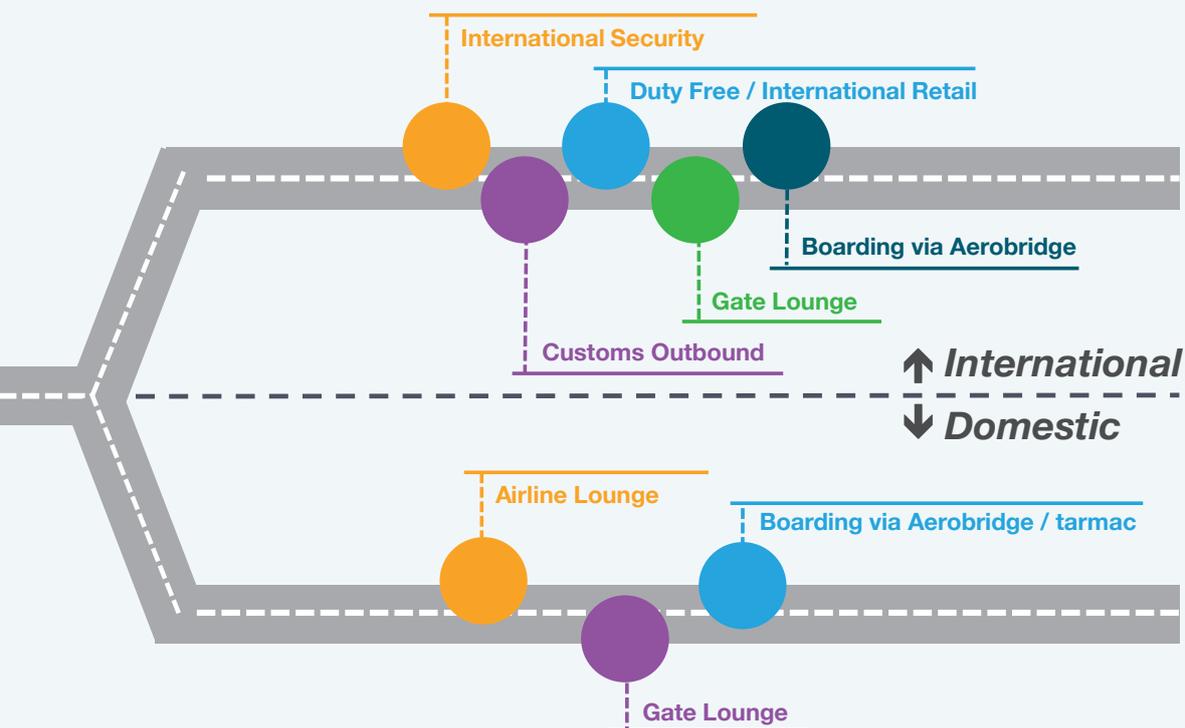
Figure 5-2: Customer Experience Journey

Arrivals



C5

Departures



Sample Quality of Survey Results

Airport Service Quality (ASQ)



Top 5 Key Drivers of Passenger Satisfaction (Rank of Most important)

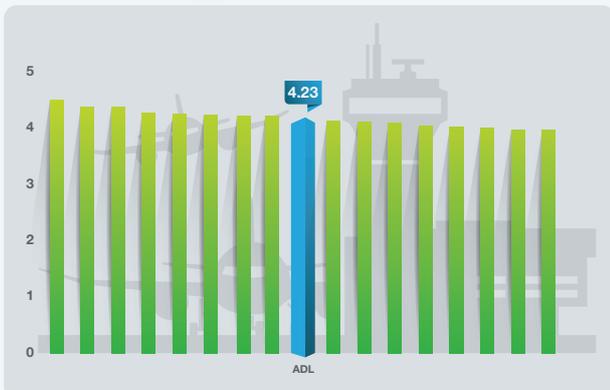
- 1 Waiting time in check-in
- 2 Ease of finding your way
- 3 Feeling of being safe and secure
- 4 Waiting time at security
- 5 Cleanliness of washrooms

How we have performed over time



* ASQ uses a 1 to 5 point scoring system.
1 = Poor 5 = Excellent

Our Performance in comparison to our peers



* ASQ uses a 1 to 5 point scoring system.
1 = Poor 5 = Excellent

What we are working on right now

- Terminal expansion project
- New taxi drop off area
- Security screening point improvements
- Plaza safety improvements
- Regional arrivals canopy

Figure 5-3: Quality of Service Report



Quality of Service Report Oct - Dec 2018

Customer Feedback

From the total number of passengers through the terminal

2,222,130



Oct 2018 – Dec 2018

We received 188 items of customer feedback

Complaints

162

Compliments

13

Enquiries

7

Suggestions

6

Average time to close out feedback: 13.8 days

To view our customer feedback and complaint handling process, please [click here](#).

- Excellent customer service from airport staff & volunteer Ambassadors
- Terminal cleanliness
- Solar panel installation on Terminal car park roof

- Ground transport drop off/ pick up area
- Security procedures at screening point
- Comfort of seating areas

Social Media



10k

 Followers reached

Active conversations with our customers



199

36,909

Facebook Check-in
Oct 2018 - Dec 2018

“Great Airport with easy access to get in and out of 5 Stars!”

“Friendly staff and volunteer Ambassadors”

“Really disappointing food options”

“Improve the drop off and pick, including for taxis”

C5





5.2.2. Innovation

Technologies and other innovations will improve customer experience, optimise operations and reduce disruptions. Technologies that are already being implemented at Adelaide Airport include the progressive upgrade from conventional check-in counters to self-service check-in and bag drop, use of permanent bag tags to replace paper bag tags, and SmartGate automated self-service border control services.

The development and implementation of this Master Plan is not just about building infrastructure, but also about thinking innovatively to deliver solutions that are right for AAL customers, inclusive of passengers, tenants, airlines and commercial businesses located at the airport.

Technologies that may be considered in the future include:

- Use of smart phones to guide passengers through the entire travel journey, from when they leave home to when they are at the airport
- Permanent bag tags embedded in passenger luggage that facilitate:
 - Decentralised bag drop, such as a drive-through at the airport or at hotels or in the city, to allow passengers to arrive at the terminal with bags already checked-in and unencumbered by luggage
 - Bag factory, allowing luggage to be checked-in at any time and screened and stored until ready for loading on aircraft
- Combined security and emigration walk-through screening that applies biometric technology
- Self-boarding or boarding by autonomous shuttles for aircraft departures
- Baggage on-demand, which provides smart phone notification when bags are ready for collection and allows bags to be delivered direct to the customer within the terminal or to the customer's destination (e.g. house or hotel)
- Autonomous vehicles within and around the Airport Business District

Innovation is not just centred on passenger processing; this approach is also applied to AAL's commercial endeavours. AAL continues to work with current and potential tenants to integrate innovative developments across the Airport Business District. This has been showcased with the state-of-the-art pathology laboratory which has recently opened in Burbridge Business Park and the new AFL Max facility which is the first of its kind in Australia and will use leading edge technology to help train young footballers.

The Adelaide Airport of tomorrow will feature new technologies and processes that make the customer experience faster, easier and more intuitive.



5.2.3. Sustainability

AAL is a sector leader in global airport sustainability and is committed to sustainable business practices to ensure a healthy and safe environment for its employees, passenger and airline customers, and the community.

AAL's ongoing work in the core areas of environment, social and governance has been recognised through Adelaide Airport being ranked number one in the Global Real Estate Sustainability Benchmark (GRESB) for participating airports in 2017 and 2018, establishing itself as a leader in sustainability both within Australia and internationally.

In December 2018, AAL signed a \$50 million seven-year Sustainability Performance Linked Loan with ANZ – the first of its kind in Australia – that incentivises a borrower to further improve its performance against a set of environmental, social and governance criteria.

Receiving recognition as a sustainability leader in its sector reflects AAL's success in operating a sustainable business that is responsible and trusted by all stakeholders, including the community, its customers and shareholders.

AAL has adopted the principles and concepts of the International Integrated Reporting Framework. This framework seeks to bring greater cohesion and efficiency to the reporting process through an 'integrated thinking' approach and focuses on creating value over time. As part of this, in 2018 AAL completed an inaugural materiality assessment based on guidance provided by the Global Reporting Initiative standards. This assessment not only gauged how stakeholders view AAL in terms of environment, social and governance elements, feedback also helped identify potential risks and opportunities including emerging issues that could impact AAL's business success and stakeholder relationships in the future.

AAL's Sustainability Policy and Corporate Sustainability Strategy is the foundation for AAL's sustainability journey. Together, they provide a documented commitment to sustainability that is core to business planning, developments and operations. Further information on AAL's approach to sustainability is provided on the Adelaide Airport website www.adelaideairport.com.au

5.3. Development Objectives

Taking into account AAL's vision for the airport and key development focus areas, the following development objectives underpin the overall development plans in this Master Plan. These objectives also guide specific future investments in facilities and infrastructure across the Airport Business District.



Contribute to Adelaide and South Australia's economic growth



Work closely with airlines, government, and the community



Embed sustainability in all that we do



Prioritise customer experience



Protect the safety and security of assets and people



Deliver innovative solutions for all airport users



Deliver infrastructure to support operations and the commercial viability of the airport

Figure 5-4: Development Objectives

5.4. Consultation and Engagement

5.4.1. Introduction

The successful operation and development of Adelaide Airport depends on the continued engagement with a wide range of stakeholders who are impacted by, and/or who impact, the airport.

In 2012, the Commonwealth Government released its Airport Development Consultation Guidelines. The Guidelines state that an effective consultation program is one that ensures that a proposal has been fully explored, concerns identified, and alternatives considered. However, this may not necessarily mean that all interested parties will be satisfied with the outcome.

Consistent with the Guidelines, AAL undertakes a range of ongoing consultation and education mechanisms to:

- Inform stakeholders and the community about on-airport land use, planning and developments
- Seek input on alternative approaches and options
- Provide information about what AAL has done, is doing, and plans to do
- Meet legal and regulatory obligations
- Provide stakeholders with the opportunity to influence the views of key decision makers

AAL is committed to ongoing and collaborative engagement with the community and stakeholders in relation to the planning, development and operations of Adelaide Airport. Stakeholder and community input is an important part of the Master Plan process.

5.4.2. Stakeholder Consultation

AAL's approach to consultation is focused on creating robust, transparent and collaborative communications. AAL uses creative, innovative and engaging communication techniques to interact with the community.

Adelaide Airport continues to engage with local communities surrounding the airport through a range of committees and forums.

Ongoing consultation enables AAL to engage with Commonwealth, State and Local Government authorities, aviation operators, airport tenants and the community through a range of forums. This currently includes the following:

5.4.2.1. Adelaide Airport Planning Coordination Forum

The Planning Coordination Forum (PCF) fosters high level strategic discussions between AAL and Commonwealth, State and Local Government representatives to improve the coordination of planning for the Airport Business District and surrounding areas.

5.4.2.2. Adelaide Airport Consultative Committee

The Adelaide Airport Consultative Committee (AACC) which includes local community representatives and key government and regulatory stakeholders is a forum where issues relating to the operation of the airport and potential effects on the local community can be raised. This includes topics such as aircraft noise, car parking, traffic access, environment and sustainability, bike-path access and commercial developments. The outcome of these community discussions informs the development of the Master Plan and associated Environment Strategy.

5.4.2.3. Adelaide Airport Technical Working Group

The Adelaide Airport Technical Working Group (AATWG) is a sub-committee of the AACC that provides a forum for AAL, Airservices and other key stakeholders to evaluate:

- Operationally required changes
- Environmental impacts of aircraft operations
- The impacts of proposed major developments on air traffic control
- Opportunities to improve aircraft noise outcomes for the community



5.4.3. Master Plan Consultation

This Master Plan has been developed in consultation with a wide range of stakeholders. Throughout this process, AAL has considered the feedback received and, where possible, sought to address the concerns and issues raised.

5.4.3.1. Development of the Master Plan

AAL has undertaken extensive consultation for the preparation of this Master Plan. This has included:

- The regular PCF and AACC meetings which have provided extensive feedback on airport planning considerations
- Stakeholder workshops to explore the planning elements detailed in the Master Plan
- Briefings which have been conducted with relevant State Government agencies, Local Government, aviation industry stakeholders and consultation groups
- Release of an exposure draft version of the Master Plan to key stakeholders including the State Department of Planning, Transport and Infrastructure, Commonwealth Department of Infrastructure, Transport, Cities and Regional Development, Department of the Environment and Energy, Airservices, CASA and airlines

5.4.3.2. Release of the Preliminary Draft Master Plan for Public Comment

As required by Section 79 of the Airports Act, the Preliminary Draft Master Plan is available for public comment for a period of 60 business days. Access to the Preliminary Draft Master Plan for public comment has been advised and provided through:

- Publishing a newspaper notice inviting members of the public to provide written comments
- Making copies available for inspection and purchase at Adelaide Airport
- Providing an electronic copy for viewing and download on the Adelaide Airport website, www.adelaideairport.com.au/masterplan
- Making copies available for inspection at surrounding Local Governments

In accordance with the Airports Act, prior to the Master Plan being advertised for public comment, AAL has advised the following persons of its intention to give the Commonwealth Minister a Draft Master Plan:

- The Minister of the State in which the airport is situated with responsibility for town planning or use of land
- The authority of that State with responsibility for town planning or use of land
- Each Local Government body with responsibility for an area surrounding the airport

To support the release of the Preliminary Draft Master Plan for public comment, AAL will undertake the following activities:

- Face-to-face engagement activities
- Digital engagement through social media
- Information on the airport's website
- Provision of supporting information covering key matters such as aircraft-noise management, safeguarding airport operations, land use and commercial development, and the environment
- Briefings to key stakeholders and community groups
- Availability of copies of Master Plan 2019 (hard copies and electronic)

5.4.3.3. Public Comment Submissions

Public comment submissions are to be made in writing and sent to Adelaide Airport before close of business on **28 October 2019**.

Master Plan 2019 Submission

Adelaide Airport Limited
1 James Schofield Drive
Adelaide Airport SA 5950

Email: aamasterplan@aal.com.au

In accordance with the Airports Act, AAL must consider submissions received during the public comment period. Where possible, the concerns and issues raised will be incorporated into the Draft Master Plan that will be presented to the Commonwealth Minister for consideration.



5.4.3.4. Submission of the Draft Master Plan to the Commonwealth Minister

As required by the Airports Act, the submission of the Draft Master Plan to the Commonwealth Minister will be accompanied by the following materials:

- A copy of each written comment received during the public-comment period
- A written certificate signed on behalf of AAL, containing:
 - A list of names of the people or organisations that provided written comments to the Preliminary Draft Master Plan
 - A summary of the comments received
 - Evidence that AAL has given due regard to those comments

5.4.3.5. Publication of the Final Master Plan

In accordance with Section 86 of the Airports Act, AAL will undertake the following notifications following approval of the Master Plan by the Commonwealth Minister:

- Publish a newspaper notice advising that the Adelaide Airport Master Plan 2019 has been approved
- Make copies of the Master Plan 2019 available for inspection and purchase at Adelaide Airport
- Provide an electronic copy of the approved Master Plan for viewing and download on the Adelaide Airport website, www.adelaideairport.com.au/masterplan



6

Aviation Forecasts

6.1. Introduction

Passenger and aircraft movement forecasts fundamentally influence the development and timing of infrastructure. To ensure that planned development and infrastructure can adequately accommodate aviation growth, forecasts have been prepared for annual movements as well as for peak-period demand.

The timing of specific development is informed by comparing the forecast peak-period demand to the capacity of each infrastructure element (such as check-in, security screening and aircraft parking).

Modelling is undertaken for high, central and low-growth scenarios to ensure planning is adaptable to actual growth. The main assumptions that vary are those related to estimates of Gross Domestic Product (GDP) and airfares.

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

Tourism Futures International (TFI), which specialises in aviation, tourism and travel forecasting, has prepared the long-term passenger and aircraft movement forecasts for Adelaide Airport.

6.2. Overview

Snapshot of Aviation Forecasts

Passengers

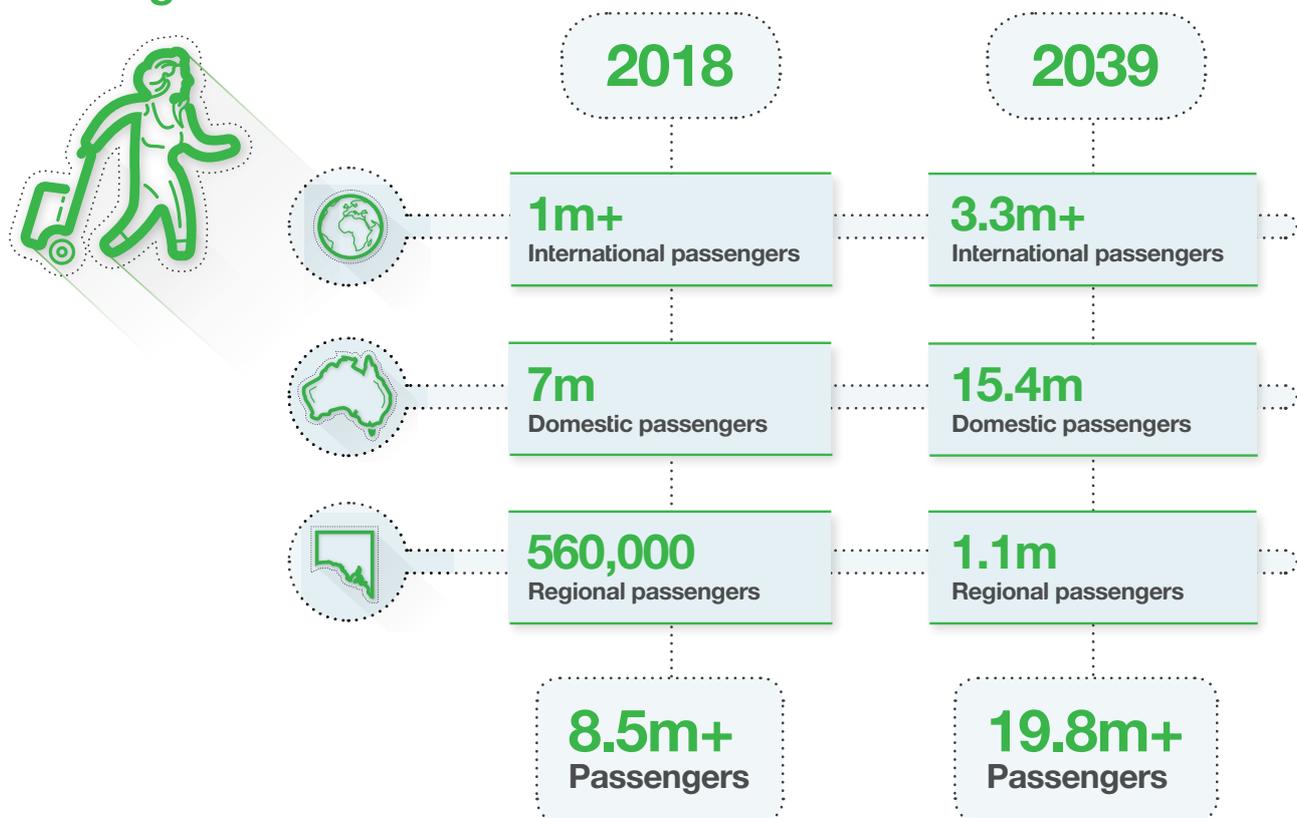
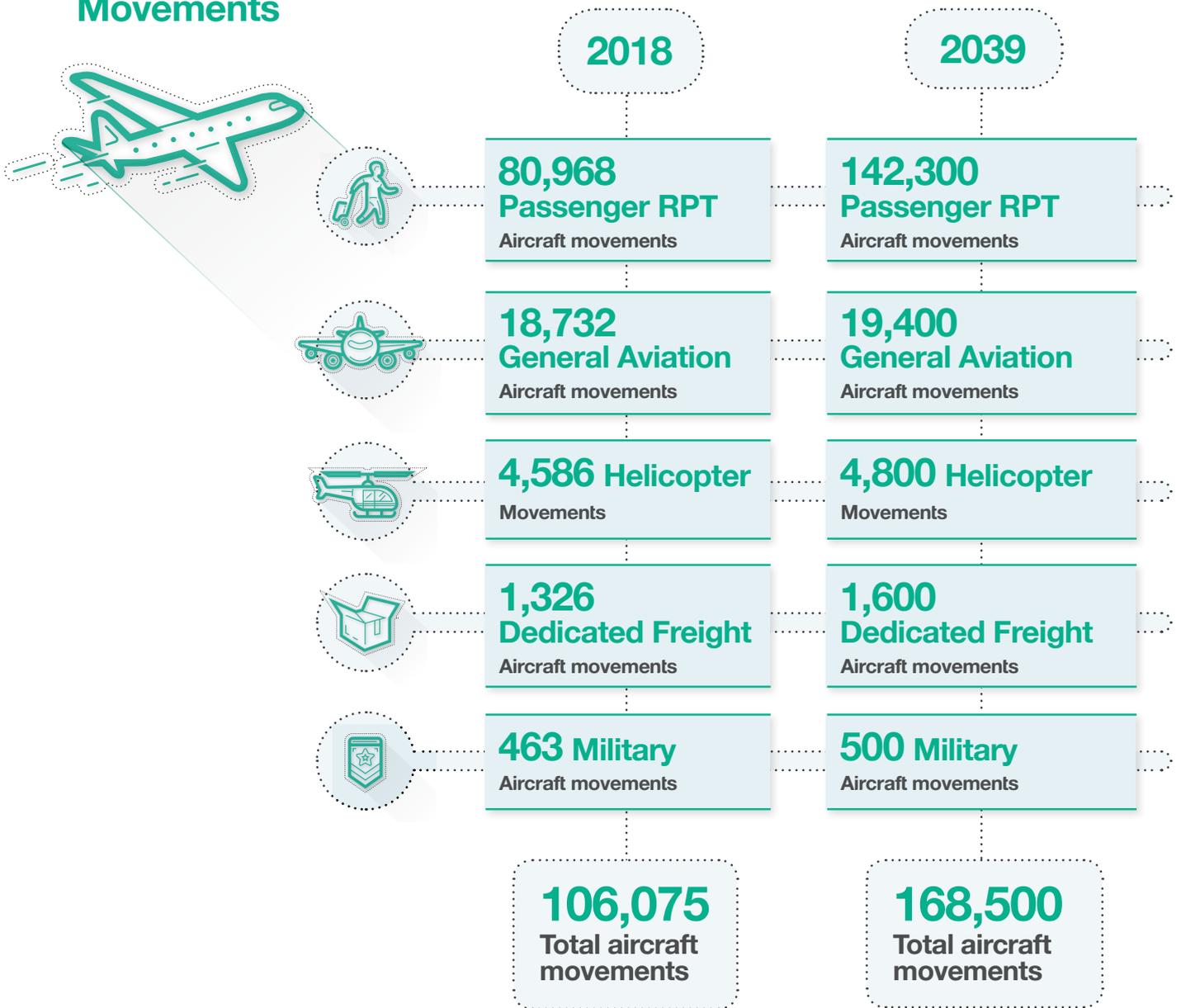


Figure 6-1: Snapshot of Aviation Forecasts

Aircraft Movements



C6

Freight



6.3. Forecasting Approach

The aviation forecasting approach has used top-down econometric modelling to determine air passenger forecasts. Aircraft forecasts were prepared using the passenger forecasts and the average numbers of passengers per movement (a movement being a take-off or landing of an aircraft). Passengers per movement depend on aircraft type, passenger-load factors and seating density.

Many factors influence the growth of passenger movements at an airport. These include:

- Economic factors (such as the incomes of travellers or potential travellers, the price of air transport and ground component of travel and exchange rates)
- The competitiveness (quality, product attributes and price) of a destination compared to alternative destinations
- The supply of airline services (frequency, reliability and quality of service)
- Visitor promotion by governments, airlines and industry bodies

- Demographic factors such as population growth and composition, consumer tastes and available time for travel
- One-off factors and shocks: these include the travel impacts of events such as the Olympics, September 11, the collapse of an airline such as Ansett and health concerns

While all types of factors have an influence on demand, only some can be measured and factored into the type of modelling generally undertaken in forecasting.

Key drivers for international traffic include international economic and population growth, exchange rate movements, movements in travel costs and airline capacity developments.

For the domestic and regional markets, drivers include Australian and South Australian economic and population growth, mining developments, movements in domestic travel costs and airline capacity developments.

The forecasting approach is outlined in Table 6-1.

TASKS	COMPONENTS
Segmentation International, National and State/Local Drivers	<ul style="list-style-type: none"> • Global economic factors • Exchange rates • Oil prices • Regulatory factors • Market growth • Australian and State economic factors • Demographic factors • Airline capacities • Travel costs and fares • Infrastructure
Market Analysis	<ul style="list-style-type: none"> • Review of historical data and trends in passenger and aircraft movements • Review and analysis of current airline schedules, general aviation and business environments • Assumptions about future capacity, as well as identifying qualitative factors that may influence movements • Review of official tourism forecasts for Australia and internationally
Model Development	<ul style="list-style-type: none"> • Linking drivers of traffic which were identified for international and domestic travel: <ul style="list-style-type: none"> – Macro models linking drivers and traffic – Micro models based on extensive statistical analysis and published studies – Final model outcomes (iterative process) • Modelling of typical 'busy day' in 2039
Review Risks/ Sensitivities	<ul style="list-style-type: none"> • Review key drivers for international traffic (international economic and population growth, exchange rate movements, movements in travel costs and airline capacity developments) • Review domestic market drivers (Australian and South Australian economic and population growth, mining developments, movements in domestic travel costs and airline capacity developments)

Table 6-1: Forecasting Approach



Several data sources have been used as inputs into forecasting the number of international passengers and aircraft movements; and the number of domestic passengers and movements. These are described in Table 6-2.

Many factors that influence passenger growth are unpredictable. These include diverging views on the future direction and impact of factors such as interest rates, oil prices and population growth rates.

In response, the forecast model varies assumptions to produce upper and lower passenger estimates as well as a 'central' forecast. The 'central' forecast has been used to support the planning throughout this Master Plan 2019.

The main assumptions include:

- Economic forecasts for South Australia's Gross State Product (GSP), Australia's Gross Domestic Product (GDP) and the Organisation for Economic Co-operation and Development's (OECD) GDP
- Airline capacity
- Aviation industry supply inclusive of air services, pilots and airport capacity will not impede or limit growth in the long term
- Governments' policy responses to global warming will lead to an increase in fares of around 0.25 to 0.5 percentage points per year (in inflation-adjusted terms) but not to restrictions on travel
- Mining growth will continue in South Australia, supported by continued demand from China

CATEGORY	DATA SOURCES
International Passenger Forecasts and Movements	<ul style="list-style-type: none"> • Australian Bureau of Statistics (ABS) collection of overseas arrivals and departures <ul style="list-style-type: none"> – This information is provided by purpose of travel for each Australian gateway and was used to examine markets for visitor arrivals and destinations for Australian residents travelling overseas • Bureau of Infrastructure, Transport and Regional Economics (BITRE) publication of International Scheduled Air Transport <ul style="list-style-type: none"> – This information is based on data provided by international airlines. It includes aggregate airport passenger movements and city pair information • International Visitor Survey (IVS) which is compiled by Tourism Research Australia (TRA) <ul style="list-style-type: none"> – This survey of international visitors to Australia is used to identify characteristics of the visitor markets including those that visit Adelaide by port of arrival and departure
Domestic Passenger Forecasts and Movements	<ul style="list-style-type: none"> • BITRE publication of Australian Domestic Airline Activity <ul style="list-style-type: none"> – This information includes the passengers, aircraft movement and freight for the top routes. This data is published as traffic on-board by stages and includes all traffic on each flight stage between two directly connected airports; and thus, includes domestic transit passengers • BITRE publication of Air Transport Statistics: Airport Traffic Data <ul style="list-style-type: none"> – This information contains a time series of annual airport traffic data for Australian airports receiving more than 7,000 revenue passenger movements annually. This includes international, domestic and regional airline data • National Visitor Survey (NVS) compiled by TRA <ul style="list-style-type: none"> – This is a survey of Australian travelling within Australia and to overseas destinations. It details the demographic and other characteristics of Australian travellers

Table 6-2: Data Sources to Predict Forecast Movements



6.4. Recent Performance

From a global perspective, the evolution of low-cost carriers and technological advances has led to a reduction in real airfares, which has in turn stimulated air-traffic growth. The liberalisation of air rights has encouraged growth in air travel and improved tourism and trade ties between nations. Global demand for air travel over the next 20 years is forecast to double, with the biggest growth area being the Asia-Pacific region.

Airports globally are competing for next-generation aircraft, many of which are being delivered to growing airline markets in Asia and the Middle East.

Higher oil prices have in the past slowed aviation growth. However, increased fuel prices have led to aircraft manufacturers and airlines introducing more fuel-efficient aircraft which has also enabled more direct routes.

Since the privatisation of Adelaide Airport in 1998, the airport has experienced significant growth. Growth in global aviation – coupled with new facilities, and new airline routes – has contributed to passenger movements more than doubling over the past 20 years. Passengers have increased from almost 4.0 million in 1998 to 8.5 million in 2018.

Since the Master Plan 2014, further connections to markets in Asia and the Middle East have been introduced. They now account for almost 90 per cent of international flights (59 per cent and 28 per cent, respectively).

The main international passenger routes in 2018 were to/from the following regions:

- South East Asia accounting for 41 per cent of passengers: Singapore Airlines, Malaysia Airlines and Jetstar provide services to/from this region
- The Middle East accounting for 32 per cent of passengers: two airlines, Emirates and Qatar, provide services via the Middle East mainly for the Adelaide/Europe market
- North East Asia accounting for 17 per cent of passengers: Cathay Pacific and China Southern serve Hong Kong and China
- New Zealand and the Pacific accounting for 10 per cent of passengers: Air New Zealand and Fiji Airlines provide these services

Adelaide Airport has continued to experience strong growth since the approval of Master Plan 2014. In this time:

- International passengers have grown from 806,000 in 2013 to 1 million in 2018 (equating to a five-year Compound Annual Growth Rate (CAGR) of 5.0 per cent)
- Domestic passengers have grown from 6.1 million in 2013 to 6.9 million in 2018 (equating to a CAGR of 2.5 per cent)
- Regional passengers have decreased from 584,000 in 2013 to 563,000 in 2018 primarily due to the decline in mining activity and associated business development
- The number of aircraft movements has remained relatively constant, with the increase in passenger movements largely due to increased size and seating capacity of aircraft being used

Domestic and regional passengers have increased with a CAGR of 2.2 per cent since the last Master Plan. This lower than expected growth was due mainly to the end of the mining investment boom in Australia and the decline in regional traffic.

Passenger aircraft movements between 2008 and 2018 are shown in Figure 6-2. Historical aircraft movement data is shown in Figure 6-3.

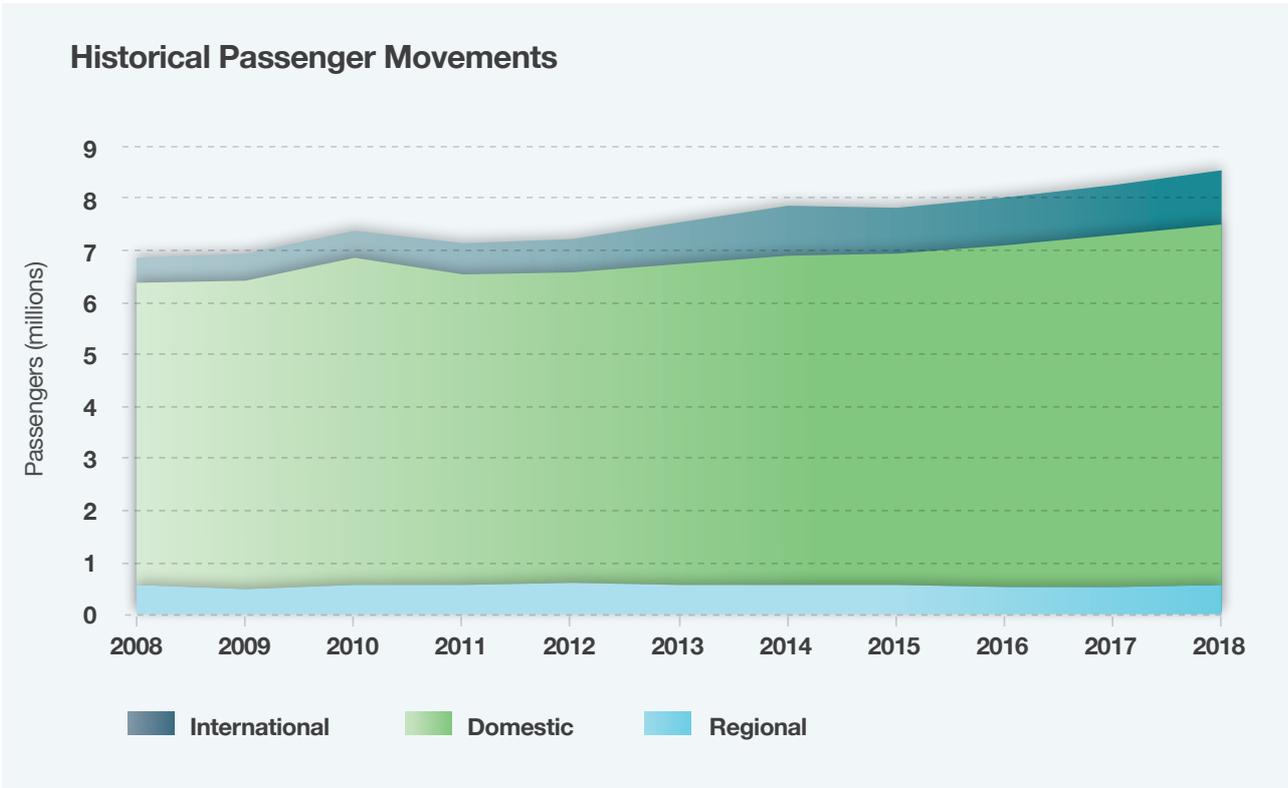


Figure 6-2: Historical Passenger Movements 2008-2018

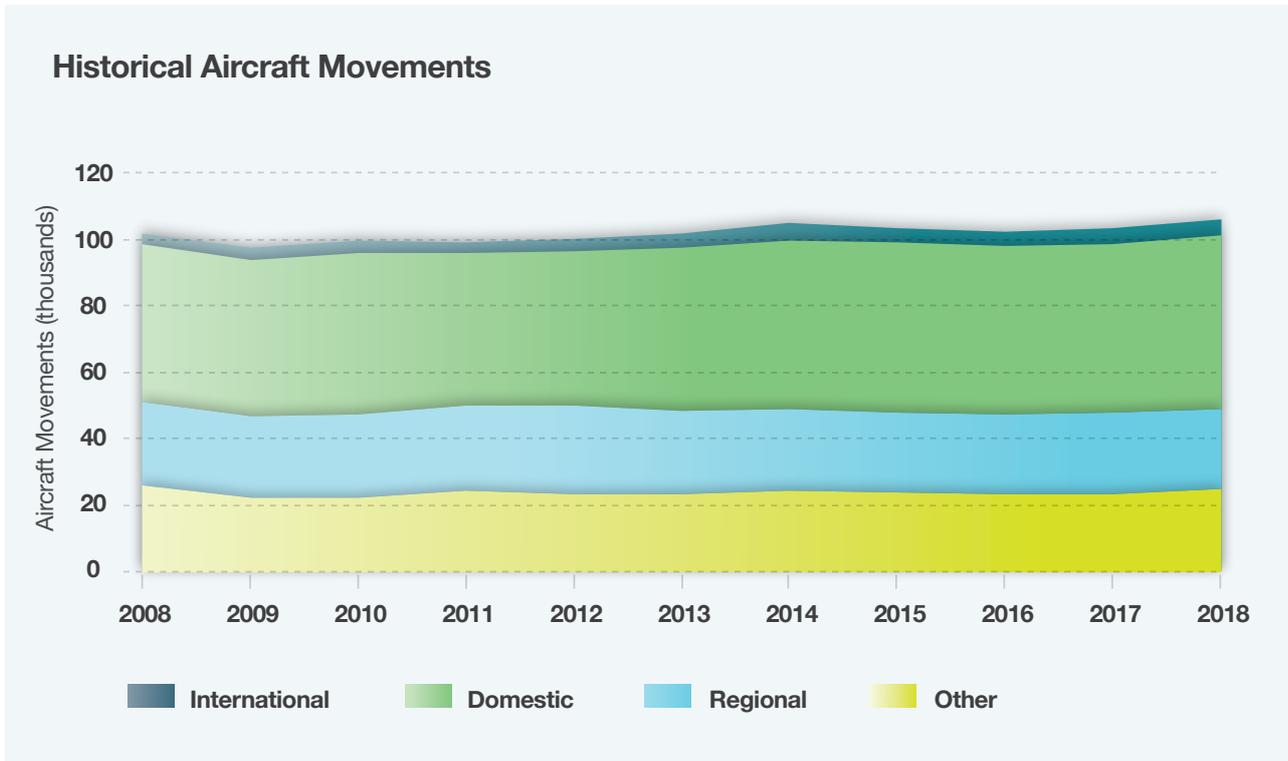


Figure 6-3: Historical Aircraft Movements 2008-2018

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The growth in passenger numbers passing through Adelaide Airport is influenced by local and global changes.

The international market is relatively small, compared to the domestic market. It is therefore highly sensitive to airline decisions to add or remove services. Each additional daily international service adds between nine and 13 per cent of additional international passengers to Adelaide. Changes to several

services have occurred in recent years, including the withdrawal of AirAsia X and a reduction in the frequency of Malaysia Airlines' services which resulted in a decline in international passenger movements during the financial years of 2015 and 2016. Since 2016, the entry of airlines such as Qatar, China Southern and Fiji Airways has boosted growth in passenger numbers, as these airlines open up new routes and connect more markets to Adelaide.

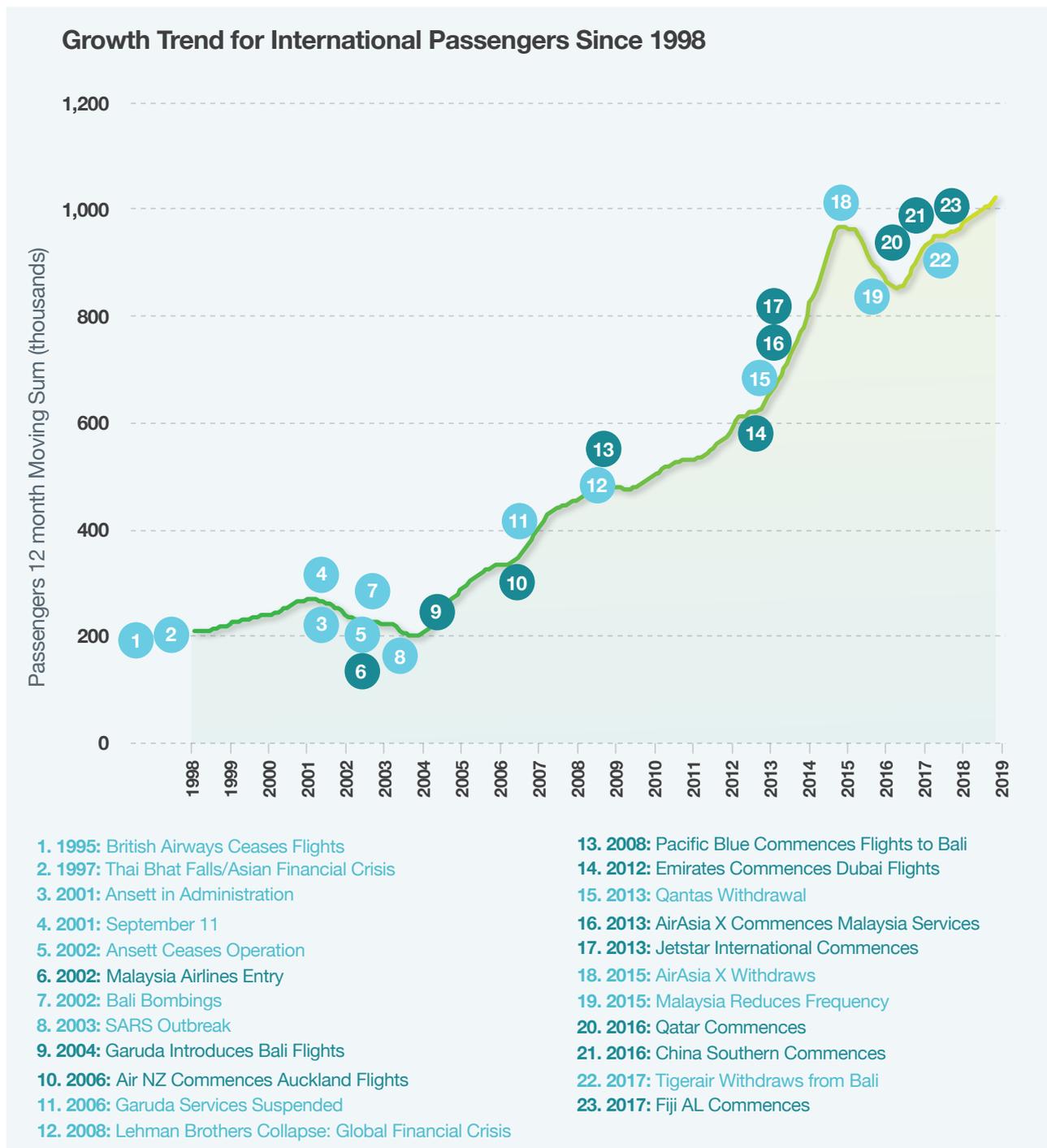


Figure 6-4: Growth Trend for International Passengers Since 1994



For the domestic market, growth in passenger numbers has been spurred by the entry of Jetstar and Tigerair into the Adelaide domestic market. The slower growth in recent years has been caused by the end of the mining boom, a slowing State economy and limited growth in domestic airline capacity.

Figure 6-4 and Figure 6-5 show the growth trends for international and domestic passengers since 1998 and the impacts of various global and regional issues influencing passenger growth and highlights some of the unpredictable influences on both international and domestic passenger movements over time.

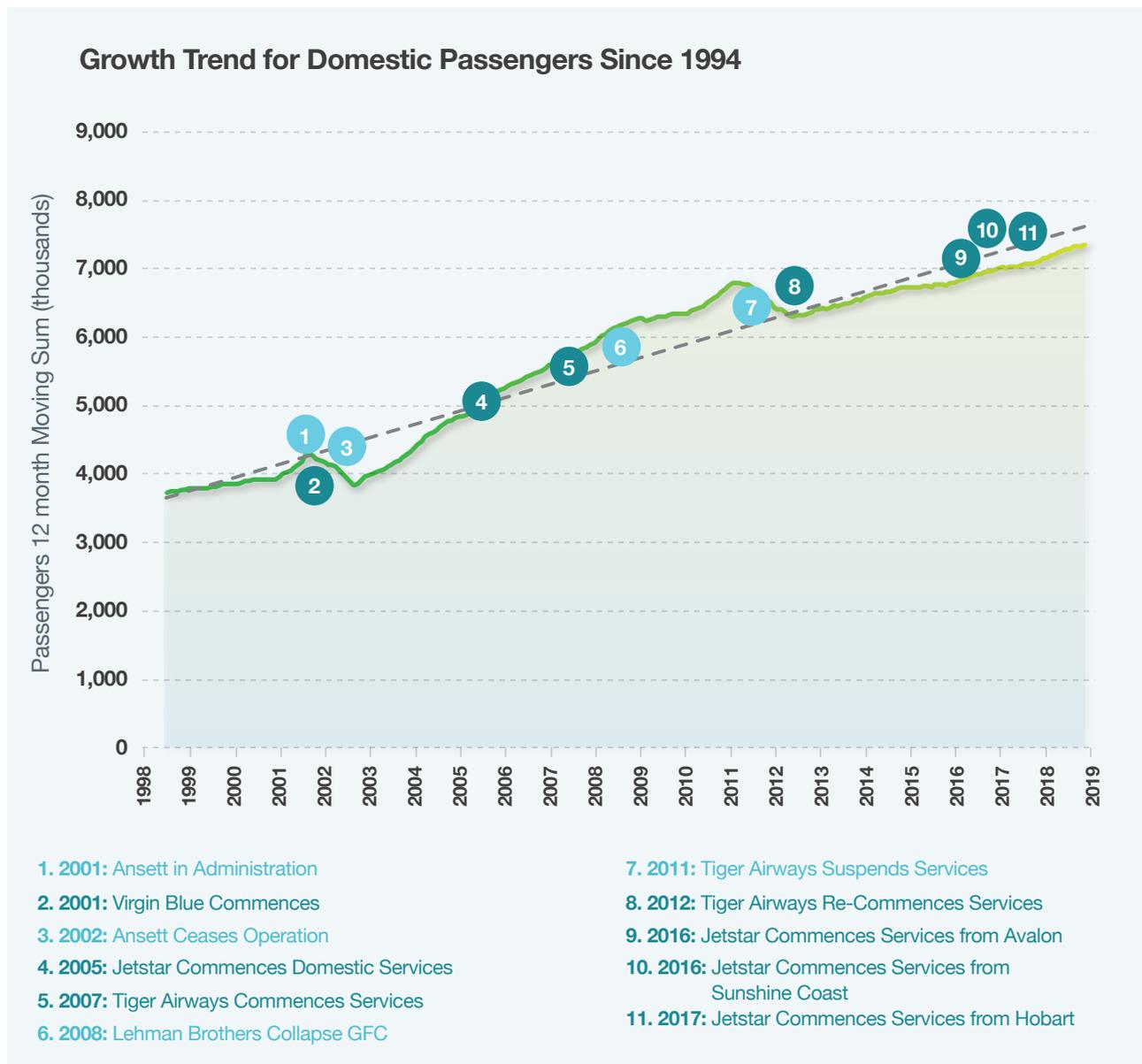


Figure 6-5: Growth Trend for Domestic Passengers Since 1994





Over the past decade, growth has been driven predominantly by Australian residents travelling outbound, with international resident travel having a ten year CAGR of 8.9 per cent, outpacing the international visitor ten year CAGR of 5.9 per cent. Future growth is dependent on inbound visitors, particularly from Asia and an expectation that the resident and visitor shares will return closer to parity (see Figure 6-6).

Figure 6-7 shows that in 2018, nearly 35 per cent of international visitors to Adelaide were from the traditional markets of Europe and the United Kingdom, and a further ten per cent from New Zealand. Current trends show that Asia is the highest growth region for international visitors, a trend that is expected to continue due to the burgeoning middle class in Asia and a growing propensity to travel (see Figure 6-7).

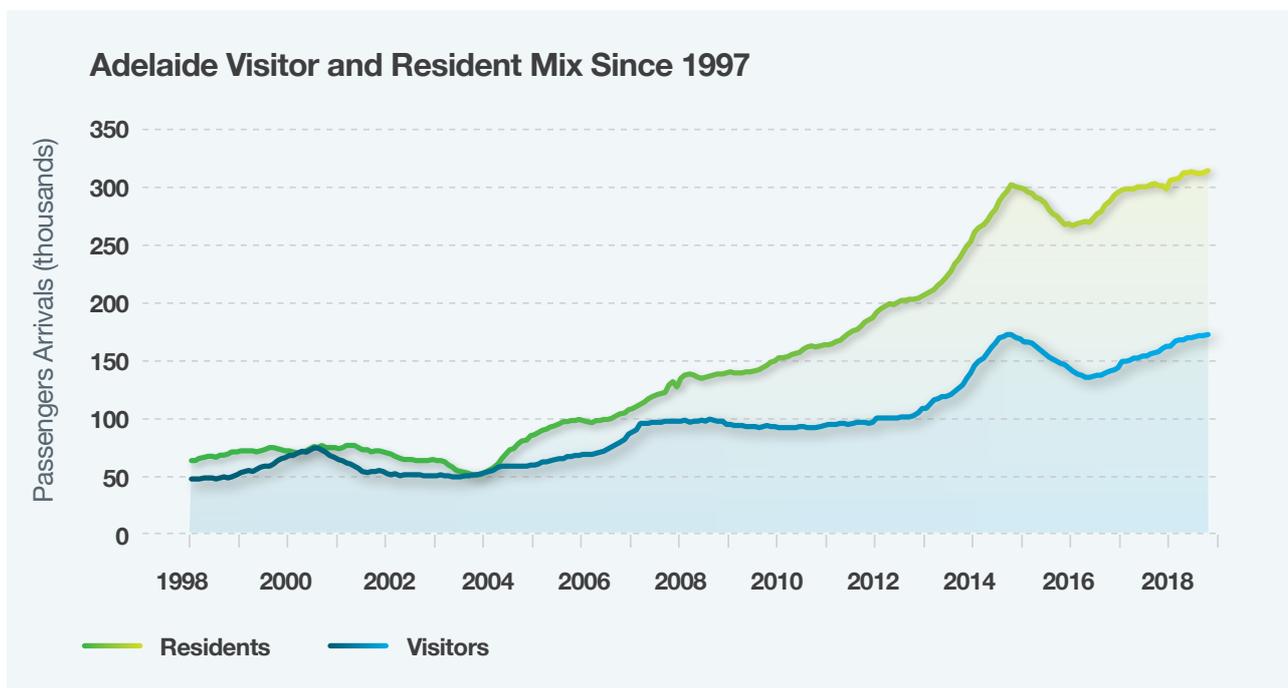
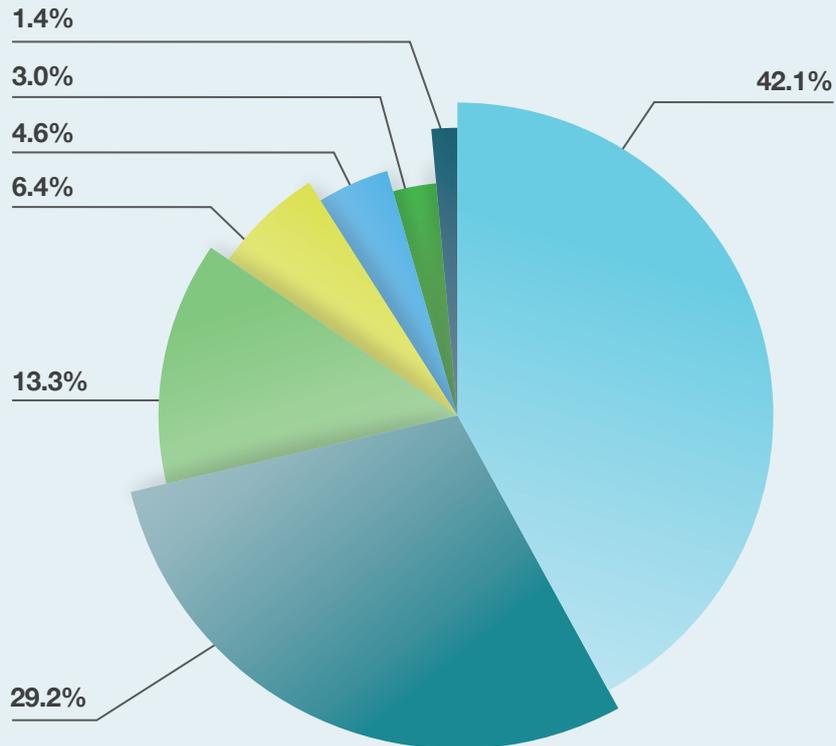


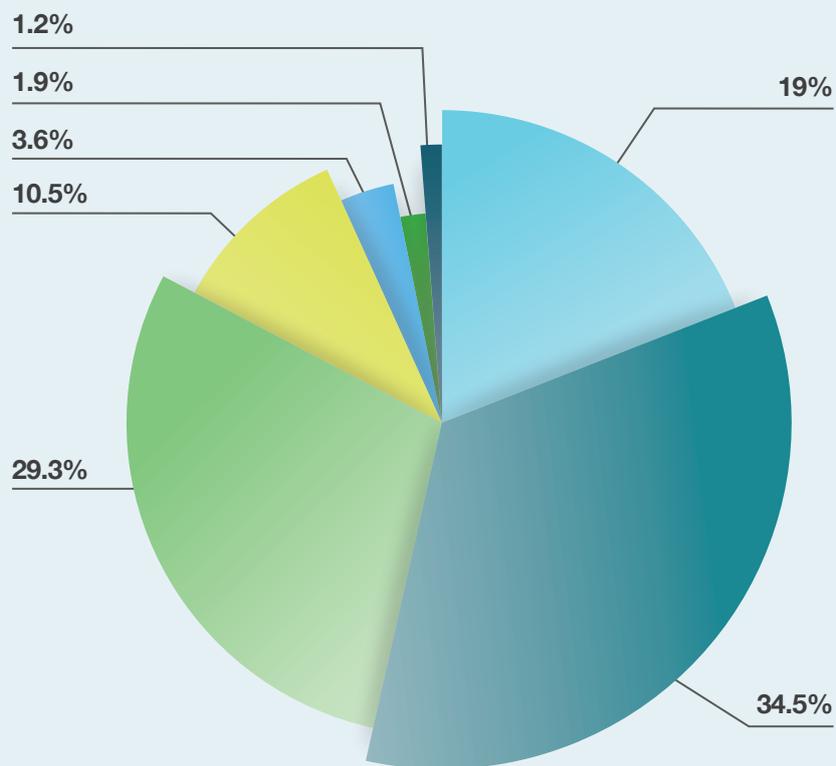
Figure 6-6: Adelaide Visitor and Resident Mix Since 1997
Source: ABS Overseas Arrivals and Departure Data



Adelaide International Passengers Mix 2018



Residents



Visitors



Figure 6-7: Adelaide International Passengers Mix 2018
Source: ABS Overseas Arrivals and Departure Data

6.5. Adelaide Airport Activity Forecasts

6.5.1. Industry Outlook

The outlook for aviation activity in Australia is good, and for Adelaide Airport it is based on estimates of Gross Domestic Product (GDP) and airfares. The GDP estimates for Australia indicate an increase of 2.5 per cent per annum over the forecast period and for Gross State Product (GSP) to increase by an average 2.1 per cent per annum over this period. Domestic and international airline capacities are likely to continue to increase, with additional domestic routes and new international carriers operating out of Adelaide Airport. Fuel prices are likely to continue to increase at around 1.4 per cent per annum over the forecast period and are not expected to significantly affect aviation growth in Adelaide.

In the longer term, it is likely that increased passenger movements will result from the growth of the South Australian population, the mining investment industry in South Australia and from continued tourism demand from a growing middle class in Asia. This demand is likely to include the addition of more international low-cost carriers operating out of Adelaide Airport. The predicted doubling of aviation capacity in the Asian region in the forecast period is likely to stimulate competition and potentially lower airfares, which could also increase demand for international and domestic air travel both to and from South Australia.

As domestic capacity increases across Australia, interstate services are forecast to increase, particularly as other capital city airports commence operations of new runways. This will influence more movements in and out of Adelaide Airport as a component of the Australian network of airports, driving more domestic and regional flights. The introduction of new, larger aircraft types will also provide greater capacity for international and domestic flights arriving at and departing Adelaide Airport.

Technology will continue to change how people travel and how aviation transport and connections are delivered. Changes in the next 20 years could include

the use of sustainable biofuel, electric-powered aircraft, supersonic aircraft, the introduction of air taxis, and growth in aircraft drones.

6.5.2. Base Year

To determine the base year for the forecasting of passenger and aircraft movements, Airservices actual data for the first nine months for the calendar year 2018 was used. The remaining three months was estimated based on the means of the corresponding three periods from the last three years at Adelaide Airport and then checked against actual movements.

The numbers of aircraft movements for calendar year 2018 was therefore set at 106,075 movements. This represents the base year for the forecasts in this Master Plan.

6.5.3. Passenger Forecasts

Total passenger movements at Adelaide Airport are forecast to increase by more than 130 per cent over the 20-year planning period of Master Plan 2019, from 8.5 million in 2018 to 19.8 million in 2039.

Over the forecast planning period to 2039, central forecasts indicate:

- International passenger movements are expected to more than triple – from 1 million passengers in 2018 to 3.3 million passengers by 2039
- Domestic passenger movements are expected to more than double – from 6.9 million passengers in 2018 to 15.4 million by 2039
- Regional passenger movements are expected to double – from 563,000 in 2018 to 1.1 million passengers by 2039

This represents a CAGR of 5.8, 3.9 and 3.2 per cent, for international, domestic and regional passengers respectively, as shown in Table 6-3.

PASSENGERS (MILLION)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2039	CAGR (%)
International	1.03	1.08	1.14	1.21	1.30	1.40	1.52	1.63	1.73	1.83	3.34	5.8 %
Domestic	6.91	7.05	7.25	7.48	7.78	8.13	8.50	8.90	9.38	9.88	15.41	3.9 %
Regional	0.56	0.56	0.58	0.60	0.63	0.66	0.70	0.73	0.76	0.78	1.10	3.2 %
Total	8.50	8.67	8.97	9.23	9.71	10.20	10.72	11.26	11.87	12.50	19.84	4.1 %

Table 6-3: Forecast Passenger Movements Source: TFI



Based on a high passenger-growth scenario, total annual passengers are forecast to grow from 8.5 million in 2018 to 26.3 million in 2039. The comparison of passenger forecasts, including the central, high and low scenarios are shown in Figure 6-8.

Figure 6-9 provides a breakdown of the forecast passenger movements for international, domestic and regional passengers based on the central passenger growth scenario.

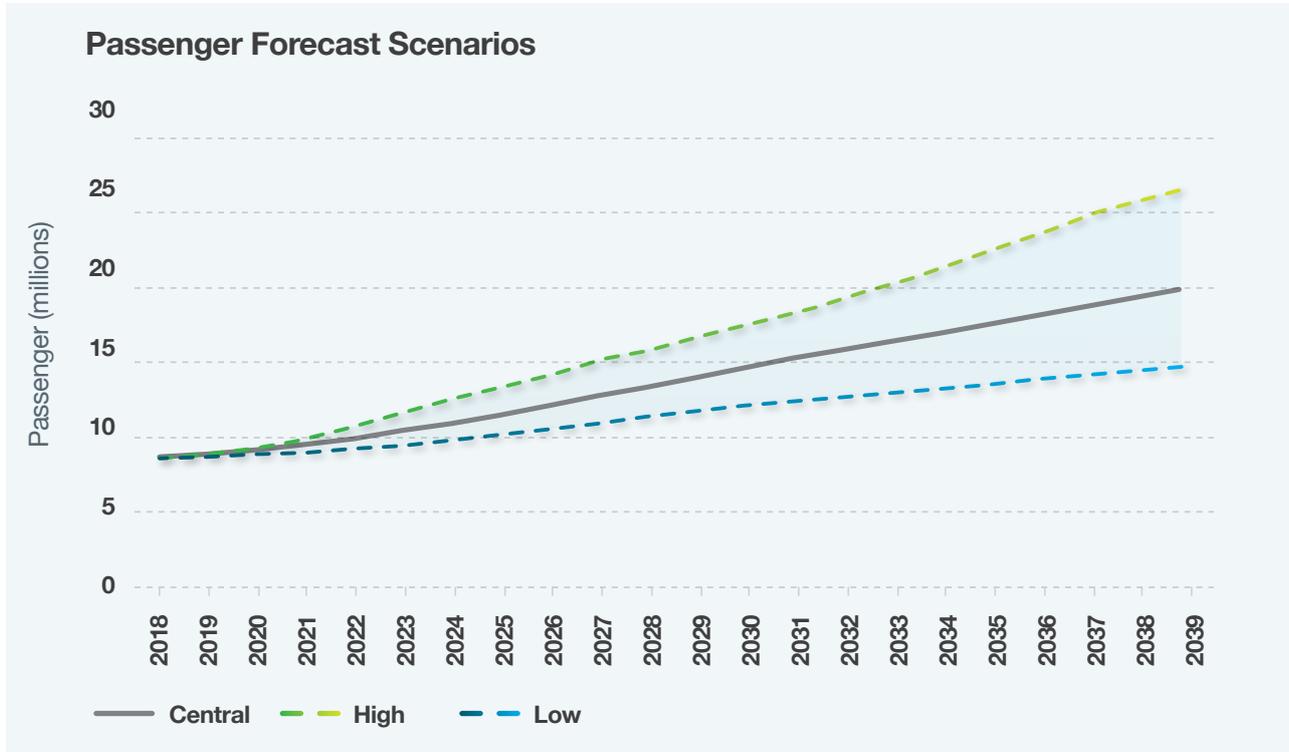


Figure 6-8: Total Passenger Growth Forecasts (including growth scenarios)

Source: TFI

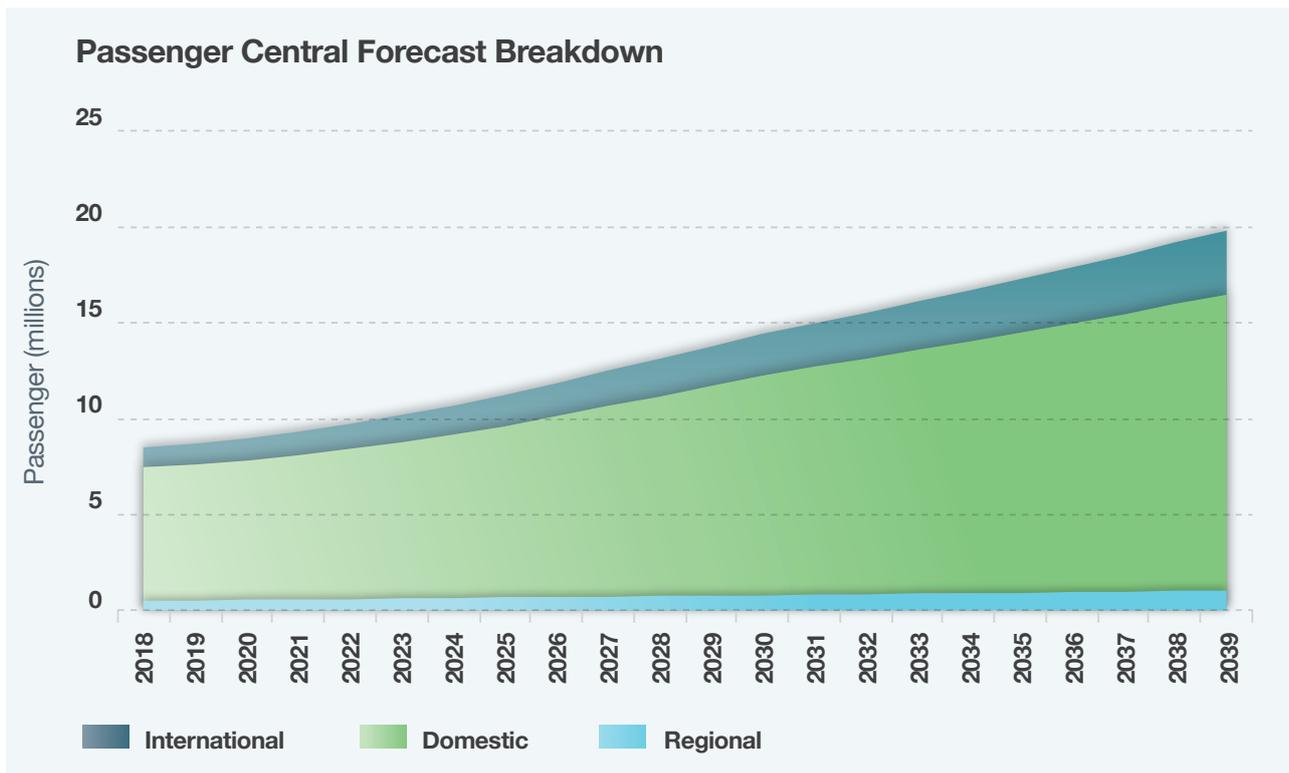


Figure 6-9: Total Passenger Growth Forecasts (International, Domestic and Regional)

Source: TFI





6.5.4. Aircraft Movement Forecasts

Total aircraft movements at Adelaide Airport are forecast to increase by 60 per cent over the 20-year planning period from 106,000 movements in 2018 to 168,500 movements in 2039.

This forecast is derived from airline feedback and expectations regarding increasing sizes of aircraft and increases in seat density and load factors.

Over the planning period to 2039:

- International movements are forecast to grow from approximately 5,000 movements in 2018 to 14,400 movements in 2039
- Domestic aircraft movements are forecast to

grow from 52,000 movements in 2018 to 96,600 movements in 2039

- Regional aircraft movements are forecast to grow from 23,900 movements in 2018 to 31,300 movements in 2039

Table 6-4 and Figure 6-10 show the forecast trends for passenger aircraft movements.

Based on a high scenario aircraft movement growth rate, total annual aircraft movements are forecast to grow from 106,000 aircraft movements in 2018 to 179,500 aircraft movements in 2039.

The comparison of aircraft movement forecasts, including the central, high and low scenarios, is shown in Figure 6-10.

AIRCRAFT MOVEMENTS	2018	2027	2039	CAGR (%)
International	5,000	8,500	14,400	5.1%
Domestic	52,000	66,000	96,600	3.0%
Regional	23,900	27,700	31,300	1.3%
Others*	25,100	25,600	26,200	0.2%
Total	106,000	127,800	168,500	2.23%

**Includes General Aviation, freight, military and helicopter movements*

Table 6-4: Forecast Aircraft Movements

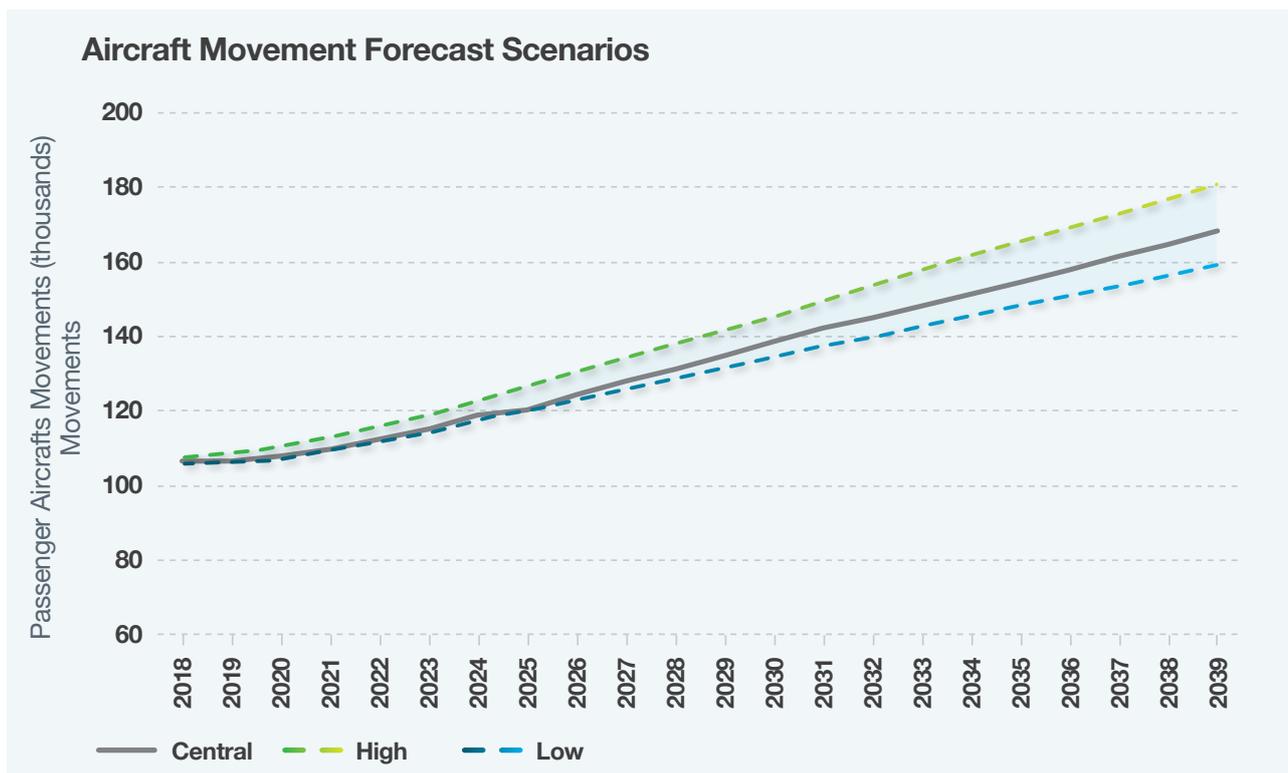


Figure 6-10: Aircraft Movement Forecast Scenarios





6.5.4.1. General Aviation Movement Forecasts

Adelaide Airport is primarily used for passenger and freight movements. Parafield Airport is the principal general aviation and pilot training airport in South Australia so the extent of general aviation operations at Adelaide Airport is therefore limited.

General aviation aircraft movements at Adelaide Airport accounted for some 18,700 movements in 2018. This is expected to remain relatively constant over the 20-year planning period, with an estimated 19,400 general aviation movements in 2039 (see Figure 6-11). This represents a low annual growth rate (0.2 per cent per annum).

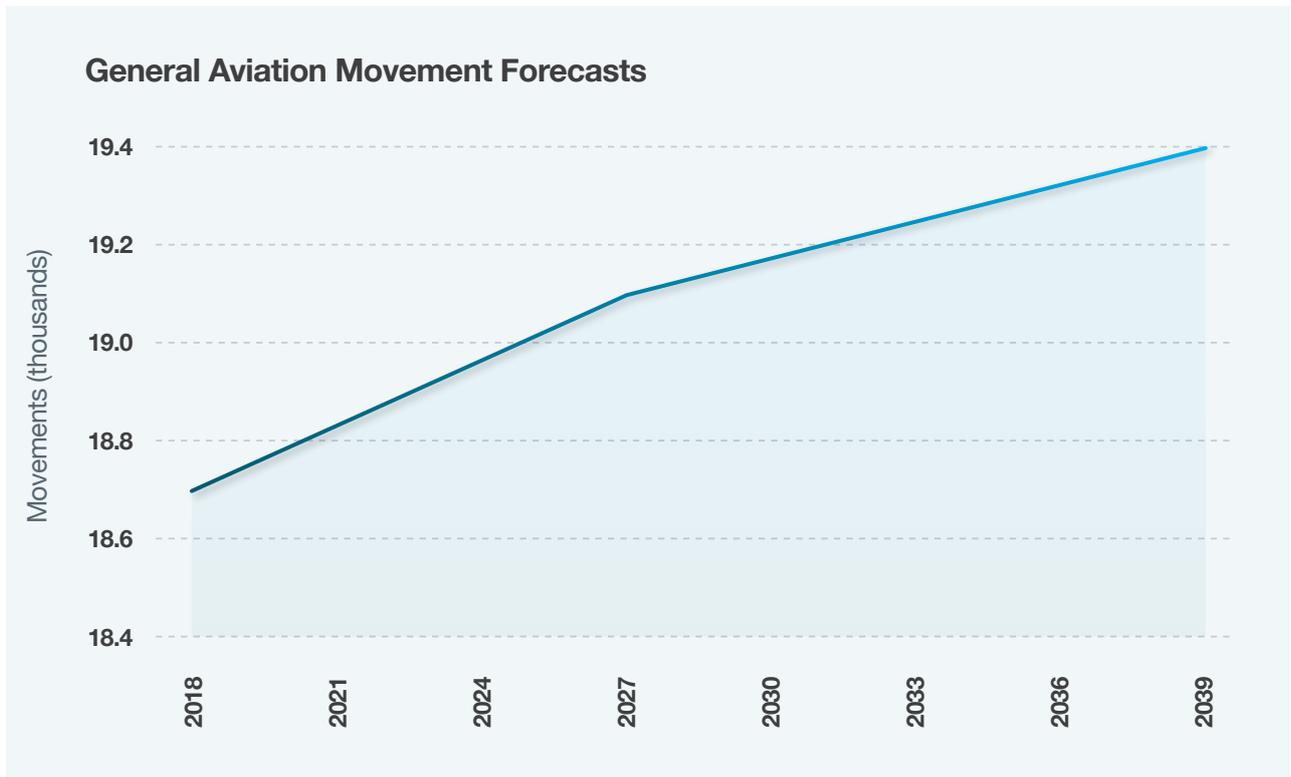


Figure 6-11: General Aviation Movement Forecasts

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6.5.4.2. Helicopters Movement Forecasts

Most helicopter operations from Adelaide Airport are associated with medical and police services.

In 2018, there were approximately 4,600 helicopter movements at Adelaide Airport. The forecast number of helicopter movements in 2039 is anticipated to be almost 4,800. This is based on an annual growth of 1.0 per cent per annum (see Figure 6-12). This growth is dependent on South Australian Government contracts for helicopter use and the locations of various private helicopter operations.

Helicopter movement forecasts do not include any growth assumptions around emerging technologies of other non-fixed wing aircraft such as air taxis.

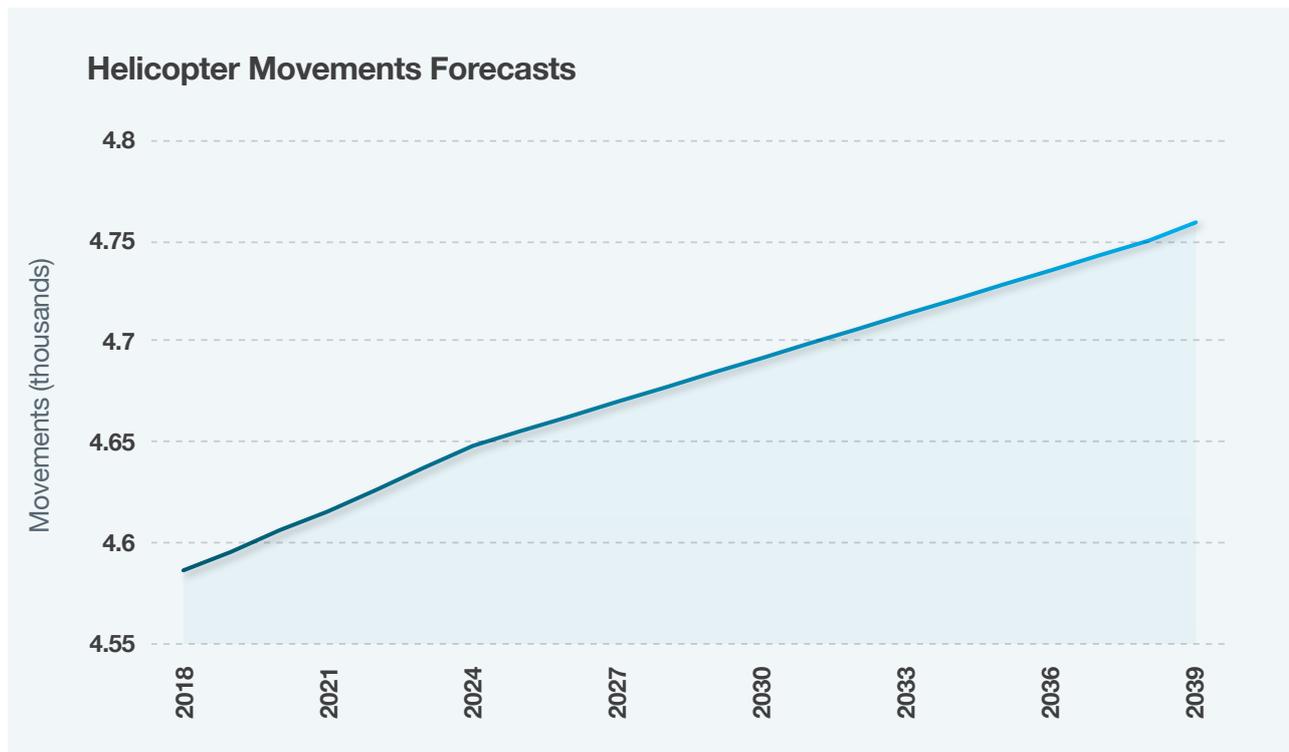


Figure 6-12: Helicopter Movements Forecasts



6.5.5. Air Freight Forecasts

Air freighted goods are typically characterised as high value, time-sensitive and perishable. Air freight is important to many industries including manufactured goods, electronics, medical products and consumables.

Most of Adelaide's air freight is carried in the cargo hold of passenger aircraft, with 63 per cent of domestic and 94 per cent of international air freight transported this way, providing access to 300-plus global destinations via direct flights or one-stop connections.

Air freight plays a key factor in the sustainability of passenger services – particularly international services – with the success of any business case for new routes or increased capacity predicated on the ability to match passenger growth with air freight growth. Exporters and importers seek the reliability of regular passenger transport (RPT) services to reach their market in a predictable and timely manner as opposed to ad-hoc dedicated freighter services. There is existing and forecast surplus air freight capacity on international services.

A smaller quantity of air freight is transported by dedicated freighters. Dedicated international freight is currently chartered on a low-frequency as-needed basis, mostly for live animal export and occasional large imports for mining and defence projects. Dedicated freighter aircraft movements are forecast to grow moderately from 1,326 movements in 2018 (average 3.6 movements per day) to almost 1,600 movements in 2039 (average 4.2 movements per day).

Air freight projections for Adelaide Airport to 2039 were provided by TFI. The approach adopted by TFI in preparing the air freight projections for Adelaide Airport was based on several elements:

- A review of the limited traffic history available for Adelaide Airport and an assessment of statistical trends
- The development of models linking drivers and air freight traffic
- A review of official freight forecasts in Australia and elsewhere

Given the limited data available on air freight to/from Adelaide, TFI prepared central, low and high freight volumes. Models were developed for inbound and outbound freight volumes for both the international and domestic markets.

Based on the analysis and models, international forecasts were prepared for inbound and outbound freight.

Forecast for dedicated freighter aircraft movements

3.6/day

growing to

4.2/day

C6

6.5.5.1. International Freight Forecasts

- Inbound air freight is influenced by Australian economic growth, international aircraft movement growth and the trade weighted index. Inbound air freight volumes to increase with a CAGR within the range of 4.8 per cent to 6.8 per cent per annum
- Outbound air freight is influenced by OECD economic growth, South Australia export growth, international aircraft movement growth and the trade weighted index. Outbound air freight volumes are forecast to increase with a CAGR within the range of 3.6 per cent to 5.0 per cent per annum





6.5.5.2. Domestic Freight Forecasts

- Inbound air freight is influenced by Australian and South Australian economic growth. Inbound air freight volumes to increase with a CAGR within the range of 2.1 per cent to 3.6 per cent per annum
- Outbound air freight is influenced by Australian economic growth. Outbound air freight volumes are forecast to increase with a CAGR within the range of 3.1 per cent to 4.6 per cent per annum

Growth Potential

South Australia's total air freight in the 2018 financial year was 58,000 tonnes. Air freight is expected to more than double over the next 20 years to 146,000 tonnes in 2039.

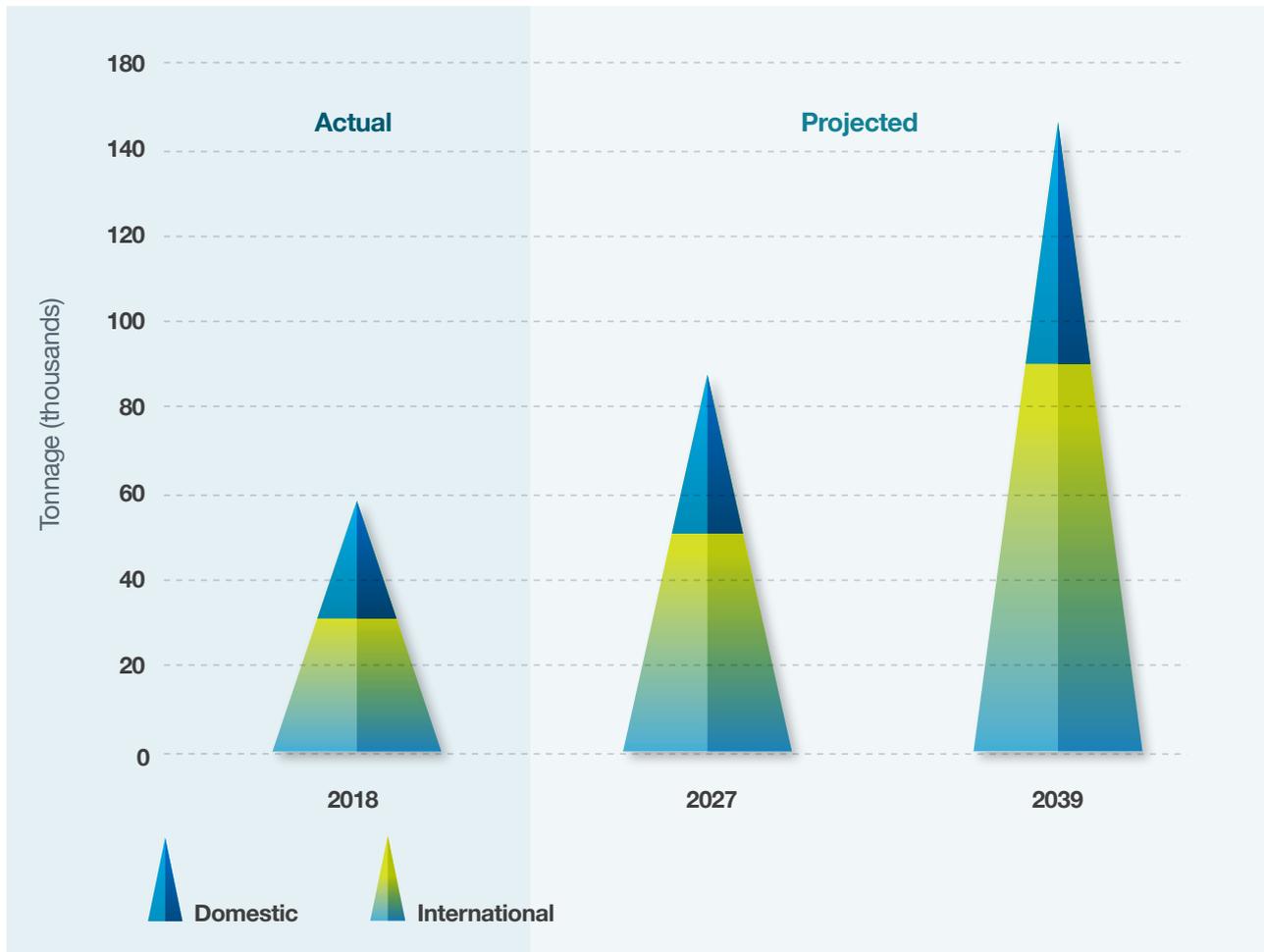


Figure 6-13: Air Freight Forecasts



An assessment of capacity in the cargo hold of aircraft (both current and forecast) to operate at Adelaide Airport was also undertaken. There is significant capacity available in both domestic and international aircraft to cater for the expected forecast in freight tonnage. As shown in Figure 6-14, it is expected that there will continue to be a surplus of international air freight capacity on passenger aircraft services over the next 20 years, due to the projected increase in passenger flights. Market demand is unlikely to increase the need for additional dedicated domestic air freight capacity within the next 20 years.

The major air freight destinations and origins for Adelaide are expected to continue to be South East Asia, North East Asia and the Middle East. These destinations are expected to account for around 88 per cent of international air freight movements by 2039. It is expected that there will be adequate capacity to fulfil demand from these markets. In addition, new direct international connections are likely to create air freight demand from new markets.

Major air freight destinations:

South East Asia, North East Asia and the Middle East

88%

International air freight movements by 2039

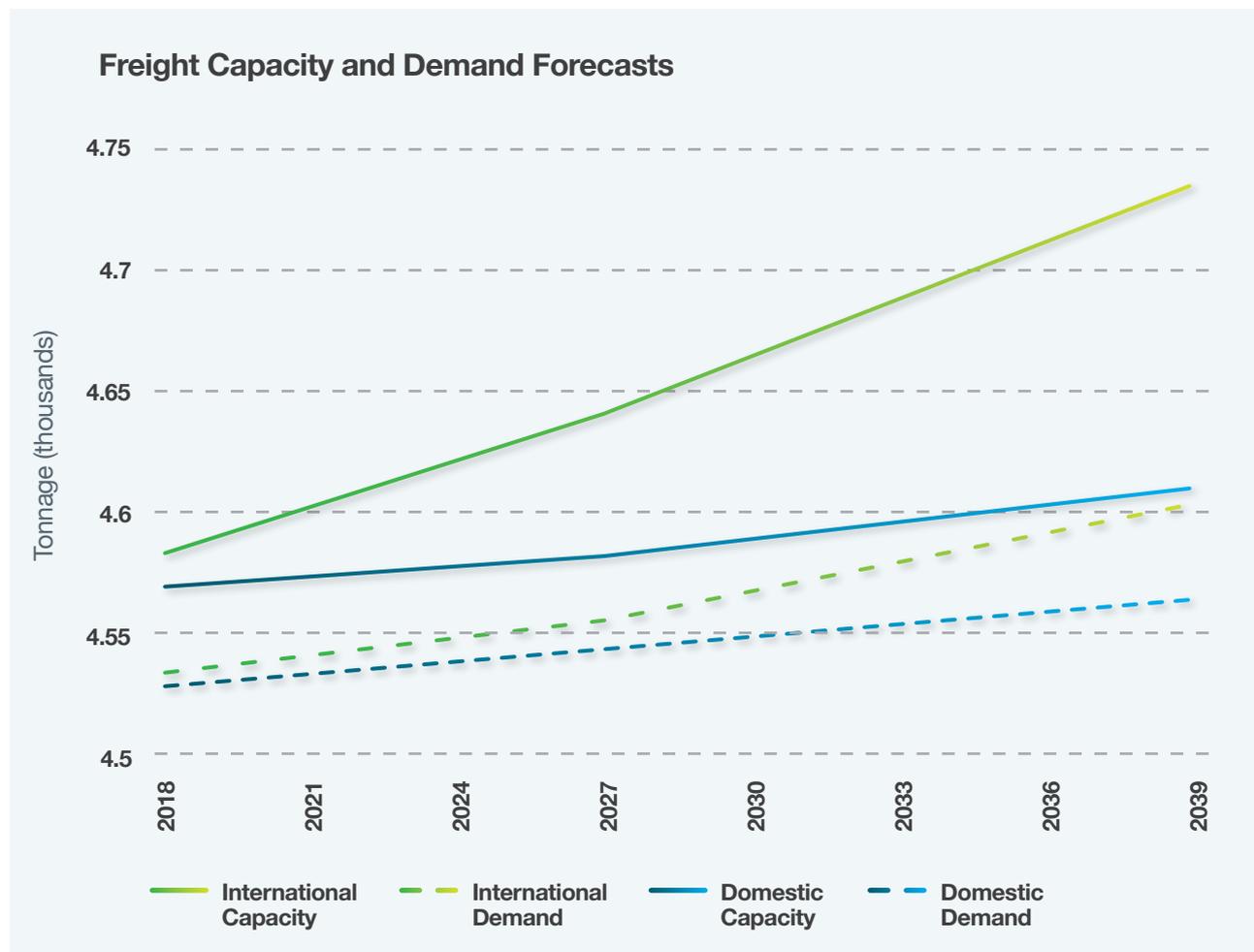


Figure 6-14: Freight Capacity and Demand Forecasts





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The Plan for
Adelaide
Airport



The Plan for Adelaide Airport

7

Land Use Plan

Sets out the Land Use Plan for Adelaide Airport, which is used to guide all on-airport development and is used to assess non-aviation development proposals.



8

Aviation Development

Describes the Aviation Development Plans for both airfield and terminal facilities.



9

Commercial Development

Outlines the proposed airport commercial developments within the first eight years of the Master Plan.



10

Ground Transport Plan

Outlines the Ground Transport Plan for Adelaide Airport based on the infrastructure needed to cater for increased travel to the airport for passengers, employees, freight and commercial vehicles. It sets out the actions required to address the forecast increases in vehicle trips to and within Adelaide Airport.



11

Services Infrastructure

Outlines the existing and future service infrastructure requirements for Adelaide Airport.



12

Safeguarding the Airport

Provides the measures required for safeguarding the ongoing operations and growth of Adelaide Airport.



13

Aircraft Noise

Outlines current and future aircraft noise exposure for areas surrounding Adelaide Airport and details AAL's approach to aircraft noise management.



14

Environment Strategy

Outlines the Environment Strategy and the objectives for environmental management, the impacts of aviation operations on the environment and AAL's approach to prevent, control and reduce environmental impacts.



7

Land Use Plan



7.1. Introduction

Supporting its role as a major transport, employment and economic hub, Adelaide Airport is a major 'activity centre' within Metropolitan Adelaide.

Land-use planning is a critical element of the Master Plan as it provides the overall planning intent for Adelaide Airport. It includes land-use strategies and objectives for development, and also considers the State and local planning policies surrounding the airport.

This Land Use Plan is a revision and update of the 2014 Master Plan's Land Use Plan. These changes allow Adelaide Airport to continue to meet the needs of the local and regional areas, while aligning with the South Australian planning system.

The Land Use Plan guides development at Adelaide Airport to ensure the operational integrity and economic viability of the airport is not compromised, while maintaining compatibility with adjacent land uses.

7.2. Adelaide Airport Business District

The Adelaide Airport Business District, previously known as the Airport (Adelaide) Zone, covers the 785-hectare area of land leased to AAL under the Airports Act.

The Adelaide Airport Business District provides the over-arching land-use planning policies for the airport which are guided by the development objectives as outlined in Chapter 5.

Adelaide Airport is recognised as a gateway to Adelaide and South Australia, providing a significant service, community and economic benefit to Metropolitan Adelaide and to South Australia.

Future development will continue to provide positive benefits by:

- Maintaining the airport as the international, national and regional gateway to South Australia
- Enhancing the airport as a key element of the State's transport infrastructure
- Facilitating the movement of passengers and time-sensitive freight
- Contributing to the viability of the airport as a business enterprise through the provision of commercial, retail and industrial activities
- Continuing to provide an employment and economic hub for the western suburbs of Adelaide and beyond

7.2.1. Precinct Planning

The Adelaide Airport Business District is divided into precincts (smaller sub-areas of the Adelaide Airport Business District), which contain additional specific policies relevant to each identified area. The precincts are shown in Table 7-1 and Figure 7-1.

To guide the developments within each precinct, each precinct is defined by the following:

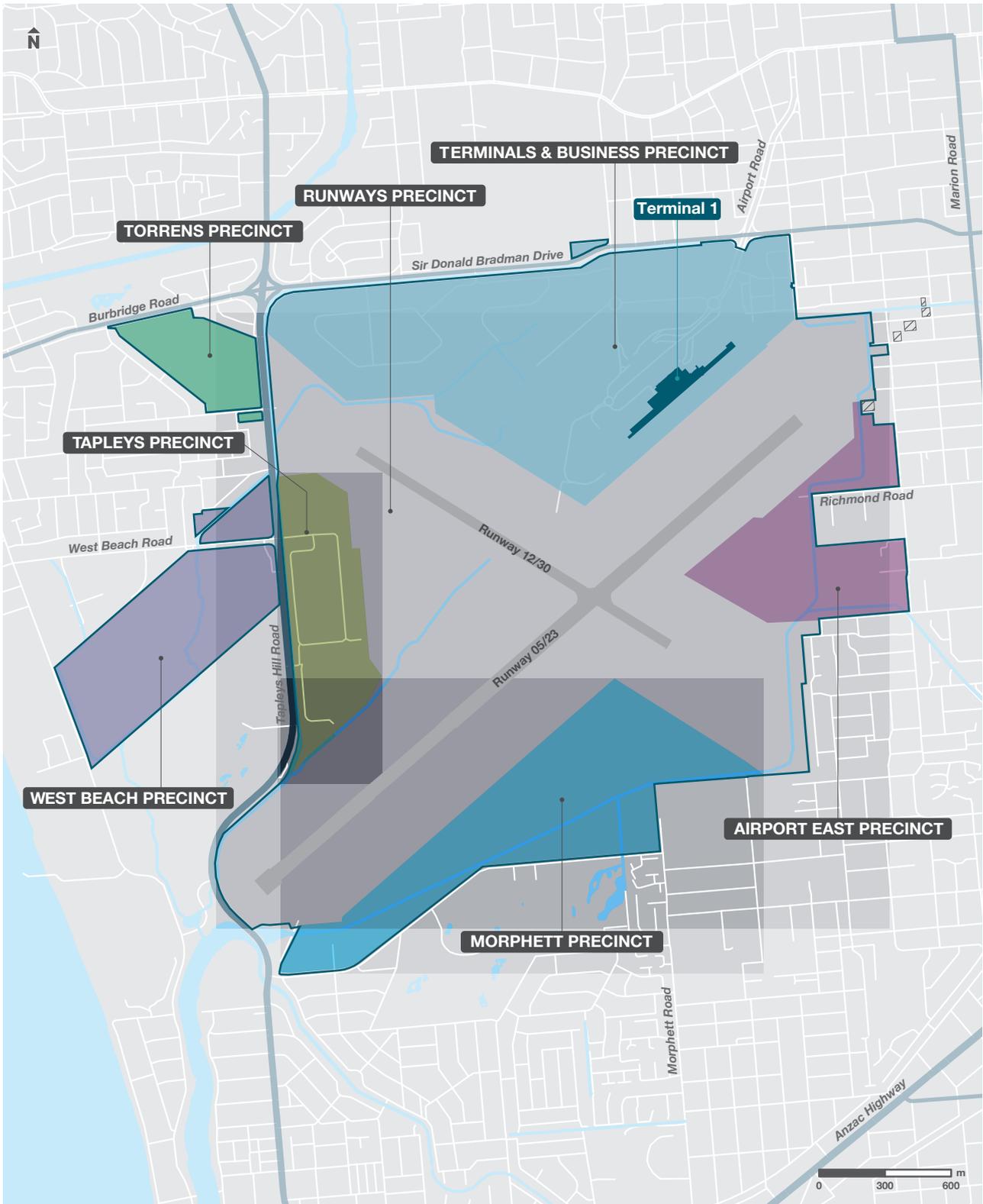
- **Objective:** Describes the purpose of the precinct
- **Desired Character:** Provides a description of the intent of the precinct
- **Principles of Development Control:** Provides a Structure Plan for the precinct, outlining a spatial representation of the policy areas, major access and greenways
- **Procedural Matters:** Guides the types of land uses appropriate to the precinct. The Procedural Matters include:
 - Envisaged (suitable forms of development) uses
 - Non-Complying (incompatible forms of development) uses

PRECINCT	AREA	TOTAL AREA OF AIRPORT
Runways Precinct	379 hectares	48%
Terminals & Business Precinct	165 hectares	21%
Airport East Precinct	44 hectares	6%
Morphett Precinct	82 hectares	11%
Tapleys Precinct	40 hectares	5%
West Beach Precinct	56 hectares	7%
Torrens Precinct	19 hectares	2%

Table 7-1: Adelaide Airport Business District Precincts



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LEGEND

- Adelaide Airport Business District Boundary
- Freehold Land
- Runways
- Watercourses
- Arterial Roads
- Local Roads
- Airport Terminal

ADELAIDE AIRPORT PRECINCTS

- Runways Precincts
- Terminals & Business Precinct
- Airport East Precinct
- Morphett Precinct
- Tapleys Precinct
- West Beach Precinct
- Torrens Precinct

Figure 7-1: Adelaide Airport Business District Precinct Plan

7.3. Precinct Land Use Plans

7.3.1. Runways Precinct

The objective of the Runways Precinct is to provide an area accommodating the:

- Safe and secure aircraft landing, take-off and taxiing operations for both fixed-wing and helicopter services
- Aircraft navigational aids, radar and communications equipment and facilities
- Aviation-related support industries, facilities, training, and emergency response services
- Aquifer storage and recovery, and water-harvesting activities in suitable locations

7.3.1.1. Desired Character

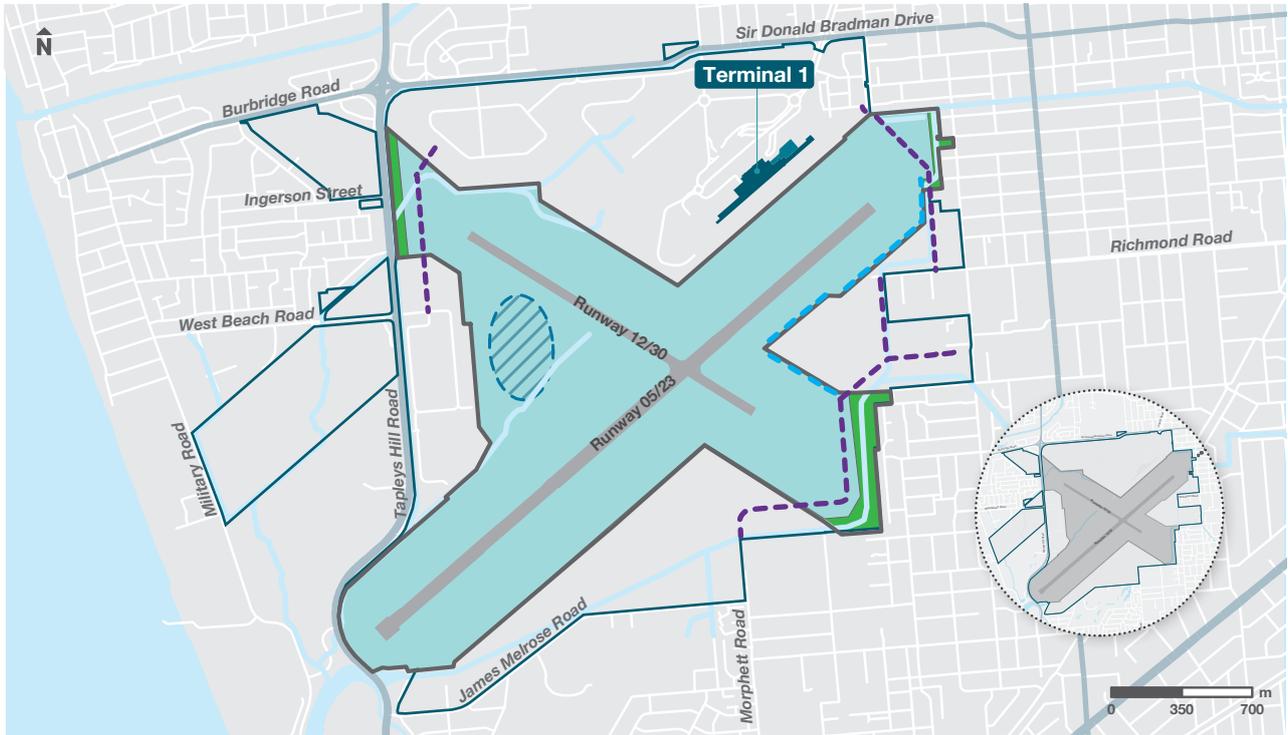
The Runways Precinct is an area of the airport primarily for the operation and movement of aircraft and associated activities associated with runway facilities.

Development within the Runways Precinct should focus on aviation needs, with related ancillary and support facilities enhancing the airport's operation.

The Runways Precinct currently caters for existing runway infrastructure, therefore, when a decision on the timing of a future parallel runway is reached, the Runways Precinct boundary will be reviewed.

7.3.1.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Runways Precinct Structure Plan (Figure 7-2) and the uses listed (Table 7-2).



LEGEND

- | | | | |
|-------------------|----------------------------|---------------------------|-----------------------------|
| Airport Boundary | Terminal Expansion Project | Helicopter Operations | Potential New Road Links |
| Precinct Boundary | Watercourses | Buffers/Greenways | Potential New Airside Roads |
| Runways | Arterial Roads | Runway Related Activities | |
| Airport Terminal | Local Roads | | |

Figure 7-2: Runways Precinct Structure Plan

7.3.1.3. Procedural Matters

Envisaged and Non-Complying Developments for the Runways Precinct are identified in Table 7-2.

RUNWAYS PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Aircraft washdown	Brand outlet centre and associated support retailing
Ancillary development	Bulky goods retailing
Animal agistment for export purposes	Childcare centre
Area approach control centre	Dwelling
Aviation-related support industry	Hotel
Aviation fuel pipeline	Motel
Car parking	Restaurant
Communication facilities	Retail showroom
Earthworks or engineering works	Service trade premises
Emergency services facility	Shop
Emergency staging area	Waste transfer station
Environmental protection works	
Farming	
Fire-fighting and rescue facilities	
Helicopter landing and parking	
Horticulture	
Renewable energy installations	
Runway-related activities/ facilities	
Soil treatment facility	
Taxi holding area, amenities and fuel depot	
Temporary uses and structures	
Weather and atmospheric testing facilities	

Table 7-2: Runways Precinct Land Use Procedural Matters



7.3.2. Terminals & Business Precinct

The objective of the Terminals & Business Precinct is to provide:

- An area focused on accommodating facilities for the safe, efficient and economic handling of aircraft, passengers and freight and related services; and support activities such as car parking and storage, hotel accommodation, hospitality, retailing and offices
- Development of office, commercial, retail and industrial facilities that contribute to the viability of the airport as a major business hub for the western suburbs and Metropolitan Adelaide
- An area accommodating business, education, technology and research facilities in an office park-like setting, allowing suitable mixes with warehouse and storage activities and aviation-related support industry

7.3.2.1. Desired Character

The Terminals & Business Precinct is the gateway and major focus of activity at Airport Business District, located immediately to the south of Sir Donald Bradman Drive. The Terminals & Business Precinct incorporates the primary road access to Terminal 1, being Sir Richard Williams Avenue.

The Terminals & Business Precinct is the area for the safe, efficient and economic facilitation of passengers and support infrastructure associated with the arrival and departure of passengers and air freight. Future development will be located, designed and operated to enhance this environment; while also allowing areas for research, innovation and business development, along with complementary freight and distribution services.

Developments within the Terminals & Business Precinct will be of a high standard of design that enhances the amenity of the airport environment.

A small portion of this precinct is located on the northern side of Sir Donald Bradman Drive adjoining May Terrace. This site is currently used for recreational purposes and horticultural activities.

The Precinct is divided into two policy areas:

- Terminals & Commercial Business
- Burbridge Business Park

The development intent for each policy area is described in the following section.

7.3.2.2. Terminals & Commercial Business Policy Area

The Terminals & Commercial Business Policy Area is the major gateway to Adelaide Airport and is the heart of the major and specialised activity centre for transport, employment and commercial development for Metropolitan Adelaide and the State. The Policy Area already accommodates terminals and related access infrastructure, car parking, retailing activities, hotel, taxi pick-up and drop-off and public transport facilities. It also provides ancillary activities such as aviation freight-handling facilities including aircraft maintenance buildings, hangars, catering services, commercial/light industrial activities, car-rental storage, valet operations and car parking.

The desired character for this area includes:

- An office park located to the west of the airport entrance immediately adjacent to Terminal 1
- A multi-purpose commercial park located east of the Airport Business District entrance. This commercial park (formerly referred to as Export Park) is expected to transition from industrial/warehouse uses to office accommodation
- New and existing development incorporating commercial offices, office/warehousing, purpose-built aviation freight, engineering, and airport-servicing activities that would benefit from the nearby airside accessibility
- Retail showroom and bulky goods developments to the west of the airport entrance, capitalising on the visibility from Sir Donald Bradman Drive



7.3.2.3. Burbridge Business Park Policy Area

The Burbridge Business Park Policy Area caters for high-tech office, commercial and warehouse developments, retail and recreation activities, and ancillary activities to support the Terminals & Commercial Business Policy Area such as car parking and storage. The Policy Area also includes the aviation fuel storage complex.

Development of the precinct should minimise the potential for adverse impact on residential areas by:

- Providing landscaping along the frontage of Sir Donald Bradman Drive, resulting in an enhanced amenity and screening for buildings
- Establishing a park-like setting incorporating integrated and shared landscaping
- Providing quality buildings of contemporary design, resulting in an attractive appearance
- Establishing on-site car parking
- Providing appropriate stormwater management and drainage systems to minimise flooding risk
- Enclose noise-generating equipment where there is prospect of the equipment causing a detrimental effect on residential areas

Any lighting associated with night-time usage for developments with frontage to Sir Donald Bradman Drive should be located, designed and operated in a manner that promotes the safety of aviation and users of the facilities and avoids excessive light spill.

Commercial and retail development should be designed to complement and expand the existing commercial and retail activities. It may include other retailing and/or tourism initiatives that will benefit from the economic activity at Adelaide Airport.

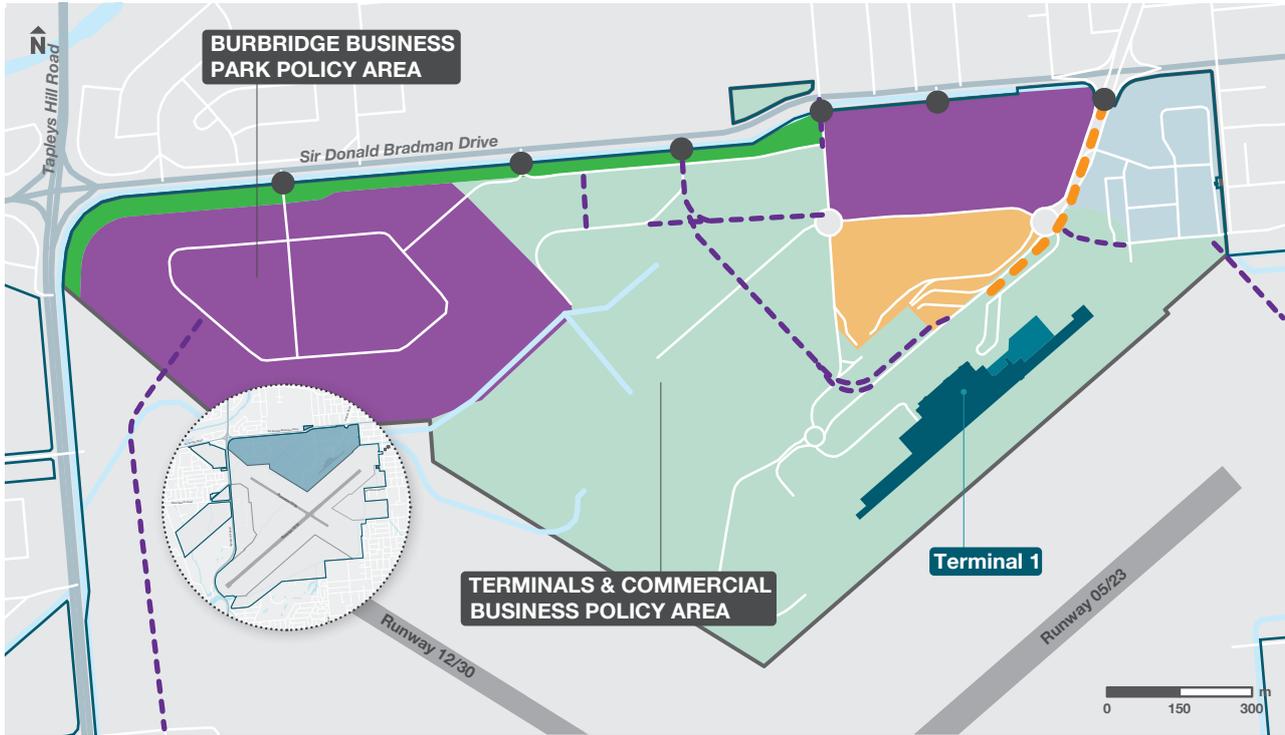
Development within the Burbridge Business Park Policy Area should be set back from the Sir Donald Bradman Drive and Tapleys Hill Road property boundaries to accommodate drainage swales and landscaping treatment.

Developments should also have regard to the adjoining greenway area that fronts Sir Donald Bradman Drive.

7.3.2.4. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Terminals & Business Precinct Structure Plan (Figure 7-3) and the use listed as Envisaged Development (Table 7-3 and Table 7-4).





LEGEND

- | | | | |
|-------------------|----------------------------|---|--|
| Airport Boundary | Terminal Expansion Project | Access | Buffers/Greenways |
| Precinct Boundary | Watercourses | Potential New Road Links | Commercial |
| Runways | Arterial Roads | Potential High Capacity Public Transport Corridor | Office Park |
| Airport Terminal | Local Roads | | Retail/Commercial |
| | | | Aviation Related Activities/Commercial |

Figure 7-3: Terminals & Business Precinct Structure Plan



7.3.2.5. Procedural Matters

Envisaged and Non-Complying Developments for the Terminals & Business Precinct are identified in Table 7-3 and Table 7-4.

TERMINALS & BUSINESS PRECINCT USES (TERMINALS & COMMERCIAL BUSINESS POLICY AREA)	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement	Brand outlet centre
Aircraft hangar	Dwelling
Aircraft washdown	Farming
Air traffic control tower	General industry
Area approach control centre	Horse keeping and equestrian area
Ancillary development	Road transport terminal
Animal agistment for export purposes	Special industry
Aviation fuel depot and pipelines	Wholesale plant nursery
Aviation-related support industry	
Bulky goods retailing	
Bus terminal	
Call centre	
Car parking and storage	
Car rental, valet and vehicle storage	
Childcare centre	
Conference facility	
Consulting room	
Depot	
Earthworks or engineering works	
Emergency services facility	
Environmental protection works	
Firefighting and rescue facilities	
Freight and distribution centre	
Hotel	
Indoor recreation centre	
Medical centre	
Motel	
Motor repair station	
Office	
Office/warehouse	
Passenger terminals	
Petrol filling station	
Police station	
Renewable energy installations	
Restaurant	
Retail showroom	
Runway-related activities/facilities	
Scientific research facility	
Service trade premises	
Shop	
Store	
Taxi holding facility	
Technology and research centre	
Telecommunications facility	
Temporary uses and structures	
Training facilities	
Warehouse	

Table 7-3: Terminals & Business Precinct Uses (Terminals & Commercial Business Policy Areas) Procedural Matters



TERMINALS & BUSINESS PRECINCT USES (BURBRIDGE BUSINESS PARK POLICY AREA)

ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement*	Air traffic control tower
Ancillary development	Area approach control tower
Aviation fuel depot and hydrants	Brand outlet centre
Aviation-related support industry	Bus terminal
Bulky goods retail outlet	Community centre
Business and professional services	Driver training school
Call Centre, or back office facilities	Dwelling
Car parking and vehicle storage	General industry
Childcare centre	Helicopter landing and parking
Conference facility	Horse keeping and equestrian area
Consulting room	Motor repair station
Depot	Passenger terminals
Earthworks or engineering works	Petrol filling station
Educational establishment	Place of worship
Emergency services facility	Police station
Environmental protection areas	Road transport terminal
Fast food outlet	Service industry
Freight and distribution centre	Special industry
Gymnasium/health centre	
Horticulture	
Light industry	
Medical centre	
Office	
Office/warehouse	
Recreation	
Renewable energy generation facility	
Scientific research facility	
Shop	
Store	
Technology and Research centre	
Telecommunications tower facility	
Temporary uses and structures	
Training facilities	

* Note: Except within 40 metres of Sir Donald Bradman Drive.

Table 7-4: Terminals & Business Precinct Uses (Burbridge Business Park Policy Area) Procedural Matters



7.3.3. Torrens Precinct

The objective of the Torrens Precinct is to provide:

- An area primarily accommodating a range of recreation, leisure and sporting opportunities in an open space environment
- Residential development for the aged, community housing or like activity, in a suitable location

7.3.3.1. Desired Character

The Torrens Precinct is located to the west of Tapleys Hill Road and to the south of Burbridge Road. Residential development is immediately adjacent the precinct.

In addition to providing a relatively open approach to the runway system to the east of Tapleys Hill Road, Torrens Precinct may be developed with recreation and sporting facilities and accommodation for the aged or community housing. Development will not impact on the continued operations of the airport.

Any development should include sufficient on-site car parking to meet the needs of the development.

Residential development for the aged, or community housing should:

- Be designed to provide safe, attractive, convenient and comfortable living conditions for residents
- Be provided with pleasant and functional open space and landscaping to meet the needs of residents
- Be of a form and scale that is residential rather than intensively institutional in character
- Incorporate any noise-control features, consistent with AS 2021-2015 as appropriate

Any lighting associated with night-time usage (including recreation activities and car-parking areas) should be located and designed in a manner that promotes the safety of aviation and users of the facilities and avoids excessive light spill beyond the site.

Where practicable, recreation areas and associated facilities should be irrigated with or serviced using treated stormwater runoff and/or treated effluent from the Glenelg Waste Water Treatment Plant.

7.3.3.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Torrens Precinct Structure Plan (Figure 7-4) and the uses listed as Envisaged Development (Table 7-5).





LEGEND

- | | | |
|-------------------|----------------|----------------------|
| Airport Boundary | Watercourses | Access |
| Precinct Boundary | Arterial Roads | Aged Care/Retirement |
| | Local Roads | Recreation |

Figure 7-4: Torrens Precinct Structure Plan



7.3.3.3. Procedural Matters

Envisaged and Non-Complying Developments for the Torrens Precinct are identified in Table 7-5.

TORRENS PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement	Air traffic control tower
Aged care/retirement*	Area approach control centre
Ancillary development	Brand outlet centre
Car parking and storage	Bus terminal
Clubroom and associated community facility (associated with recreation facilities)	Caravan park
Conference facilities (associated with recreation facilities)	Dwelling (other than aged care facility, retirement village or community housing)
Consulting rooms	Firefighting and rescue facilities
Earthworks or engineering works	Helicopter landing and parking
Environmental protection works	Industry
Indoor recreation centre and associated facilities	Motor repair station
Medical centre	Petrol filling station
Outdoor recreation	Restaurant (not associated with recreational facilities)
Restaurant (associated with recreation facilities)	Retail showroom
Retirement village or group or community housing of a similar nature	Service trade premise
Temporary uses and structures	Shop
	Warehouse

* Note: Any aged care/retirement development should only be considered on the portion of Airport site located south of Burbridge Road – as shown on Figure 7-4. Such development is classified as a Sensitive Development under Section 71A(2) of the Airports Act (see Chapter 7.5).

Table 7-5: *Torrens Precinct Use Procedural Matters*





7.3.4. West Beach Precinct

The objective of the West Beach Precinct is to provide:

- An area accommodating commercial facilities, capitalising on the exposure to Tapleys Hill Road and West Beach Road
- Recreation activities in support of the adjoining sporting and recreation activities of the West Beach Trust (operating as West Beach Parks)
- Linkage of the Patawalonga Creek as a passive recreation area adjoining nearby pedestrian and bike pathways
- Stormwater drainage systems emanating external to the precinct to control flood risk to the airport land east of the Patawalonga Creek, with some allowance for overflow onto recreation land
- Stormwater-detention areas servicing the West Beach residential area

7.3.4.1. Desired Character

The West Beach Precinct is located to the west of Tapleys Hill Road and to the north and south of West Beach Road. The precinct extends to the west to Military Road.

The eastern side of the West Beach Precinct has an arterial road frontage and therefore exposure to significant traffic volumes along Tapleys Hill Road. This section of the precinct can accommodate commercial development and service trade premises suitable to the arterial road frontage, with access for such uses mainly limited to the existing access points or from West Beach Road and Military Road.

The West Beach Precinct is an area for commercial development, while also being reserved for a future parallel runway. AAL will include resumption clauses in any lease agreement over land reserved for a future parallel runway.

The promotion of event activities, passive and active recreation and sporting activities, and car parking within the precinct is desirable, incorporating suitable pedestrian and bike pathways. New development in the recreation area should, where practical, be clustered and be located to accommodate existing and future stormwater drainage arrangements.

7.3.4.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the West Beach Precinct Structure Plan (Figure 7-5) and the uses listed as Envisaged Development (Table 7-6).



LEGEND

- | | | | |
|-------------------|----------------|----------------------|-------------------|
| Airport Boundary | Watercourses | Access | Commercial |
| Precinct Boundary | Arterial Roads | Aged Care/Retirement | Recreation/Sports |
| Runways | Local Roads | Buffers/Greenways | |

Figure 7-5: West Beach Precinct Structure Plan





7.3.4.3. Procedural Matters

Envisaged and Non-Complying Developments for the West Beach Precinct are identified in Table 7-6.

WEST BEACH PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement	Brand outlet centre
Ancillary development	Bus terminal
Aged care/retirement (Mountbatten Grove site only)*	Helicopter landing and parking
Amusement Park	Industry
Aquifer storage and recovery/stormwater harvesting	Passenger terminals
Aviation fuel pipeline	
Car parking and storage	
Consulting rooms	
Earthworks or engineering works	
Emergency services facility	
Environmental protection works	
Event activities	
Fast food outlet	
Farming	
Horticulture / community gardens	
Indoor recreation centre	
Motor repair station	
Petrol filling station (with associated convenience store and car wash facilities)	
Recreation	
Retail showroom	
Service trade premises	
Shop	
Sporting activities and complexes	
Store	
Stormwater detention	
Telecommunications facility	
Temporary uses and structures	

* Note: Any aged care/retirement development should only be considered on the portion of Airport site located between Mountbatten Grove and Patawalonga drain (north of West Beach Road). Such development is classified as a Sensitive Development under Section 71A(2) of the Airports Act.

Table 7-6: West Beach Precinct Use Procedural Matters





7.3.5. Tapleys Precinct

The objective of the Tapleys Precinct is to provide:

- A highway activity centre primarily accommodating large-scale retailing facilities such as a brand outlet centre and associated support retail activities, supermarket and liquor store, bulky goods retailing, retail showrooms and other shops – such as those which service the western region of Adelaide or have a metropolitan-wide catchment
- Accommodation for aviation services such as air-traffic control, air-approach control centre, meteorological activities, general aviation and helicopter support activities including aviation retrieval facilities and emergency services

7.3.5.1. Desired Character

The Tapleys Precinct is located to the east of Tapleys Hill Road, generally opposite the intersection of West Beach and Tapleys Hill Roads.

The Tapleys Precinct has an arterial road frontage and therefore exposure to significant traffic volumes along Tapleys Hill Road. Primary access to the precinct is gained from the signalised intersection of Tapleys Hill Road and West Beach Road.

The Tapleys Precinct will continue to accommodate large-scale retailing facilities of a regional or metropolitan-wide catchment, with supporting shops and services. Airport-related activities, including general aviation, emergency services facilities and helicopter operations will continue to be developed in the precinct.

The southern section of Tapleys Precinct, while currently accommodating aviation services, could allow future retail or commercial expansion along with aviation-related support industries and emergency services.

The existing landscaped buffer along Tapleys Hill Road will be retained.

Development should be set back from the Tapleys Hill Road boundary to enable the progressive remodelling of the open unlined drain to accommodate drainage swales and to maintain an attractive landscape.

7.3.5.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Tapleys Precinct Structure Plan (Figure 7-6) and the uses listed as Envisaged Development (Table 7-7).





LEGEND

- | | | | |
|-------------------|----------------|--------------------------|---------------------|
| Airport Boundary | Watercourses | Access | Aviation Activities |
| Precinct Boundary | Arterial Roads | Potential New Road Links | Buffers/Greenways |
| Runways | Local Roads | | Retail/Commercial |

Figure 7-6: Tapleys Precinct Structure Plan



7.3.5.3. Procedural Matters

Envisaged and Non-Complying Developments for the Tapleys Precinct are identified in Table 7-7.

TAPLEYS PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement	Dwelling
Ancillary development	Motel
Area approach control centre	Industry
Aviation-related support industry	
Brand outlet centre and associated support retailing	
Bulky goods retailing	
Car parking and storage	
Conservation activities	
Earthworks or engineering works	
Emergency services facility	
Environmental protection works	
Firefighting and rescue facilities	
Helicopter landing and parking facility	
Hotel	
Kennel management facility	
Meteorological services	
Office	
Office/warehouse	
Petrol filling station and convenience store	
Renewable energy generation facility	
Retail showroom	
Runway-related activities	
Service trade premises	
Shop	
Supermarket and liquor store	
Telecommunications facility	
Temporary uses and structures	
Weather and atmosphere testing facility	

Table 7-7: Tapleys Precinct Use Procedural Matters





7.3.6. Morphett Precinct

The objective for the Morphett Precinct is to provide:

- An area accommodating a mix of activities, including industry, office/warehouse, commercial and aviation-related support industries
- An area accommodating a small portion of interim uses of recreation, leisure and sporting activities
- A linear park and shared-use pedestrian/bike path linking Tapleys Hill Road and Watson Avenue in Netley

7.3.6.1. Desired Character

The Morphett Precinct is located east of Tapleys Hill Road, with frontages to Warren Avenue, James Melrose Road and the northern end of Morphett Road. The precinct is adjacent the City of West Torrens Waste Transfer Station and the industrial areas of North Plympton and Camden Park.

The Morphett Precinct may include a mix of industrial and aviation-related support industries, bisected by the drainage channel and linear park of the Brown Hill and Keswick Creeks. The linear park provides for passive recreation and accommodates a pedestrian/bike path linking Tapleys Hill Road and Watson Avenue.

Interim activities within Morphett Precinct may be for recreation, leisure, sport and horse keeping; with future development to comprise commercial activities, including aviation support facilities.

The land also provides stormwater harvesting associated with aquifer storage and recovery systems.

Development will consider potential impacts on residential areas located to the south of the precinct.

Development having a frontage to James Melrose Road should incorporate landscaping to enhance the amenity of the area and to provide a screening effect when viewed from the road or the residential area to the south.

Development should be designed and operated and/or incorporate acoustic treatments and equipment to minimise potential noise exposure and air quality impacts on adjoining developments and residential areas.

Development should be compatible with and enhance the establishment of a park-like setting within the buffer/linear park adjacent to the drainage channel of the Brown Hill and Keswick Creeks.

Where possible, development should provide access to the buffer/linear park and the shared use bike and pedestrian path.

Existing sporting and recreation activities and horse keeping may continue, provided they comply with relevant Standards and Codes, but further intensification of these activities should be limited.

Aquifer storage and recovery systems are provided, adjacent to the Brown Hill Creek easement and opposite the Glenelg Golf Club and designed and operated to avoid any increase in bird populations.

Development should have an attractive appearance when viewed from Warren Avenue and James Melrose Drive; and should be sited and designed to minimise the potential for adverse impact on adjoining residential areas.

Provision is made for a possible future road link between Morphett Road and Richmond Road through the south-eastern corner of the airport.

7.3.6.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Morphett Precinct Structure Plan (Figure 7-7) and the uses listed as Envisaged Development (Table 7-8).



LEGEND

- | | | | |
|-------------------|----------------|--------------------------|-----------------------------------|
| Airport Boundary | Watercourses | Access | Buffers/Greenways |
| Precinct Boundary | Arterial Roads | Potential New Road Links | Commercial |
| Runways | Local Roads | | Office/Warehousing/Industry |
| | | | Aviation Related Support Industry |

Figure 7-7: Morphet Precinct Structure Plan





7.3.6.3. Procedural Matters

Envisaged and Non-Complying Developments for the Airport East Precinct are identified in Table 7-8.

MORPHETT PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Advertisement	Brand outlet centre
Aircraft washdown	Bus terminal
Ancillary development	Caravan park
Aquifer storage and recovery/stormwater harvesting	Dwelling
Aviation-related support industry	Educational establishment
Car parking and storage	Hotel
Clubrooms and associated sporting facilities	Place of worship
Depot	Shop (other than to service the day-to-day needs of the workforce and visitors to the Precinct)
Earthworks or engineering works	Special industry
Emergency services facility	
Emergency staging area	
Environmental protection works	
Equestrian area	
Farming	
Fire-fighting and rescue facilities	
Freight and distribution centre	
Horse keeping	
Horticulture	
Industry (except special industry)	
Office/warehouse	
Plant nursery (including wholesale plant nursery)	
Recreation	
Service trade premises	
Telecommunications facility	
Temporary uses and structures	
Renewable energy generation facility	
Warehouse	

Table 7-8: *Morphett Precinct Use Procedural Matters*





7.3.7. Airport East Precinct

The objective for the Airport East Precinct is to provide:

- An area accommodating a consolidated freight and logistics hub to meet current and future demand from the aviation industry, along with other freight distribution and storage activities that supports the vision of the Commonwealth National Freight and Supply Chain Strategy

7.3.7.1. Desired Character

The Airport East Precinct is within the eastern sector of the airport and is surrounded largely by industrial development consisting of freight logistics and distribution facilities, along with office/warehousing and storage activities.

The Airport East Precinct will be a focus for a major freight, transport and logistics hub. The precinct may also accommodate aircraft-maintenance facilities, aircraft hangars, and ancillary aviation-support activities. The Airport East Precinct presents a logical expansion to consolidate existing on-airport freight operations, adjoining off-airport industrial, warehouse, distribution and logistics operations and general transport related uses; and may provide for uses that have a relationship to the airport or benefit from an airport location.

In addition to the landscaped buffers, developments will seek to minimise impacts on nearby residential areas to the north, east and south of the precinct by considering:

- the design and style of buildings and the layout of vehicle parking areas
- the provision of landscaped earthen mounds in buffer areas facing Watson Avenue and landscaped parks fronting Beare Avenue
- the provision of landscaped acoustic treatments facing Morley Street
- the orientation of loading bays to be positioned and operated away from residential areas

Lighting servicing industrial facilities should be positioned to minimise any impact on surrounding residential development and to be compatible with aviation services.

Industrial buildings, including associated activities such as forklift services, freight-loading vehicles or aircraft engine testing, are to be constructed to prevent noise emissions external to the premises or from the airport site that would exceed relevant acoustic standards and controls, consistent with the *Airports (Environment Protection) Regulations 1997*.

Development of the Airport East Precinct should provide for a possible future road link between Richmond and Morphett/Deeds Roads, and also between Richmond Road and the Terminals & Business Precinct.

7.3.7.2. Principles of Development Control – Structure Plan

Development should generally be in accordance with the Airport East Precinct Structure Plan (Figure 7-8) and the uses listed as Envisaged Development (Table 7-9).

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LEGEND

- | | | | |
|-------------------|----------------|-----------------------------|-----------------------------------|
| Airport Boundary | Watercourses | Access | Aviation Related Support Industry |
| Precinct Boundary | Arterial Roads | Potential New Road Links | Buffers/Greenways |
| Runways | Local Roads | Potential New Airside Roads | Office/Warehousing/Industry |
| Airport Terminal | | | |

Figure 7-8: Airport East Precinct Structure Plan



7.3.7.3. Procedural Matters

Envisaged and Non-Complying Developments for the Airport East Precinct are identified in Table 7-9.

AIRPORT EAST PRECINCT USES	
ENVISAGED DEVELOPMENT	NON-COMPLYING DEVELOPMENT
Aircraft hangar	Caravan park
Ancillary development	Clubrooms
Animal agistment for export purposes	Community centre
Aviation-related support industry	Dwelling
Bus terminal	Helicopter landing and parking
Car parking and vehicle storage/holding area	Hotel
Earthworks or engineering works	Motel
Environmental protection works	Shop (other than to service the day-to-day needs of the workforce and visitors to the precinct)
Firefighting and rescue facilities	Special industry
Freight and distribution centre	
Industry	
Motor repair station	
Office	
Office/warehouse	
Runway-related activities and facility	
Service trade premises	
Shop (to service the day-to-day needs of the workforce and visitors to the precinct)	
Store	
Technology facilities	
Telecommunications facility	
Temporary uses and structures	
Warehouse	
Weather and atmosphere testing facility	

Table 7-9: Airport East Precinct Use Procedural Matters



7.4. Alignment with Surrounding Land Uses

Since 2014, there have been limited changes to the zoning of land or nature of existing land use/developments surrounding the airport.

The main land-use zones surrounding the Adelaide Airport site are Residential, Industry, Community and Recreation uses.

The airport site is surrounded by several large areas of open space incorporating the West Beach Parks complex to the west, Kooyonga Golf Club to the north, and the Glenelg Golf Club to the south.

Two key industrial areas are adjacent Adelaide Airport:

- The Netley industrial area located immediately to the east of the Airport East Precinct
- The North Plympton industrial area, located immediately to the south-east of the airport

The North Plympton industrial area includes the City of West Torrens waste-transfer station. While this activity poses potential risks to aviation due to attraction of birdlife, AAL actively engages with the site operator on management strategies to minimise such risks.

The remaining land surrounding the airport is primarily zoned Residential and includes the suburbs of West Beach, Lockleys, Mile End, West Richmond, Plympton, North Plympton and Glenelg North. These residential areas are all within the three council areas of West Torrens, Charles Sturt and Holdfast Bay.

AAL will continue to monitor off-airport development, including the preparation of planning policies and master plans, affecting the ongoing airport operations. Specific issues for consideration relate to the location of sensitive land uses, along with height and scale of development, which may negatively impact upon airport operations now and into the future.

Further information on airport safeguarding is provided in Chapter 12.

Figure 7-9 illustrates the land uses surrounding the airport.

7.5. Sensitive Development

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

- Residential dwelling
- Community-care facility
- Pre-school
- Primary, secondary, tertiary or other educational institution
- Hospital

Sensitive developments do not include:

- 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 treatments which does not have in-patient 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 permitted under exceptional circumstances. The exceptional circumstances must be demonstrated before the Commonwealth Minister agrees to a Major Development Plan being prepared for the proposed development.



LEGEND		LAND USES	
	Airport Boundary		Commercial
	Freehold Land		Retail Commercial
	Runways		Food Industry
	Airport Terminal		Education
	Arterial Roads		Public Institution
	Local Roads		Golf
	Watercourses		Recreation
			Residential
			Utilities/Industrial
			Vacant

Figure 7-9: Surrounding land uses

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7.6. Pre-Existing Interests

There are several leases which existed prior to AAL taking over the management of Adelaide Airport in 1998 that continue to operate. These pre-existing interests are listed in Table 7-11.

There are several existing easements over the airport site which are discussed in Chapter 11. In any proposal for future development on airport land, AAL will act consistently with the obligations or interests that exist with pre-existing interests and service providers.

ORGANISATION	PURPOSE	LOCATION
Airservices Australia	Operations Complex	Tapleys Precinct
Airservices Australia	Fire Station	Runways Precinct
Airservices Australia	Transmitter NDB Site	Runways Precinct
Airservices Australia	Glide Path Site	Runways Precinct
Airservices Australia	Control Tower Site	Runways Precinct

Table 7-10: Pre-Existing Interests

7.7. Development and Building Assessment Process

7.7.1. Development Assessment

Under the Airports Act, control over land-use planning and development on the airport remains with the Commonwealth Minister for Infrastructure, Transport and Regional Development. AAL is required to make decisions on development proposals that are consistent with the approved Master Plan.

The development assessment process prescribed in this Master Plan closely aligns with the current South Australian planning system.

Figure 7-10 indicates the development decision matrix for specific forms and types of development at Adelaide Airport. The decision-making steps in this process include:

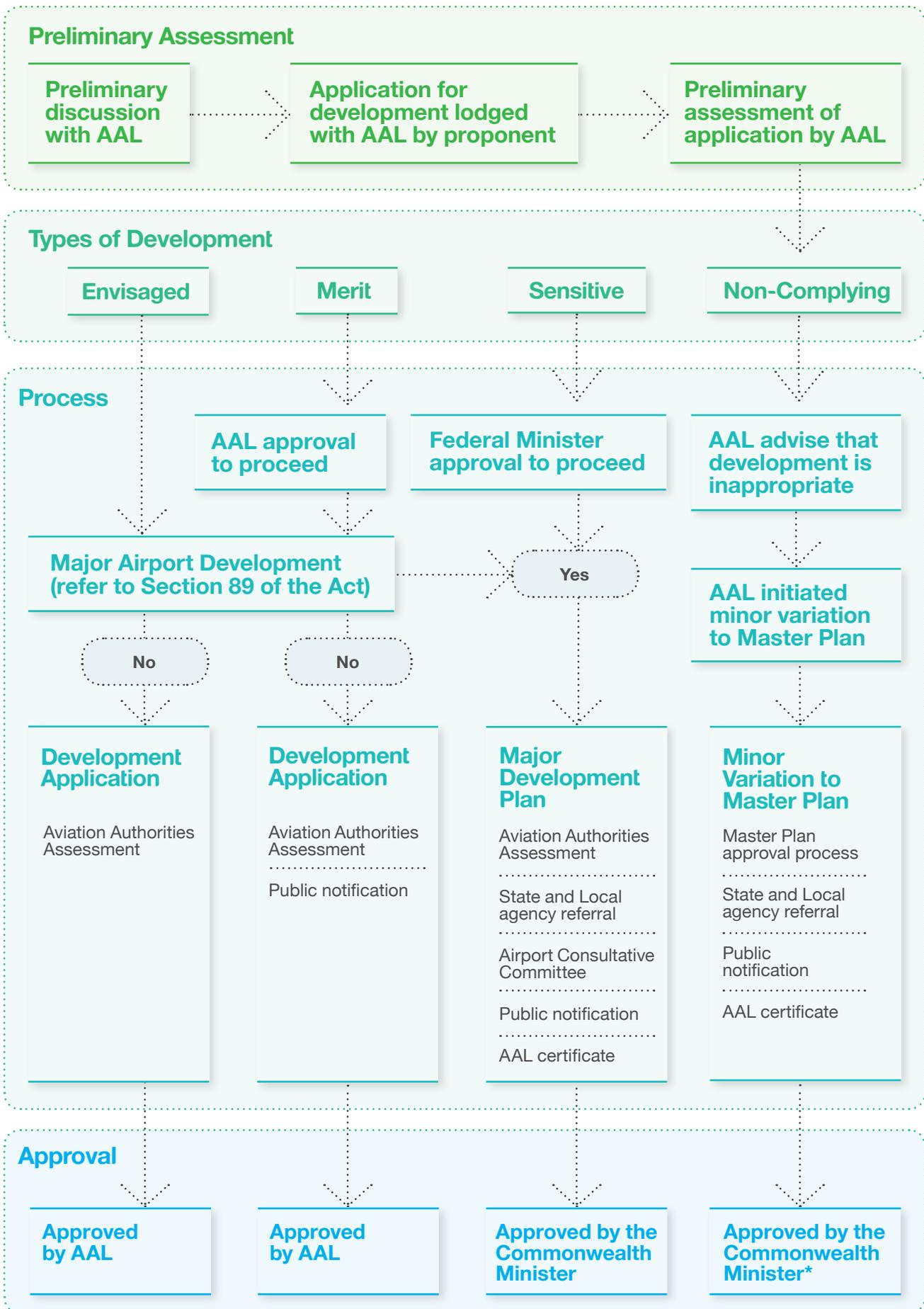
- The decision of AAL to lease land for particular forms of development
- The decision of airport authority regulators (such as DITCRD and CASA) to accept development which will not unduly impact upon airport and aviation activities and operations
- The decision of AAL as to the appropriateness (or otherwise) of the development against the approved Master Plan. This discretionary decision considers:
 - The Adelaide Airport Business District Objectives and Principles of Development Control
 - The relevant Precinct Objectives and Principles of Development Control
 - The general consistency with the Structure Plans for the relevant Precinct
- Considering whether the proposed development is classified as a Sensitive Development as defined by the Airports Act
- Considering whether the proposed development triggers a Major Development as defined under the Airports Act and includes development which may have a significant impact to the community

If a development proposal is not identified within the relevant Precinct as Envisaged or Non-Complying it will be processed as a 'Merit' use development and may be subject to an agency referral and public consultation process prior to a decision being made by AAL on whether to approve the proposal. This is detailed in the Development Decision Matrix at Figure 7-10.

Should an application be subject to the Public Notification process, AAL may place a notice of the proposed development in a newspaper circulating within the region and provide advice to the members of the Adelaide Airport Consultative Committee and the Adelaide Airport Planning Coordination Forum with regard to the proposed development. Such a process will assist in informing key groups/affected persons of the proposed development and allow 10 business days for written submissions to be submitted. Written submissions will be considered by AAL prior to any decision being made on the proposed development.

If a development proposal is identified as being Non-Complying within the relevant Precinct, and the proposal is considered by AAL to have merit, such an application could trigger a Minor Variation to the Adelaide Airport Master Plan under Section 84A of the Airports Act for a decision by the Minister.

Development Decision Matrix



*Subsequent to the approval of a Minor Variation to the Master Plan, the proposed development will then be assessed in accordance with the relevant type of development (Envisaged or Merit).

Figure 7-10: Development Decision Matrix

7.7.2. Building Assessment Process

All development on airport land is subject to building approvals consistent with the provisions of the Airports (Building Control) Regulations 1996. This process is similar to the Building Rules Assessment process under the South Australian planning system.

Figure 7-11 provides an outline of the Development and Building Approvals process.

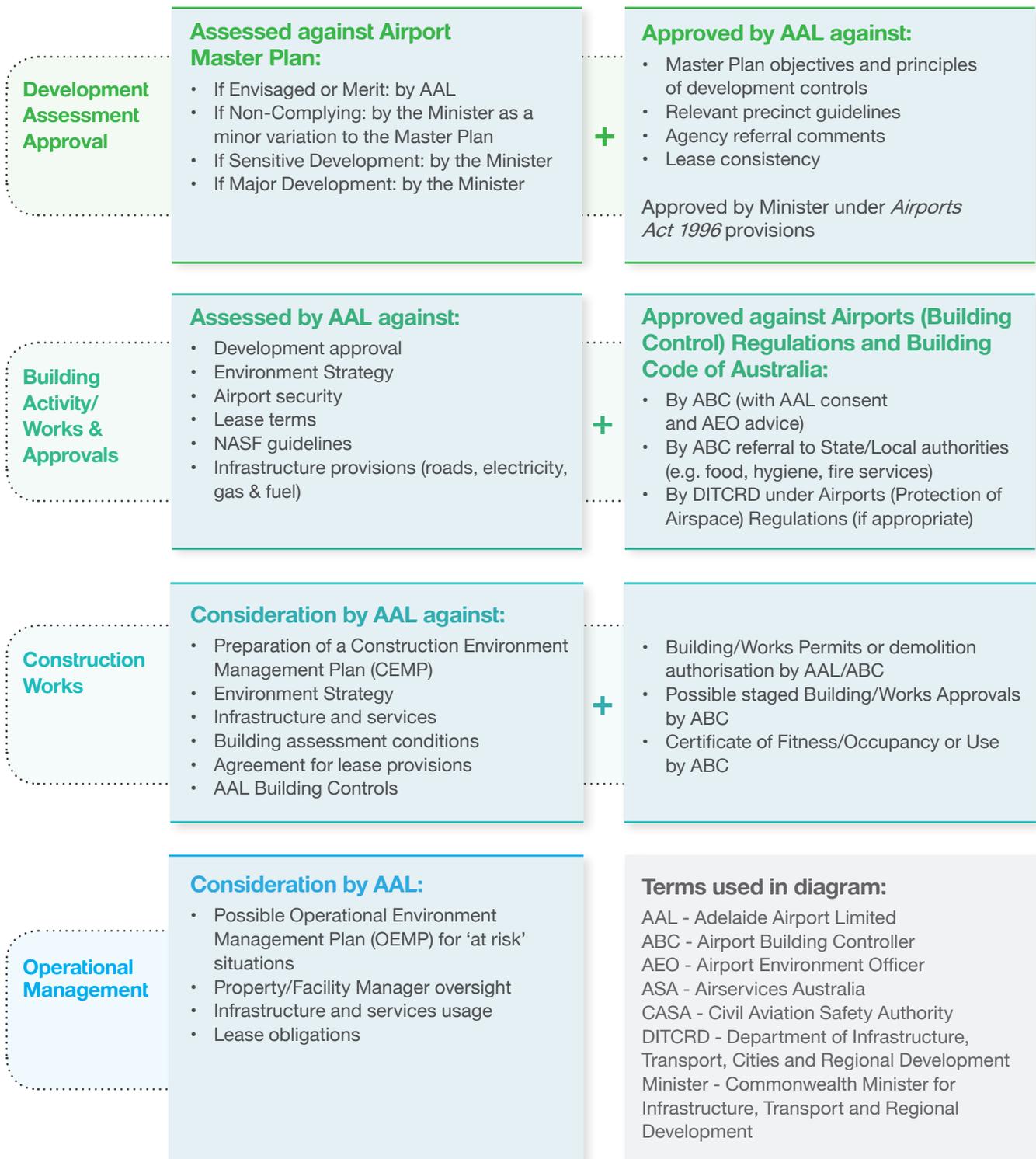


Figure 7-11: Development and Building Approvals Process Diagram



8

Aviation Development



8.1. Introduction

The ongoing development of both the airfield and terminal to meet forecast passenger and aircraft demand is fundamental to the successful operation of Adelaide Airport.

Terminal developments provides additional capacity to meet the forecast passenger demand in 2039 and beyond. It provides flexibility in implementation and is adaptable to meet passenger expectations for both a safe and relaxed travel experience, as well as the changing requirements of airlines.

Airfield developments and enhancements are planned to provide sufficient capacity to meet the projected passenger and air traffic demands at Adelaide Airport in 2039.

Taxiway developments will be based on safety, efficiency of operation and meeting demand. Planned apron developments respond to proposed terminal developments, enable growth of aviation-support facilities and provide layover stands for aircraft parking flexibility.

8.2. Overview

- The existing runway system provides sufficient capacity to handle the forecast volumes of air traffic beyond the 20-year planning horizon of this Master Plan
- The first eight years of the Master Plan, to 2027, will focus on expansion of Terminal 1 to the north-east, with subsequent expansion being to the south-west
- The current Terminal Expansion Project (TEx) will significantly upgrade the international arrivals and departures, and create more retail and dining options for both domestic and international travellers. It provides the building blocks for Terminal 1 improvements for the next eight years
- New technologies and finding innovative solutions will improve customer experience, optimise operations and reduce disruptions
- A staged program of development to increase passenger terminal facilities, aircraft parking and apron expansion is proposed over the 20-year planning horizon, responding to both demand and airlines' needs

8.3. Terminal Development Plan

Airport terminals around the world are the interface between the travelling public, airlines and operators. They are constantly changing, responding to passenger needs and aviation growth. Most recently, the focus has been on passenger processing, with the aim to provide an 'end-to-end' passenger experience that is secure, seamless and efficient.

The Adelaide Airport Terminal 1 is an integrated terminal for all international, domestic and regional passenger flights. The 71,000 square metre terminal building over three levels provides aesthetic, modern and efficient facilities to meet the needs of the travelling public, airlines and operators. It was opened in 2005.

Terminal 1 provides flexibility in design and operation, with 'swing gates' providing the flexibility of passenger boarding lounges to be used for both international and domestic aircraft to match airline schedules. Check-in facilities are located in a combined hall for both international and domestic passengers and include fast-travel initiatives such as kiosks and bag drops.

Terminal 1 features an extensive range of retail and food and beverage outlets; as well as lounges operated by Qantas, Virgin Australia and Singapore Airlines.

New technologies will improve customer experience, optimise operations and reduce disruptions. Technologies already being implemented at Adelaide Airport include the progressive upgrade from conventional check-in counters to self-service check-in and bag drop, use of permanent bag tags to replace paper bag tags, and SmartGate automated self-service border control services.

The location of Terminal 1 is shown in Figure 8-1.

8.3.1. Terminal Development Triggers

The International Air Transport Association (IATA) publication Airport Development Reference Manual (ADRM) is a guide for planning new, or extending existing, airport facilities. The ADRM is an important source for the planning and design of airports. It is used by Adelaide Airport in conjunction with other planning tools including simulation, customer surveys, industry benchmarking and extensive stakeholder consultation to determine future development needs.

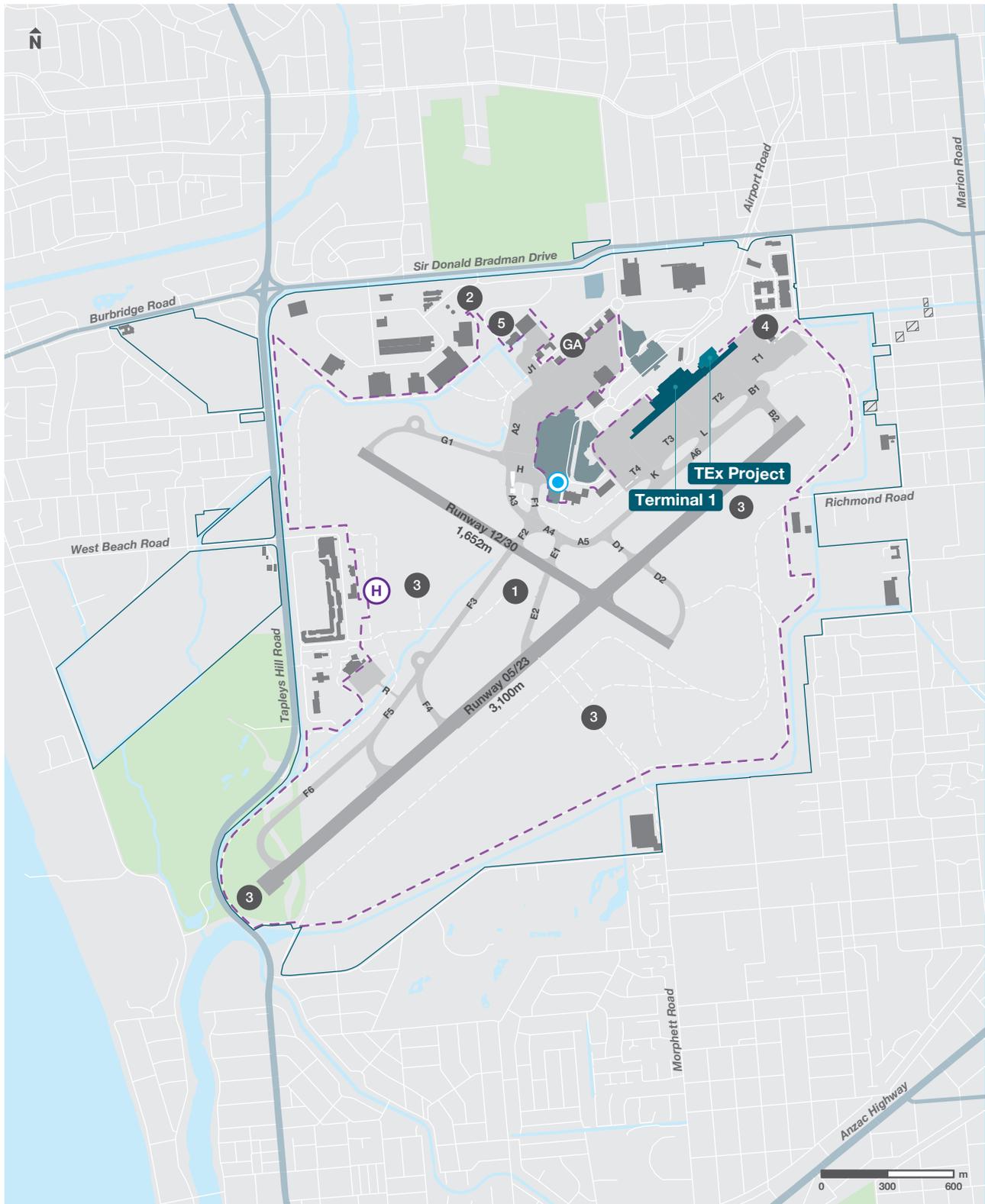
The more recent version of the ADRM considers both space required and wait times to ensure that an optimum level of service is provided. Developments must also be flexible while catering for the many different operations and operators.

The need to build new, extend or improve a terminal facility, including the sub-processes within the terminal (e.g. check in, security etc.) may be triggered for a number of factors including:

- Growth in the peak periods (busy-hour demand)
- Improving customer experience
- Reducing processing delays (such as improving security-screening processing times)
- Introduction of new security requirements that may impact on infrastructure or spatial requirements and passenger facilitation rates
- Improving safety
- Catering for special events

The size of a terminal building (including the number of aircraft parking positions) is based on the forecast number of passengers, aircraft movement and visitors during the 'design busy hour'. The busy-hour calculations are an extension of the annual passenger and aircraft movements forecasts, and consider the airline current and forecast schedule profiles.

Adelaide Airport also works closely with airlines to ensure that the terminal is fit for purpose. Developments are subject to commercial negotiations with both domestic and international airlines depending upon the part of the terminal and/or process being considered.



LEGEND

- | | | |
|----------------------------|--------------------|---------------------------|
| Airport Boundary | Buildings | Arterial Roads |
| Freehold Land | Airport Car Parks | Local Roads |
| Runways | Taxi Lay-off Area | Airside Roads |
| Taxiways/Aprons | Parks and Reserves | Security Fenceline |
| Airport Terminal | Watercourses | Air Traffic Control Tower |
| Terminal Expansion Project | | Helipad West |

ELEMENT DESCRIPTION

- | | |
|----|---|
| X# | Taxiways |
| GA | General Aviation |
| 1 | Aviation Rescue and Fire Fighting Service |
| 2 | Joint Oil Storage Facility |
| 3 | Navigation Systems |
| 4 | Cold Storage |
| 5 | Catering |

Figure 8-1: Current Airport Layout



8.3.2. Terminal Expansion Project (TEx)

Construction of a \$165 million terminal expansion commenced in August 2018. Terminal Expansion Project (TEx) will significantly upgrade international arrivals and departures, and create more retail and dining options for domestic and international travellers.

TEx will ensure Adelaide Airport continues to provide a high level of customer experience for all travellers well into the future. TEx will upgrade and expand the main terminal at Adelaide Airport to support the continued increase of international passengers.

Scheduled for completion in mid-2021, TEx will:

- Improve passenger processing and security-screening facilities
- Dedicate Gate 18 as a permanent international gate
- Expand the duty-free precinct for international arrivals and departures
- Provide new food, beverage and retail offerings
- Improve family-friendly facilities, including play areas in international departures area
- Relocation of Border Agencies' offices and

installation of a second international-arrivals reclaim belt

- Relocate the international passenger screening from level 2 to level 1 with provision for a third screening lane
- Relocate and expand the Virgin Australia Lounge
- Provide VIP facilities for international arrivals and departures
- Deliver a common-user premium international lounge
- Improve disability access facilities
- Expand office areas for airport operators

Figure 8-2 visualises TEx after completion and Figure 8-3 shows the TEx project plans.

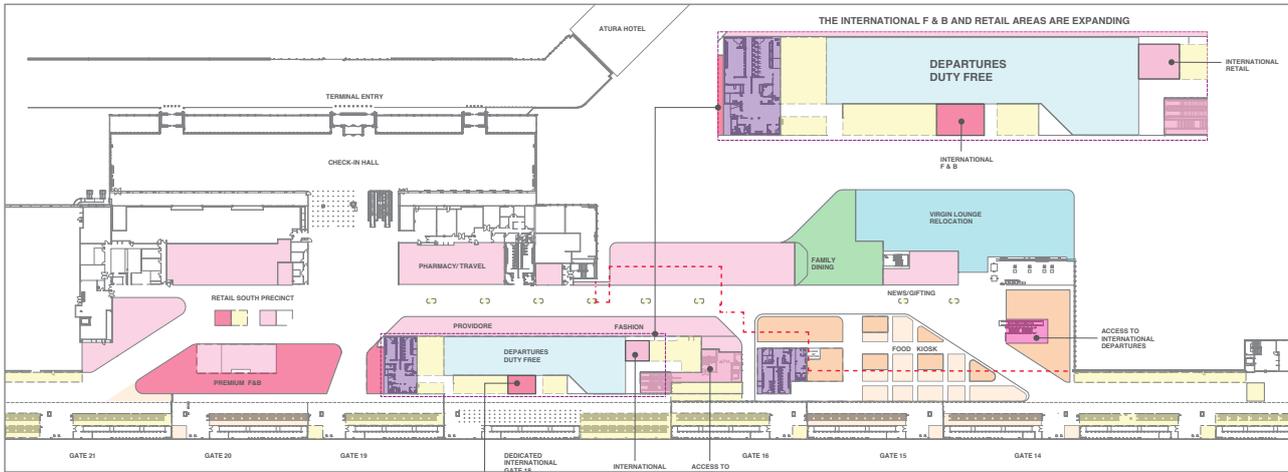
8.3.3. Security Screening

Aviation security arrangements are regularly under review by the Commonwealth Department of Home Affairs. In addition to the TEx project, AAL will be implementing new security measures at screening points and throughout the airport as required.

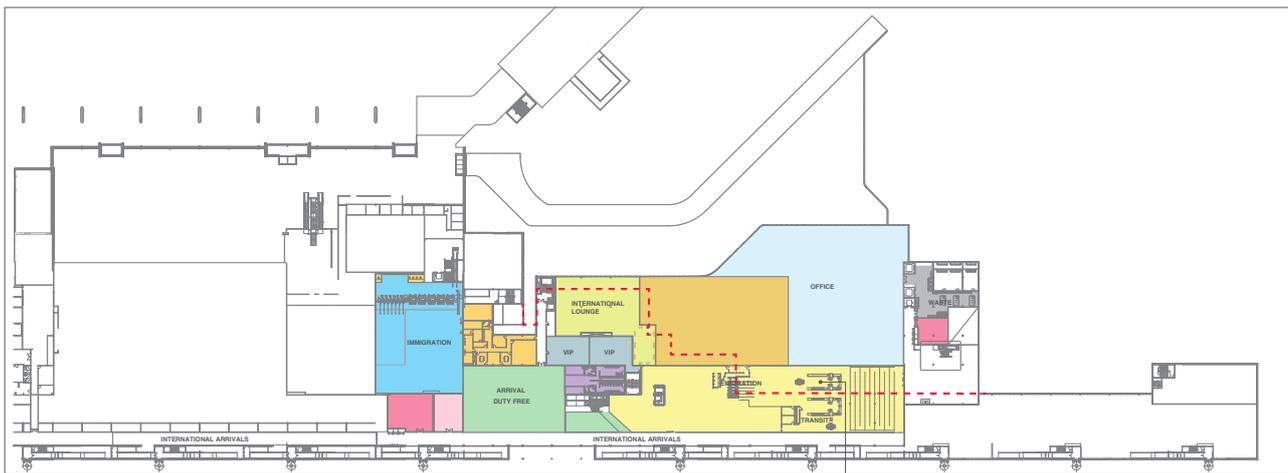


Figure 8-2: Artist Impression of Terminal Expansion Project

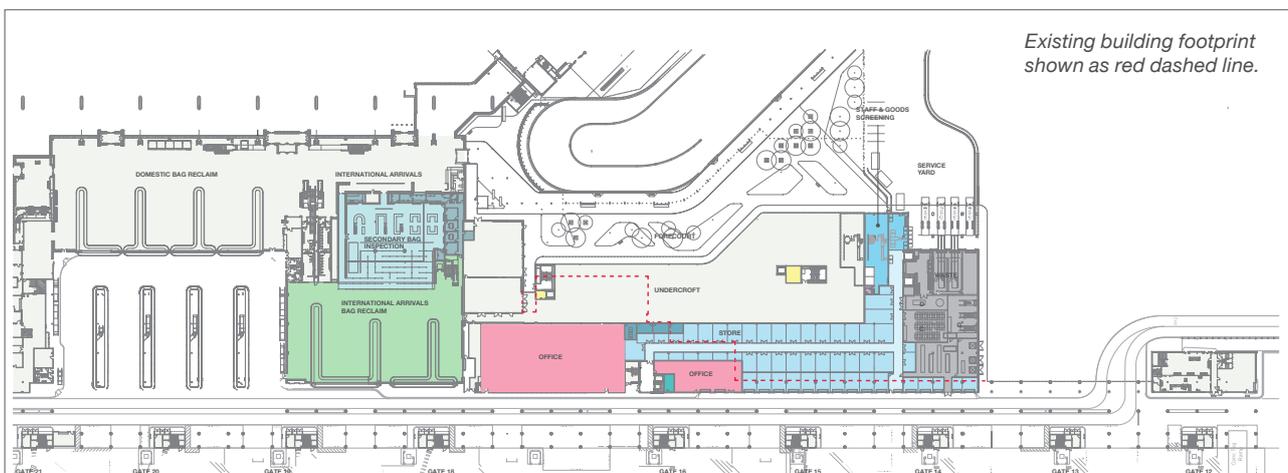




TEx Project Level 2



TEx Project Level 1



TEx Project Ground Level

Figure 8-3: Terminal Expansion Project (TEx)





8.3.4. Future Terminal Expansion

Long-term planning for terminal layouts needs to consider the interrelationship with both the ground transport system and the airfield system (runway, taxiway and aprons). Sound terminal planning follows a long-term vision that maximises the terminal and its ancillary relationships, and also ensures that all sub-systems are working in harmony.

Technologies available today and into the future are rapidly changing and therefore it is difficult to predict the long-term terminal space requirements. Therefore, a Terminal Zone is defined. The long-term terminal zone for Adelaide Airport will see the terminal, in the first instance, expanded both to the north-east and to the south-west before the need to provide a pier towards the current General Aviation area. This is shown in the concept diagram in Figure 8-4.

The Terminal Zone could either be built from routes that facilitate passenger boarding.

The principles that support the long-term vision include:

- Delivering innovative solutions for all airport users
- Flexibility to respond to the forecast traffic growth for international, domestic, regional or general aviation operations
- Developing an Adelaide Airport of tomorrow that will feature new technologies and processes that make the customer experience faster, easier and more intuitive
- Maintaining common-use and equitable access to facilities to maximise efficiency of infrastructure

- Ensuring sufficient aircraft-parking positions for long-term demand, catering for a variety of aircraft types and sizes
- Maintaining a landside plaza ensuring required terminal stand-off distances, increases opportunities for entertainment and commercial offerings, while also facilitating passenger processing
- Maintaining safe, efficient and free-flowing ground movements of aircraft on taxiway and apron areas while minimising taxiing distances, reducing fuel usage and increasing runway capacity now and into the future
- Maintaining land available for ground transport, including roads and improved public transport offers (including potential future high capacity public transport) that caters for various transport modes and changing technologies
- Maximising the integration and connectivity across the Airport Business District
- Providing necessary car parking and locating car rental facilities close to Terminal 1 until traffic levels and space availability trigger the need for remote-parking facilities
- Ensuring the terminal layout optimises potential and current commercial performance and ensures a level of flexibility if common departure lounges were to be implemented

The timing and staging of terminal expansion towards the long-term vision will be determined by demand for terminal capacity and aircraft-parking positions.

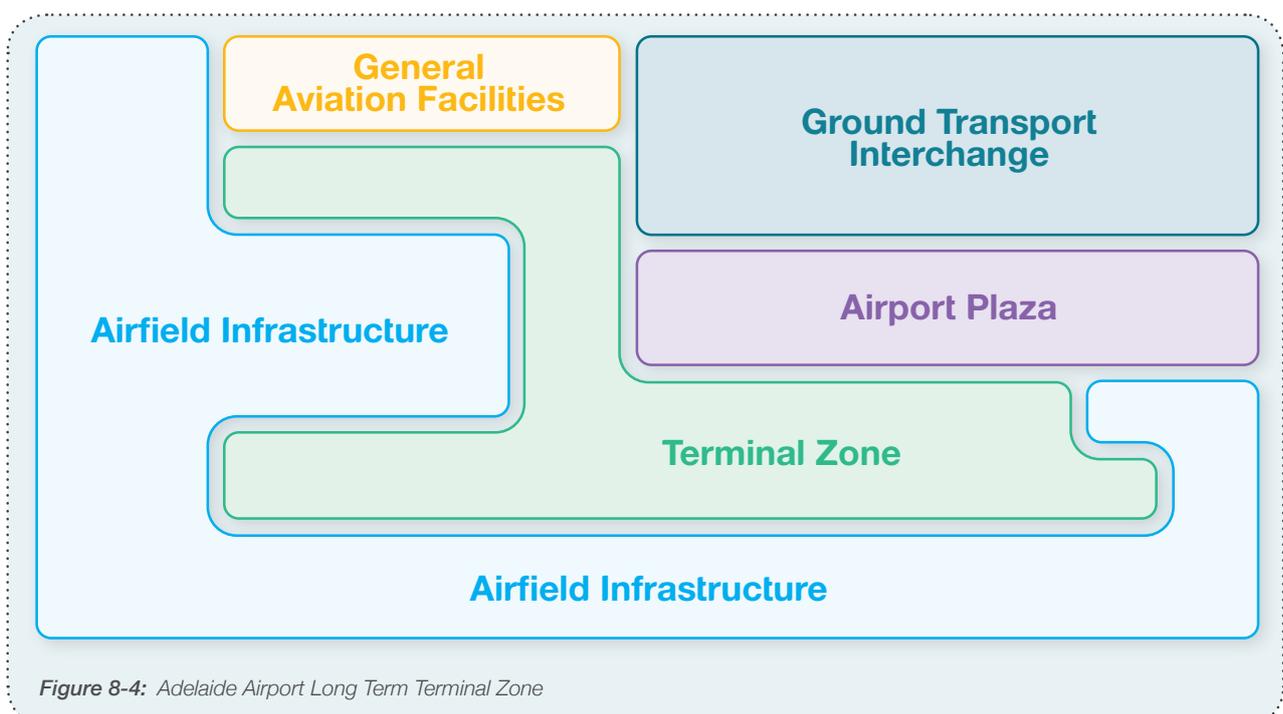


Figure 8-4: Adelaide Airport Long Term Terminal Zone

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8.3.4.1. Innovation in Design

The development and implementation of this Master Plan is not just about building infrastructure, but about delivering innovative solutions that are right for customers, being passengers, tenants and airlines.

Future technologies that may be considered during the planning period may include:

- Use of smart phones to guide passengers through the entire travel journey, from when they leave home to when they are at the airport
- Permanent bag tags embedded in passenger luggage that allows:
 - Decentralised bag drop, such as a drive through at the airport or at hotels or in the city, to allow passengers to arrive at the terminal with bags already checked-in and unencumbered by luggage
 - Bag factory, allowing luggage to be checked-in at any time and screened and stored until ready for loading on aircraft
- Combined security and emigration walk-through screening that applies biometric technology
- Self-boarding or boarding by autonomous shuttle for aircraft departures
- Baggage on demand, which provides smart phone notification when bags are ready for collection and allows bags to be delivered direct to the customer within the terminal or to the customer's destination (e.g. house, or hotel)
- Easy gates/rapid gates
- Vertical lift (commuter drones)

Technological advances expected over the next 20-years will result in more efficient and common-user facilities. The expansion of check-in facilities is likely to use fast-travel technology instead of traditional counter processing. Emigration and Immigration are expected to take full advantage of one-step biometric technology.

8.3.4.2. Proposed Terminal Developments

Based on current forecasts, it is anticipated that by 2027 the following areas will need to be extended and or upgraded:

- Expansion of the central security-screening point (due to changes in security regulations)
- Expansion of the departure lounge to the north to accommodate domestic traffic which will support additional aircraft parking positions
- Reconfiguration of the baggage handling system
- Expansion of the baggage make-up area to the south
- Increased check-in capacity, including 'common-user, fast check-in technology and bag-drop

Between 2027 and 2039, it is anticipated that the following areas may need to be extended or upgraded:

- Expansion of the departure lounge to the south and commencement of a new pier development
- Expansion of the departure lounge which could see airline lounges move to level 3
- Domestic baggage-reclaim expansion. The number of baggage-reclaim units may need to double which is likely to require an expansion of the baggage hall beyond the existing building footprint
- Improved retail offerings throughout the terminal
- Further expansion of the International baggage-reclaim area
- Increase space required for International airline lounges
- Expansion of the Emigration Hall to meet peak passenger requirements
- Expansion of the International Arrivals Hall

8.4. Airfield Development Plan

The airfield is the area of the airport used for aircraft operations. It includes the runways, taxiways, aprons and parking stands.

Runways represent the backbone of airport infrastructure. Adelaide Airport has two runways:

- The main runway 05/23 is 3,100 metres long and 45 metres wide
- The cross runway 12/30 1,652 metres long and 45 metres wide

The main runway accommodates larger, long-haul wide body international aircraft (Code F) as well as smaller domestic narrow body and regional aircraft. Being shorter in length at 1,652 metres, the cross runway is limited to regional aircraft and some domestic operations. The cross runway does however provide sufficient runway capacity in the event of a 20-knot crosswind on the main runway for aircraft up to Code D.

The current airfield layout is shown in Figure 8-1.

8.4.1. Airfield Development Triggers

Airfield infrastructure is planned and designed according to international and national standards and recommended practices. CASA is responsible for developing the detailed technical requirements that are necessary for the safety of aerodromes and air navigation of airports in Australia. The Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998 sets out the standards for airfield infrastructure. The standards are based on a reference code that refers to a grouping of aircraft types based on characteristics such as aircraft wingspan and wheel track. The reference code then corresponds to a 'critical aircraft' which is the most demanding aircraft type for the airport infrastructure. For Adelaide Airport this is a Code 4E aircraft which represents an Airbus A350 or a Boeing B777. However, the 'critical aircraft' does change when considering the design of aircraft parking positions and access to the General Aviation area.

The need to construct new, extend or improve airfield infrastructure may be triggered for a number of reasons including:

Apron

- Growth in peak periods (busy-hour demand)
- Improving customer experience
- Introduction of a new aircraft types including larger aircraft
- Increasing demand for overnight parking
- Improving safety

Taxiways

- Reducing taxiing distances, delays, fuel burn or emissions
- Reducing runway occupancy time
- Introduction of a new aircraft types including larger aircraft. This may also require taxiway shoulders to be widened
- Improving safety

Runway

- Growth in peak-period aircraft movement (demand for arrivals, departure or a mix of arrivals and departure)
- Annual aircraft movements for long-term planning
- Improving airline on-time performance
- Introduction of new, larger aircraft types

As with terminal planning, AAL works closely with airlines to ensure that the airfield infrastructure is fit for purpose and that developments are subject to commercial negotiations with international, domestic and regional operators. Planning for airfield infrastructure also requires close collaboration with CASA and Airservices to ensure operational safety and efficiency.



8.4.2. Runways and Taxiways Development Plan

The existing runway system has sufficient capacity for arriving and departing aircraft to handle the forecast volume of air traffic over the 20-year planning period of this Master Plan and beyond.

Land is reserved within the Runway, Topleys, Terminals & Business and West Beach precincts for a future third runway. The third runway is planned to be located parallel to the main runway and on the western side of Terminal 1. While it is not envisaged that the third runway will be required within the planning period of this Master Plan, the reserved land will be maintained and preserved for the long-term development potential for a third runway.

Both the main runway and the cross-runway are served by a full-length taxiway system which provides for the safe and efficient movement of aircraft between aprons, holding bays and runways.

Consideration has been given to supplementing the existing taxiway system to facilitate improved access and egress from the two runways to the adjacent terminal apron and facilitate queuing of aircraft. As such, the Master Plan provides for future enhancements to the taxiway system – including a taxiway extension, a new taxiway and enhancements to improve efficiency – providing greater flexibility of use and meeting future demand.

8.4.3. Aircraft Parking Development Plan

Aircraft parking positions provide for the safe parking of aircraft, transfer of passengers and freight and also enable the servicing and maintenance of aircraft.

Aircraft parking at Terminal 1 accommodates all international, domestic and regional aircraft that operate at Adelaide Airport, and can accommodate some parking of non-active aircraft during non-peak times.

An expansion of the southern apron area, to the south-west of Terminal 1, was completed in recent years. The expansion added approximately 20,000 square metres to the southern apron and created additional aircraft parking for four aircraft, two of the bays are Code C equivalent (Boeing B737, Airbus A320).

Terminal 1 has current capacity for up to 31 aircraft, depending on the types and sizes of aircraft to be accommodated. A separate aircraft parking apron is provided for most other aircraft, including general aviation, dedicated freight and layover aircraft.

To consider the future requirements for aircraft parking positions, a stand demand (aircraft parking bay) forecast has been undertaken. The results for which are shown in Table 8-1.

PEAK STAND DEMAND	2018		2027		2039	
Active	Code E	2	Code E	4	Code E	6
	Code C	12	Code C	14	Code C	21
	Turbo Prop	12	Turbo Prop	12	Turbo Prop	11
	Total	26	Total	29	Total	38
Non-Active	Code E	0	Code E	2	Code E	2
	Code C	3	Code C	3	Code C	5
	Turbo Prop	2	Turbo Prop	3	Turbo Prop	5
	Total	5	Total	8	Total	12
Total	Code E	2	Code E	6	Code E	8
	Code C	15	Code C	17	Code C	26
	Turbo Prop	14	Turbo Prop	14	Turbo Prop	16
	Total	31	Total	37	Total	50

Table 8-1: Aircraft Parking Demand





LEGEND			
Airport Boundary	Watercourses	Airport Terminal	Turbo Prop Aircraft
Runways	Air Traffic Control Tower	Terminal Expansion Project	Code C Aircraft
Taxiways/Aprons	Local Roads		Code E Aircraft
Airport Car Parks	Airside Roads		Inactive Aircraft
Buildings	Potential New Road Links		

Figure 8-5: Existing Apron





LEGEND			
Airport Boundary	Watercourses	Airport Terminal	Turbo Prop Aircraft
Runways	Air Traffic Control Tower	Proposed Expansion Within Terminal Zone	Code C Aircraft
Taxiways/Aprons	Local Roads	Proposed Pavement Expansions	Code E Aircraft
Airport Car Parks	Airside Roads		Inactive Aircraft
Buildings	Potential New Road Links		

Figure 8-6: Proposed 8-Year Apron Development Plan



LEGEND			
Airport Boundary	Watercourses	Airport Terminal	Turbo Prop Aircraft
Runways	Air Traffic Control Tower	Proposed Expansion Within Terminal Zone	Code C Aircraft
Taxiways/Aprons	Local Roads	Terminal Zone	Code E Aircraft
Airport Car Parks	Airside Roads	Proposed Pavement Expansions	Inactive Aircraft
Buildings	Potential New Road Links		

Figure 8-7: Proposed 20-Year Apron Development



The Master Plan proposes staged developments of aircraft parking layouts to meet the forecast stand demand through to the 20-year horizon, as detailed in Table 8-1. Considering the annual forecasts and anticipated airline schedules, it is expected that an additional six aircraft parking positions will be needed by 2027 and a total of 50 aircraft parking positions will be required by 2039. Flexible use of aircraft parking areas will be considered, including Multiple Aircraft Ramp System positions.

In the medium term, it is anticipated that the expansion of aircraft parking area may require an expansion of the apron to the north. This may include relocation of regional airlines to the western side of the northern pier and establishment of three additional Code C gates at the end of the northern pier. An expanded tow-off apron may be established at the northern end of the apron adjacent to the cold-storage building to facilitate parking for long-stay aircraft and allow future expansion. Expansion will then continue as the terminal expands, which is anticipated to be to the south and then south-west in line with the development of the pier towards the General Aviation area.

Potential aircraft parking position layouts and staging are shown in Figure 8-5, Figure 8-6 and Figure 8-7.

8.4.4. Freight Facilities

Streamlined and integrated freight operations are integral to the success of Adelaide Airport. There are three cargo terminal facilities at Adelaide Airport with direct airside access operated by Qantas Freight, Pak Fresh and Toll. All are located in the Terminals & Business Precinct.

Adelaide Airport currently has eight freight aircraft stands across the General Aviation apron and aircraft parking areas to the north and south-east of Terminal 1. These are to be retained.

The majority of air freight is transported in the cargo hold of scheduled passenger flights, including exports from Australia. Major exports include fresh, chilled or frozen fruit or vegetables; fish, wine and livestock; as well as high-value pharmaceutical goods. Demand for mail and parcel services, including online shopping, is also expanding (using both passenger aircraft and dedicated freight aircraft).

Freight capacity at Adelaide Airport is expected to increase as air-traffic movements increase, particularly with airlines looking to enhance their commercial returns by using spare cargo-hold capacity for freight. The demand for air freight at Adelaide Airport is outlined in Chapter 6. Dedicated freight-aircraft parking facilities are not envisaged in the short to medium term.

Adelaide Airport is continuing to consolidate freight facilities into a major freight, transport and logistics hub in the Airport East Precinct. The Airport East Precinct provides streamlined airside access to Terminal 1 aircraft parking positions where the majority of freight is then loaded or unloaded from passenger aircraft. In the longer term, aircraft-parking positions associated with freight operations may also be co-located.

A dedicated cold-storage facility of 3,200 square metres with airside access is currently located in the Terminals & Business Precinct immediately to the north of Terminal 1. The cold store has several dedicated aviation-freight operators specialising in the processing and export of meat, seafood and fresh produce.

Due to terminal and aircraft parking position expansion to the north, the cold-storage facility may need to be relocated. The timing of the relocation will be subject to demand and commercial negotiations with airlines. It is likely that the cold-storage facility will be relocated to the Airport East Precinct.





8.4.5. General Aviation

The general aviation area provides facilities for intrastate operations, general aviation and charter operations including a General Aviation Terminal which is located at the southern end of Sir Richard Williams Avenue.

Land within the general aviation area is well developed. Opportunities will continue to arise to redevelop or upgrade existing facilities, resulting in expanded and more modern multi-use facilities.

A new general-aviation terminal replacing the existing facility was initially planned to be developed prior to 2019. The timing of the construction of the proposed facility (which primarily supports general-aviation and charter operations related to the resources sector) is dependent on general-aviation business models, operational needs and forecast demand. A new general-aviation terminal is expected to occur within the planning horizon of this Master Plan.

As Terminal 1 is developed to meet demand, facilities within the general aviation area will be incrementally extended to adjacent areas to the west or relocated to the Tapleys Precinct or Morphett Precinct.

8.4.6. Helicopters

The current operations of helicopters at Adelaide Airport are largely associated with medical and police operations.

Helicopter facilities are situated in the Runway and Tapleys Precincts where a helipad and strip are provided for air taxiing as well as landing and take-off in an east-west orientation.

As demand for development within the Tapleys Precinct grows, the helicopter operations and parking may be shifted to a potential location further to the northern section of the Precinct.

8.4.7. Drone Operations

CASA regulates the use of drones around active airports to ensure safe operations.

As the technology evolves, AAL will continue to work with CASA and relevant stakeholders to ensure the ongoing safe operations of the airport and to explore future drone operations.

8.4.8. Space Tourism

There is an opportunity for spacecraft to operate at Adelaide Airport for space tourism activity in the future. Adelaide Airport will work with space tourism operators to consider the terminal and airfield requirements for spacecraft operations.

8.4.9. Airfield Support Infrastructure

A range of aviation support infrastructure is provided to ensure safe air navigation and aircraft operation at Adelaide Airport.

8.4.9.1. Airservices Australia

Airservices is Australia's air navigation service provider, responsible for providing air traffic control, navigational aids and Aviation Rescue and Fire Fighting (ARFF) services to airports throughout Australia. At Adelaide Airport, Airservices has the following facilities:

- Air Traffic Control tower, maintenance and office complex
- ARFF station and training ground
- Navigational aids

Air Traffic Control Tower

A new Air Traffic Control tower was opened in 2013. It is centrally located between the two runways with good lines of sight to all existing and proposed aircraft movement areas. No further works or upgrades to this facility are envisaged as part of this Master Plan. AAL will work with Airservices to determine infrastructure requirements for digital tower technology improvements that may be introduced in the future.

Aviation Rescue and Fire Fighting Service

The current ARFF facility is located within the Runways Precinct, approximately 330 metres east of the intersection of the main runway and cross runway.

It is expected that the ARFF facility could be replaced in the future, with timing likely to coincide with any Code F (Airbus A380) operations that are introduced at Adelaide Airport. Potential locations include a site near the existing ARFF facility, dependent on future taxiway realignments; or within the Tapleys Precinct to the northern side of the existing helicopter operations. Prior to this occurring, Adelaide Airport will engage extensively with Airservices to determine a suitable location which meets legislative requirements.





Navigation Systems

Airservices maintains the following navigational aid facilities at Adelaide Airport:

- Instrument Landing System (ILS), comprising a localiser and glide-path antenna
- Doppler VHF Omni-Directional Range (DVOR) and Distance Measuring Equipment (DME), and
- Terminal Area Radar (TAR)

The facilities will be regularly reviewed to ensure the requirements over the 20-year planning horizon are met.

Any potential development in the western area of the Runway Precinct (just east of the Tapleys Precinct) will consider the DVOR/DME critical area or consider the possible relocation in consultation with Airservices. Retention or removal would be based on requirements at the time, aircraft avionics fit, and industry agreed national ground-based navigational aid requirements.

8.4.9.2. Approach Lighting

Aircraft approach lighting is operated and maintained by AAL. The approach lighting is located at the ends of the Adelaide Airport runways, extending into residential areas at West Richmond for Runway 23 where such lighting is generally held under easement or by ownership of specific allotments. The long-term continuity of this lighting in the vicinity of the current sites is aligned with aviation services at Adelaide Airport. It is possible that such lighting will be replaced with more efficient systems within the next 20 years.

AAL has purchased freehold land outside of the airport site to ensure the long-term protection of the runway approach lighting corridor. Additional land will be secured as it becomes available.

Transmissometers are planned to be installed by AAL to provide runway visual range information to Airservices Air Traffic Control.

8.4.9.3. Engine Run-Up Bay/Area

Engine ground running is undertaken to test aircraft engines following maintenance. Adelaide Airport has five ground run-up locations in various parts of the airfield.

8.4.9.4. Aviation Fuel

The safe and reliable supply of aviation fuel is critical to continued and future air services at Adelaide Airport.

The Joint Oil Storage Facility (JOSF) caters for the bulk storage of Avgas and Jet A1 aviation turbine fuels used by jet and turboprop aircraft. Exxon Mobil currently owns and manages the JOSF, which is located within the Terminals & Business Precinct.

At present, there are two bulk fuel storage tanks, with a combined total capacity of 2.8 megalitres. There is current fuel storage capacity of approximately 3.5 days' supply.

Bulk fuel is presently transported by fuel trucks daily from the Birkenhead fuel terminal. Maintaining access for fuel trucks is critical to the current and future ground transport planning.

AAL is undertaking a study to assess using part of the previous Port Stanvac to Birkenhead multi-fuel pipeline for aviation fuel purposes.

It is anticipated that two additional fuel storage tanks will be required over the next 20 years to meet forecast demand, bringing the total to four storage tanks. It is anticipated that one tank will be operational by 2027 while the other will be operational by 2034. There is sufficient space to install two additional tanks within the existing fuel storage site. Land south-west of the existing fuel storage facility has been reserved for additional tanks should they be required beyond 2039.

The JOSF is connected to apron fuel hydrants at Terminal 1 via a Joint User Hydrant Installation (JUHI, an underground fuel-hydrant system). Tanker trucks are primarily used to transport and refuel regional, general aviation turboprops and other jet aircraft that do not have fuel hydrants available at the aircraft parking bays.

8.4.9.5. Flight Catering Facilities

In-flight catering is prepared on-site in the Alpha Flight Catering Facility, which has a landside area for delivery and waste-disposal vehicles; and an airside area for cabin-service vehicles.

The existing facility caters for the preparation of 6,900 meals daily (1,900 international and 5,000 domestic).

By 2039, it is estimated that 17,000 meals will need to be prepared daily to cater for the growth in departing flights and passengers. To prepare this quantity, expanded or new facilities are likely to be required. The potential new facility will require both airside access (to facilitate access to the aircraft) and landside access. It may be possible to develop a facility on the current site or a new larger facility in the Airport East Precinct.





8.4.9.6. Aircraft Maintenance

Aircraft-maintenance facilities at Adelaide Airport service large commercial airliners, corporate jets, small general aviation turboprops and helicopters.

Aircraft maintenance and engineering facilities at Adelaide Airport are currently operating out of two precincts:

- Terminals & Business Precinct: services commercial airliner jets, corporate jets and general aviation turboprops
- Tapleys Precinct: services helicopters and the Royal Flying Doctor Service Central Operations facility

The facilities include:

- Hangars
- Paint hangar (for stripping and painting aircraft)
- Engine overhaul and testing (currently located at three strategic locations around the airfield)
- Component overhaul (including landing gear)
- Avionics maintenance
- Technical stores (for the storage of spare parts)
- Dangerous-goods store (includes paint, brake fluid, etc.)

The future requirements for aviation maintenance facilities are dependent on the requirements of operating airlines, the establishment of maintenance facilities by third party operators, and government incentives for establishing maintenance facilities and/or aircraft manufacturing.

The future expansion of Terminal 1 and aprons require the relocation of some of the existing maintenance hangars in the Terminals & Business Precinct. Future hangars and maintenance facilities can be accommodated in the Morphett Precinct, Tapleys Precinct and/or Airport East Precinct.

8.4.9.7. Airfield Maintenance

Airfield maintenance facilities are essential to maintaining an aerodrome. Such facilities are used to store materials for maintenance on plant and equipment in aerodrome buildings, pavement repairs, airside vehicles, radio, communications and other electrical equipment.

The landside airport maintenance facility building is in the Terminals & Business Precinct. The airside maintenance facility is also located in this precinct, with direct airside and landside access.

By 2034, it is anticipated that the existing airport-maintenance facilities will need to be relocated to allow for further expansion of the Terminal 1 passenger area and apron facility. The airport maintenance facilities are likely to be relocated to the Airport East Precinct, however, other precincts may also be considered.

9

Commercial Development



9.1. Introduction

The airport is one of the largest private commercial land holdings in Adelaide. AAL continues to identify and leverage opportunities that add value to the airport's traditional business activities. It does so primarily through maximising property-development opportunities of airport land that is not required for aeronautical purposes. Further such development will complement and enhance future airport operations; support the delivery of a wide range of services and facilities demanded by airport users; and create employment opportunities, which will contribute to the economy of the Western Region of Adelaide as well as the gross state product (GSP).

9.2. Overview

- A new office park is proposed adjacent to Terminal 1, within the Terminals & Business Precinct
- The Airport East Precinct will continue to be developed as a major freight, transport and logistics hub



9.3. Recent Developments

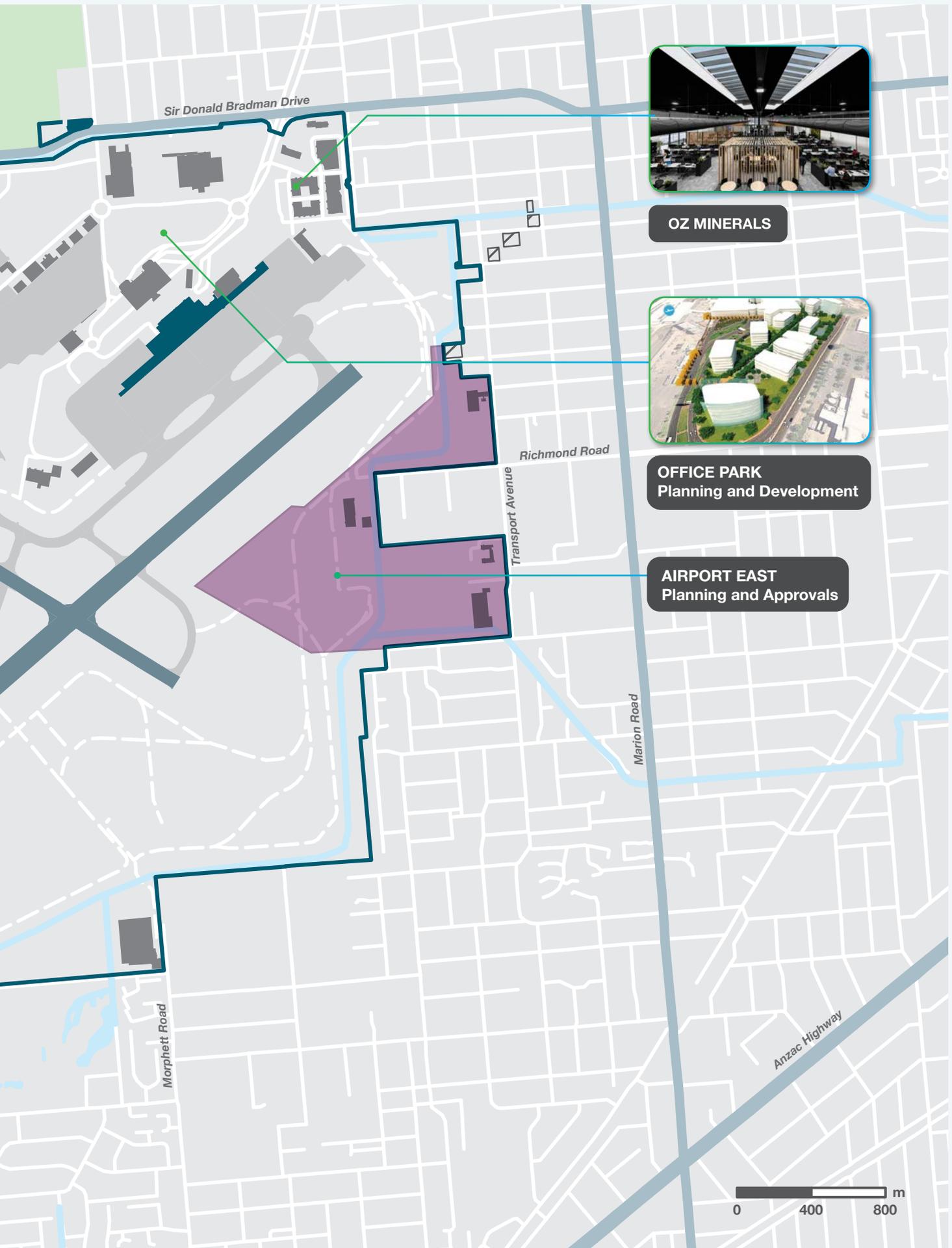
Since Master Plan 2014, much of the commercial development that has occurred at Adelaide Airport has been within the Terminals & Business Precinct. Key commercial developments over the past five years (including developments recently approved) are detailed in Table 9-1 and shown in Figure 9-1.

DEVELOPMENT	DESCRIPTION
TERMINALS & BUSINESS PRECINCT	
Terminals & Commercial Business Policy Area	
Atura Hotel	New Atura Hotel adjacent to Terminal 1, comprising 165 rooms, conference facilities and restaurant/bar, including a pedestrian link from the Hotel to Level 2 of Terminal 1
Masters Hardware Store	The former Masters Hardware Store was constructed and occupied, but currently remains vacant. Alternative uses are presently being considered
OZ Minerals Office	Refurbishment of existing warehouse/light industry for use as the Australian headquarters for OZ Minerals
Burbridge Business Park Policy Area	
Australian Clinical Labs	Pathology laboratories and offices
Aldi Supermarket	Aldi Supermarket servicing the day-to-day needs of the airport's employees and surrounding community
Kennards Self Storage	Self-storage facility for short and long-term storage
AFL Max	Indoor recreation facility and play café, specialising in AFL football
TAPLEYS PRECINCT	
MedSTAR Helicopters	South Australian Ambulance Service MedSTAR emergency medical retrieval base
Royal Flying Doctor Service	New 24-hour Royal Flying Doctor Service base, adjacent to the main runway providing emergency retrieval services, inter-hospital transfers and primary health care to regional South Australia
Pet Hotel	Beau's Pet Hotel (Guide Dogs SA/NT), providing dog and cat boarding and day care
Pilatus Australia	New hangar and offices for Pilatus Australia national headquarters
MORPHETT PRECINCT	
West Torrens Council Depot	Re-use of the former manufacturing facility as the West Torrens Council Depot and associated sub-tenancies
KickStart for Kids Warehouse	New office/warehouse facility for distribution of food parcels

Table 9-1: Recent Commercial Developments



Figure 9-1: Location of Recent Commercial Developments and Activities



OZ MINERALS



**OFFICE PARK
Planning and Development**

**AIRPORT EAST
Planning and Approvals**

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9.4. Commercial Property Strategy

The timing and scope of any future commercial developments at Adelaide Airport are subject to many factors including airport requirements, business viability, demand and economic conditions. The Commercial Property Strategy as presented in this Master Plan reflects the current knowledge of potential future commercial developments and economic predictions.

Over the next eight years, it is anticipated that:

- The first stages of the Airport Business District Office Park area will be developed, initially comprising approximately 18,000 square metres of office floor area
- New commercial development will continue within Burbridge Business Park and the Airport East Precinct including consolidation of freight facilities
- Further transition from industrial/warehouse uses to primarily office uses within the Terminals & Commercial Business Policy Area

Over the 20-year horizon it is anticipated that the main focus for development will continue to be within Burbridge Business Park and Terminals and Commercial Business policy areas. Key developments within Tapleys and Morphett Precincts are also envisaged to occur over the longer 20-year timeframe.

Several major commercial developments noted in the Master Plan 2014 have not yet occurred but are still envisaged to occur including:

- An office park within the Terminals & Business Precinct
- Additional commercial development within the Burbridge Business Park
- Freight, transport and logistics facilities in the Airport East Precinct
- Warehouse development within the Morphett Precinct

It is anticipated that the airport will continue to attract significant investment in industrial, commercial and retail developments.

The intentions for each Precinct, as part of the Commercial Property Strategy, are discussed below.

9.4.1. Terminals & Business Precinct

The Terminals & Business Precinct includes the Terminals & Commercial Business, and Burbridge Business Park policy areas.

The Terminals & Commercial Business Policy Area will be the focus for new office accommodation within the proposed office park and to transition from the existing industrial and warehouse uses to office uses. This will include relocating existing freight uses within this area to the Airport East Precinct.

Overall the extent of additional building area to be developed or upgraded in this policy area over the next eight years is estimated to be approximately



43,500 square metres mainly comprising industrial, office and retail developments.

The Burbridge Business Park Policy Area will continue to be the focus for commercial and industrial development within the planning period. It is estimated that approximately 40,000 square metres of additional commercial development will occur within the area over the next eight years. This will mainly consist of industrial (27,000 square metres) and bulky goods/retail developments (13,000 square metres).

9.4.2. Airport East Precinct

Aligned with the National Freight and Supply Chain Strategy, the Airport East Precinct continues to be identified for the development of a major freight, transport and logistics hub with the potential for a new common user air-freight cargo area.

Such development will initially be driven by the relocation of existing freight operators currently dispersed throughout the Airport Business District. This Airport East Precinct will provide accommodation opportunities for additional tenants. It is expected that 65,000 square metres of new building area may be developed within the precinct over the next eight years.

9.4.3. Tapleys Precinct

The Tapleys Precinct will continue to be a focus for aviation operations including helicopter and

emergency services facilities, along with retail/commercial development fronting Tapleys Hill Road.

Potentially 3,000 square metres of additional aviation-related development is identified for this precinct within the next eight years. This will expand the existing aviation facilities in the eastern part of the precinct.

Development adjacent to Tapleys Hill Road will continue to focus on retail/commercial development which capitalises on the high exposure from passing highway traffic. Further upgrading of Harbour Town is anticipated, along with additional car parking.

Development over the next 20-year planning horizon will comprise a combination of retail, aviation/private aviation and emergency services uses.

9.4.4. West Beach Precinct

It is proposed that the West Beach Precinct will remain largely undeveloped during this Master Plan, with no commercial building development anticipated. Car parking may be established on sites with frontage to West Beach Road, which would support anticipated growth in airport parking demand.

9.4.5. Torrens Precinct

Existing development within the Torrens Precinct consists of an aged-care facility, hockey pitch, ovals and associated club rooms, and over ten hectares of open space reserved for sporting activities and events.

While no specific developments have been identified during the planning period of this Master Plan, development within the precinct may include the expansion of the aged-care facility and associated retirement-housing subject to Ministerial approval for a 'sensitive' development under the Airports Act. The existing sports fields are also likely to be upgraded.

9.4.6. Morphett Precinct

Since 2014, development within the Morphett Precinct has been limited to the conversion of the previous large-scale engineering building adjacent Morphett Road to the City of West Torrens' Council Work Depot and associated tenancies.

Future development in the precinct within the next eight years is expected to comprise a new warehouse of approximately 900 square metres on land fronting James Melrose Road.

By 2039, additional development in the Precinct may include an industrial/storage facility, and an energy/fuel storage facility totalling approximately 25,000 square metres. Both potential development sites front James Melrose Road.



9.5. 8-Year Commercial Development Plan

Table 9-2 details potential key developments within each precinct over the eight-year period of this Master Plan. It includes details regarding the type of development, scale and associated development triggers.

The timing of development is influenced by demand and economic circumstances and is therefore subject to change.

DEVELOPMENT TYPE	APPROXIMATE SCALE	TRIGGER
RUNWAYS PRECINCT		
Car Park	800 spaces	Subject to parking demand and ground transport improvements
TERMINALS & BUSINESS PRECINCT		
Terminals & Commercial Business Policy Area		
Retail (Reuse of Masters Hardware site)	13,000 m ²	Subject to approvals and commercial demand
Office	18,000 m ²	Subject to approvals and commercial demand
Child Care	500 m ²	Subject to approvals and commercial demand
Office – change of use of existing development from industrial/commercial (former Export Park)	12,000 m ²	Subject to approvals and commercial demand
Car Park (National Drive)	2,000 spaces	Subject to parking demand
Car Park (multi-level expansion)	1,700 spaces	Subject to parking demand
Burbridge Business Park Policy Area		
Industrial	27,000 m ²	Subject to approvals and commercial demand
Bulky Goods	13,000 m ²	Subject to approvals and commercial demand
Recreation*	5,000 m ²	Approved development (*under construction)
AIRPORT EAST PRECINCT		
Freight/Logistics/Warehousing	65,000 m ²	Subject to approvals and commercial demand
TAPLEYS PRECINCT		
Aviation Services	3,000 m ²	Subject to approvals and commercial demand
Car Park (Harbour Town extension)	400 spaces	Subject to parking demand associated with shopping centre
MORPHETT PRECINCT		
Warehouse	900 m ²	Subject to approvals and commercial demand

Table 9-2: Potential 8-year commercial development

9.6. 20-Year Commercial Development Plan

Table 9-3 details potential key developments within each precinct over the longer term of this Master Plan. It includes details regarding the type of development, scale and associated development triggers.

The timing of development is influenced by demand and economic circumstances and is therefore subject to variation.

DEVELOPMENT TYPE	APPROXIMATE SCALE	TRIGGER
RUNWAYS PRECINCT		
Car Park	900 spaces	Subject to parking demand
TERMINALS & BUSINESS DISTRICT PRECINCT		
Terminals & Commercial Business Policy Area		
Retail	26,000 m ²	Subject to approvals and commercial demand
Office	20,000 m ²	Subject to approvals and commercial demand
Office – change of use of existing development from industrial/commercial (former Export Park)	11,000 m ²	Subject to approvals and commercial demand
Burbridge Business Park Policy Area		
Industrial	24,000 m ²	Subject to approvals and commercial demand
TAPLEYS PRECINCT		
Aviation	4,800m ²	Subject to approvals and commercial demand
Aviation/Emergency Services	4,800m ²	Subject to approvals and commercial demand
Retail	4,800m ²	Subject to approvals and commercial demand
Private Aviation	16,000m ²	Subject to approvals and commercial demand
Car Park (Harbour Town expansion)	1,500 spaces	Subject to airport and shopping centre parking demand
MORPHETT PRECINCT		
Industrial/Storage	15,000m ²	Subject to approvals and commercial demand
Potential Energy/Fuel Storage Facility	10,000m ²	Subject to approvals and commercial demand
WEST BEST PRECINCT		
Car Parks	4,000 spaces	Subject to parking demand

Table 9-3: Potential 20-year commercial development



10

Ground Transport Plan



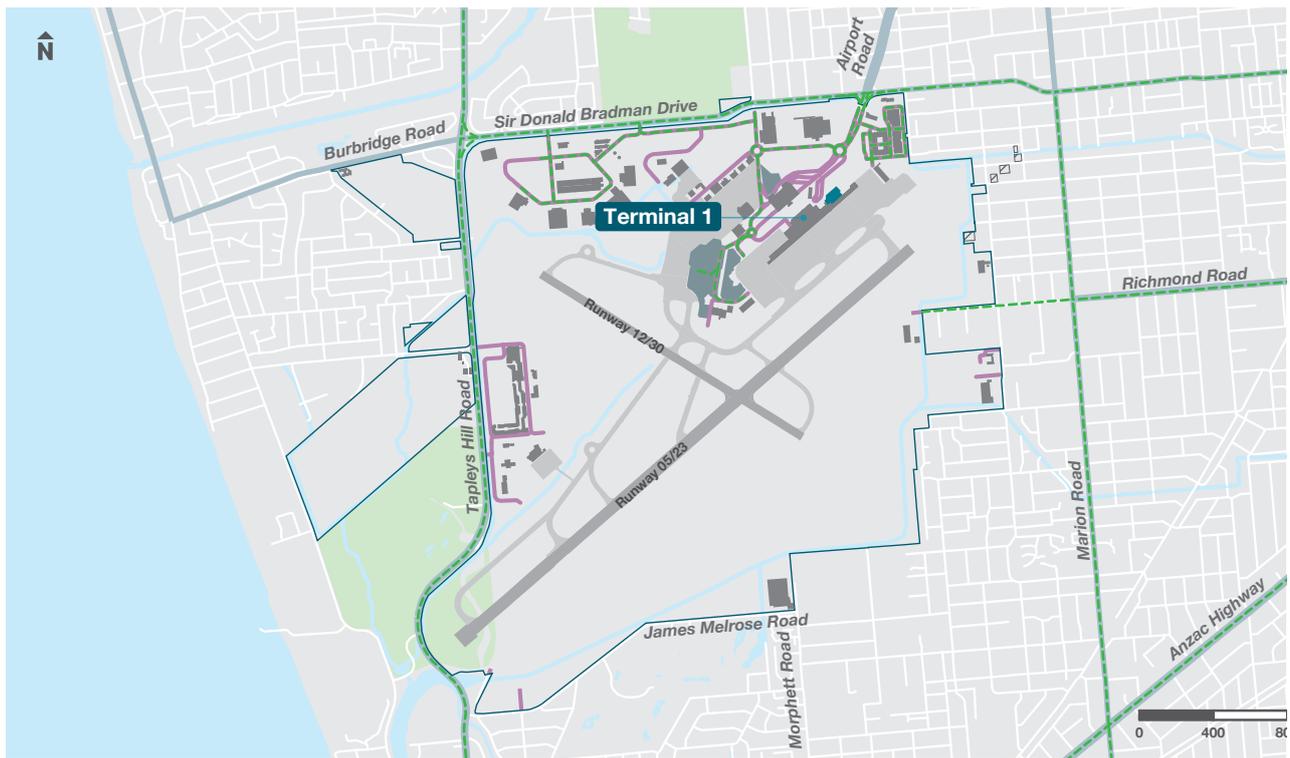
10.1. Introduction

Ground transport planning is critical to the efficient operation of Adelaide Airport. Ground transport consists of roads for passengers, staff, taxi/rideshare and freight vehicles, pick-up/drop-off facilities, public transport and cycleways.

Adelaide Airport is well connected to the metropolitan road network, with four major arterial roads providing transport links from the airport to metropolitan and regional areas and the Port of Adelaide. Sir Donald Bradman Drive and Richmond Road provide direct access to the CBD and passenger rail hubs; while Marion Road and Tapleys Hill Road provide access to the north and south metropolitan areas. Adelaide Airport is also well connected to South Road and the North-South Corridor which is one of Adelaide’s most important freight and transport corridors. Connectivity to the Port of Adelaide is via Tapleys Hill Road and the North-South Corridor.

Figure 10-1 shows the road network surrounding the Airport site and Figure 10-2 shows the location of the airport and its relationship to the CBD and wider metropolitan Adelaide road network.

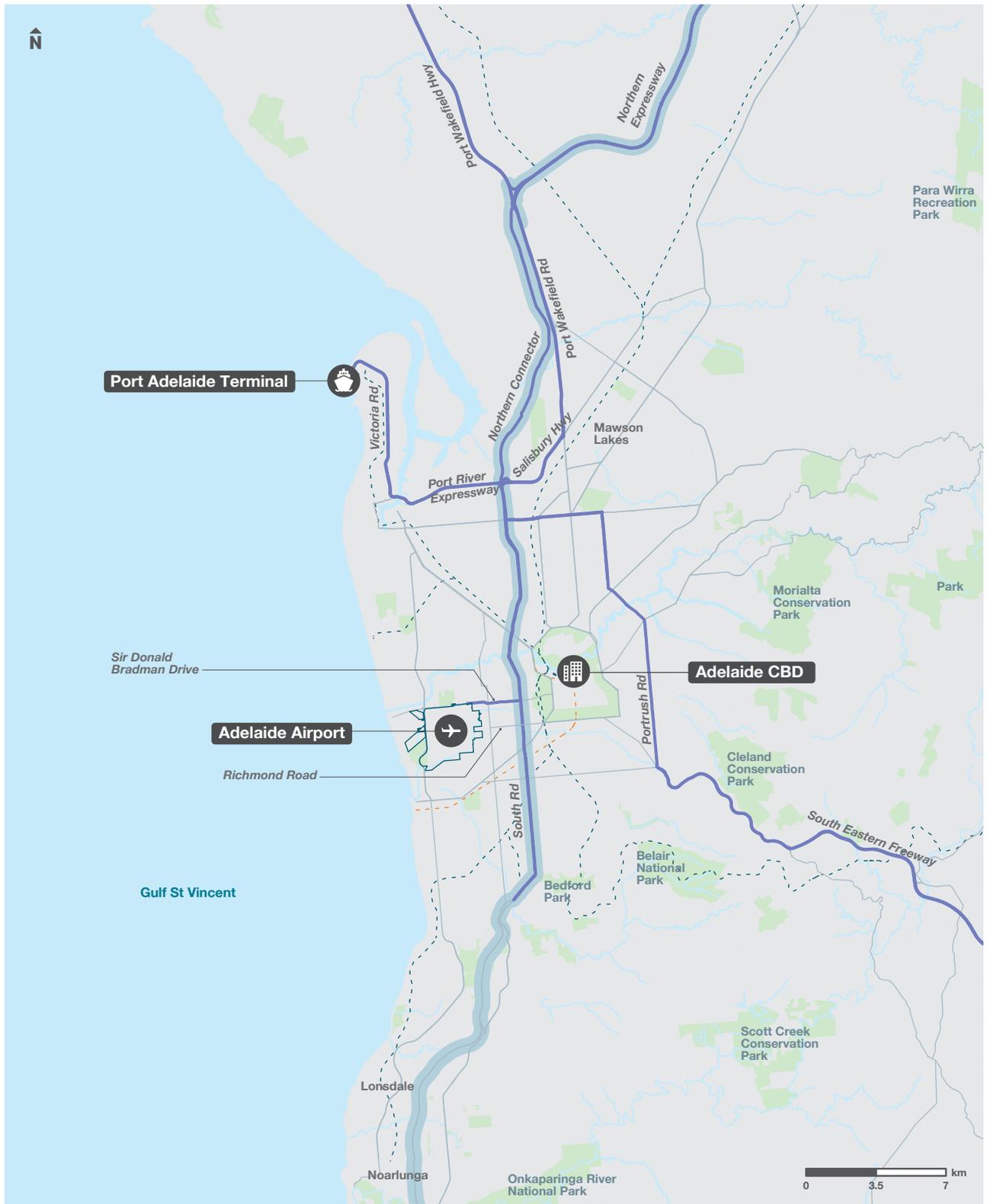
Each day there are approximately 54,000 vehicle movements in and out of the airport, and by 2039 this is expected to reach 126,000 daily vehicle movements. As Adelaide Airport grows, it is critical that adequate consideration is given to future ground transport demands within and adjacent to the airport.



LEGEND

- Airport Boundary
- Terminal 1 Airport Terminal
- Parks, Forests and Reserves
- Freehold Land
- Buildings Buildings
- Watercourses
- Runways
- Airport Car Parks Airport Car Parks
- B-Double Routes
- Arterial Roads
- Local Roads
- Taxiways/Aprons

Figure 10-1: Existing External Road Network Surrounding the Airport



LEGEND

- | | | |
|------------------|-----------------------|-----------------------------|
| Airport Boundary | North-South Corridor | Parks, Forests and Reserves |
| Railway | National Road Network | Watercourses |
| Tram Line | Arterial Roads | |

Figure 10-2: Wider Metropolitan Adelaide Road Context

10.2. Overview

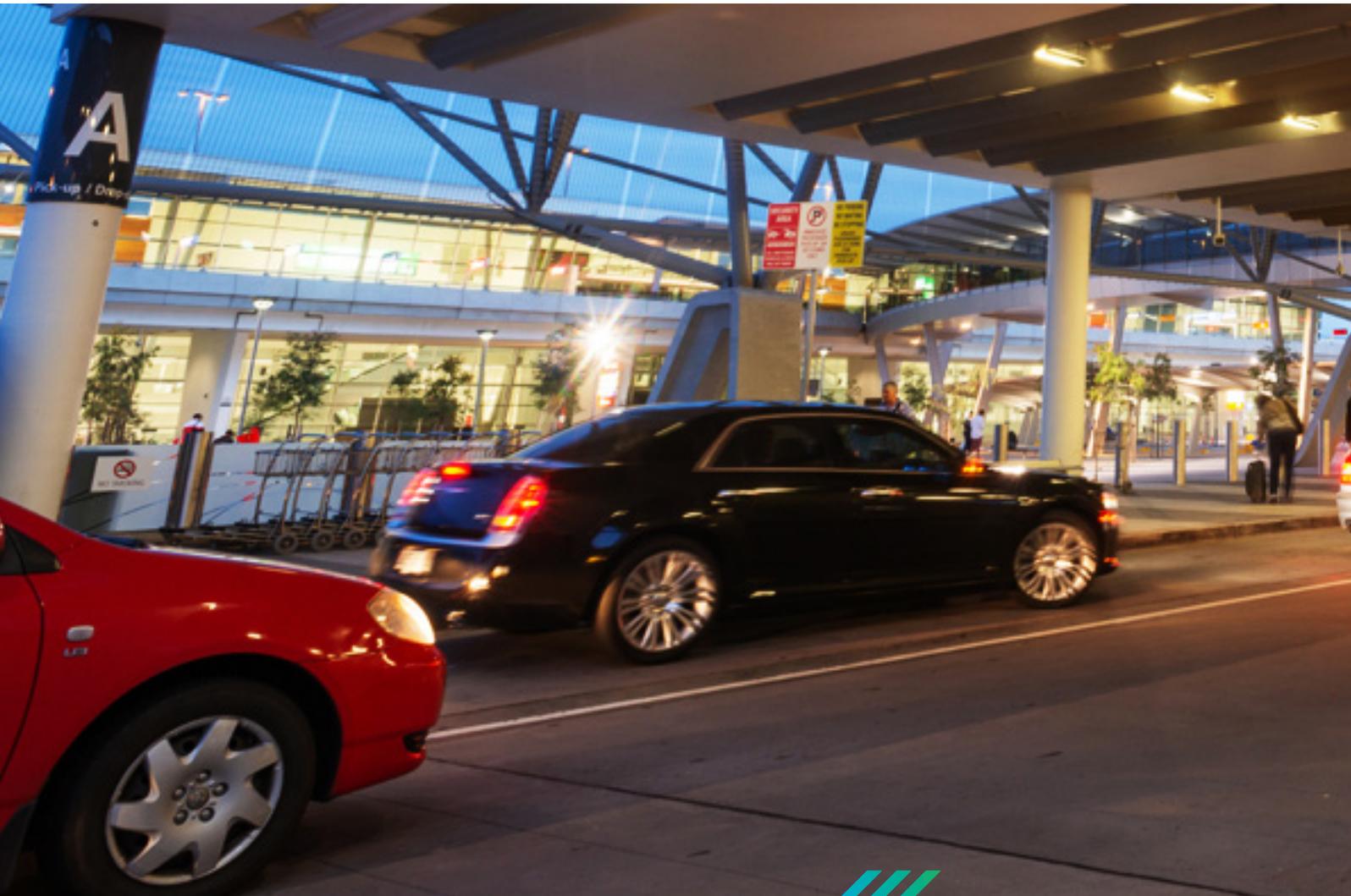
- Adelaide Airport is well connected to major State arterial roads and public infrastructure
- The Commonwealth and State Government are investing in improvements to external infrastructure including the construction of the North-South Corridor. Connectivity between the airport and this corridor is critical to ensure access for both passengers and freight
- AAL continues to invest in improvements to ground transport facilities to support growth in traffic demand and enhance passenger experience, including the provision of a road network which facilitates primarily one-way movement
- The increased use of public transport to Adelaide Airport continues to be a high priority for both AAL and the State Government. Provision for a high capacity public transport system servicing the airport is included in future plans

10.3. Responsibilities

AAL engages directly with State and Local Governments, as well as through the Planning Coordination Forum and Adelaide Airport Consultative Committee (described in Chapter 5), to make sure that the future demands of Adelaide Airport operations are reflected in strategic network planning.

The key organisations and agencies involved in ground transport planning around Adelaide Airport are:

- The State Department of Planning, Transport and Infrastructure (DPTI), which sets policy and strategic direction for land use and transport throughout South Australia; plans, constructs and maintains major road infrastructure surrounding and connecting to Adelaide Airport; and provides infrastructure planning for public transport systems
- The newly established South Australian Public Transport Authority (SAPTA), which will inform the development of a comprehensive public transport



10.4. Airports Act 1996 Requirements

strategy and provide operational and customer services for the State, with a focus on efficiency, reliability, accessibility and innovation

- City of West Torrens, which is responsible for the planning, construction and maintenance of local roads adjacent to and surrounding the airport
- AAL, which is responsible for the planning, construction and maintenance of roads within the airport site
- The Commonwealth Minister for Infrastructure, Transport and Regional Development, who may provide funding to the State Government for major transport infrastructure projects (such as the North-South Corridor) and is responsible for approving the Ground Transport Plan as part of this Master Plan and any subsequent Major Development Plan (where required) for road network construction within the airport site

The Airports Act requires the plan for the ground transport system at Adelaide Airport to detail the:

- Road network plan
- Facilities for moving people (employees, passengers and other airport users) and freight at the airport
- 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
- Arrangements for working with the State or Local authorities or other bodies responsible for the road network and the public transport system
- Capacity of the ground transport system at the airport to support operations and other activities at the airport
- Likely effect of proposed developments identified in the Master Plan on the ground transport system and traffic flows at, and surrounding, the airport



10.5. State Planning

10.5.1. Planning Framework

The State Government is responsible for setting policy and strategic direction for transport throughout South Australia, as well as planning and constructing major road infrastructure, infrastructure planning for public transport services for the Adelaide metropolitan region, and regulating taxi, rideshare and chauffeur operations. The State Government has recently established the South Australian Public Transport Authority (SAPTA), an independent body which will provide operational and customer services for public transport for the Adelaide metropolitan region.

Infrastructure SA, an independent statutory body, is responsible for developing a 20-year State infrastructure strategy and five-year infrastructure plan for South Australia.

The Commonwealth and South Australian Governments are jointly funding \$2.5 billion for the remaining sections of the North-South Corridor, completing the non-stop motorway between Gawler and Old Noarlunga. The project is expected to take 10 years to complete.

The North-South Corridor is one of Adelaide's most important transport corridors. Its connection to Adelaide Airport has the potential to significantly improve accessibility and travel times for passengers. Connections to the Airport East Precinct from the future North-South Corridor via Richmond Road will also see improved efficiencies and benefits for South Australia's freight network. Plans for future road connections between the airport and the upgraded North-South Corridor will be determined by the State Government in consultation with AAL.

This Ground Transport Plan considers and incorporates State transport strategies which affect Adelaide Airport.

10.5.1.1. Integrated Transport and Land Use Plan 2015

The Integrated Transport and Land Use Plan 2015 identifies key transport challenges facing South Australia, including providing efficient connections for freight movement and developing and maintaining a planning system that ensures integrated transport and land use.

The Plan identifies actions for the entire State, with indicative timelines of short, medium and long term.

Specific actions that consider Adelaide Airport include:

- Progressively upgrade South Road as part of the North-South Corridor (short, medium and long term)
- Upgrade of intersections along Sir Donald Bradman Drive to reduce congestion and improve reliability of travel times to the airport (medium term)
- Provision of upgrades for taxi, commercial vehicle and bus access via Richmond Road (short to medium term), retaining the potential for a local road connection between Richmond Road and Morphett Road in the longer term
- Partnering with the City of West Torrens to complete the Airport Bikeway, including crossings of arterial roads (medium term)
- Provision of tram services along Henley Beach Road with a branch line to Adelaide Airport (medium term)

The Integrated Transport and Land Use Plan is currently under review by the South Australian Government to revise key transport priorities.

10.5.1.2. The 30-Year Plan for Greater Adelaide

The 30-Year Plan provides directions for urban and regional development for business, industry, infrastructure provision, utility supply and government agencies. The 30-Year Plan provides a framework for how Adelaide can grow to become a more liveable, competitive and sustainable city. It guides the long term growth of the city and its surrounds over the next 30 years.

It acknowledges that Adelaide Airport is a key economic and job cluster, with the potential to maximise the economic benefits of export infrastructure by providing strategic employment and land with direct access to major freight routes.

10.6. Airport Transport Planning

Airports are major transport hubs and trip attractors. The demand for ground transport varies depending on the availability of different modes of transport, comparative cost, travel times and trip purpose. Reliability is a primary factor for passengers, ensuring they make flights on time.

The key considerations for the Adelaide Airport Ground Transport Plan are:

- Passenger experience, including access to and from Adelaide Airport by means of multiple modes of transport and ease of getting to Terminal 1
- Ensuring efficient passenger and freight access to and from Adelaide Airport via the North-South Corridor
- Maintaining and improving B-Double access to facilitate critical current and expanded freight and logistics operations
- Level of service during peak periods, based on performance measures such as vehicle density and queue times
- Catering for existing and planned aviation and commercial developments and associated employment and visitor traffic
- Segregating as much as practicable commercial (larger vehicles) and aviation traffic
- Effective, safe and efficient connectivity for all users of the airport
- Maximising the efficient use of existing infrastructure
- Provision of access alternatives
- Cost effective infrastructure investment
- Development of flexible and adaptable infrastructure to maximise reuse to support new transport models/services

Innovative and sustainable technologies are regularly investigated. In 2016, AAL won an Australian Airports Association award for innovation and excellence in technology for its online carpark-booking system; and in 2017, Adelaide Airport became the first airport in Australia to provide electric-vehicle charging stations in its public car park.

10.7. Recent Developments

Between 2012 to 2018, there has been significant infrastructure investment to improve the airport's road network and provide new facilities for taxi, rideshare, bus and chauffeur vehicles.

The improvements to the ground transport network that have been implemented include:

- An upgrade to the intersection of Sir Donald Bradman Drive and Sir Richard Williams Avenue to improve egress from the airport
- Construction of Atura Circuit, which is a new road link connecting Sir Richard Williams Avenue to Terminal 1, Atura Hotel and the new taxi drop-off area
- New pedestrian walkway from Sir Donald Bradman Drive to Terminal 1
- Construction of a new taxi drop-off area to Atura Circuit, which will open in mid to late 2019
- Redesign and reconstruction of the taxi pick-up, bus and chauffeur area at the western end of Terminal 1 forecourt to provide improvements for chauffeur and taxi services and improved pedestrian links to Terminal 1
- Dedicated rideshare facility constructed in August 2017 for private passenger pick-ups close to Terminal 1
- Secure long-stay bicycle storage facility constructed within the ground level of the multi-level car park to complement other bicycle facilities at the airport
- Four electric-vehicle charging stations installed in the multi-level car park in December 2017
- Road extension to Burbridge Business Park, to create an internal road loop providing improved connectivity
- Designation of a zone for carshare operations

10.8. Forecasting

Future forecasts of vehicle traffic and parking demands are primarily based on forecast passenger growth and the projected development of the airport site. Forecasting uses a range of data inputs and assumptions. These include State Government forecasts for traffic volumes on the external network, existing traffic counts, car parking data, commercial development predictions and concept options for future access arrangements. Forecasting is also subject to sensitivity testing in order to understand the potential impact of changes such as an increase in public-transport-mode share or implementation of future technologies.

10.8.1. Future Demand

The number of passengers using the airport annually is expected to increase from 8.5 million in 2018 to 19.8 million by 2039. This passenger growth, along with the increased employment required to support it, and further commercial development within the airport site, will result in an increase in vehicle traffic to and from the airport.

Based on the forecast passenger movements and growth at the airport, daily traffic volumes are forecast to increase from 54,000 vehicle movements per day in 2018, to 80,000 vehicle movements by 2027 and 126,000 vehicle movements by 2039 (refer Figure 10-3). These figures incorporate all vehicle movements to and from the airport site as a whole.

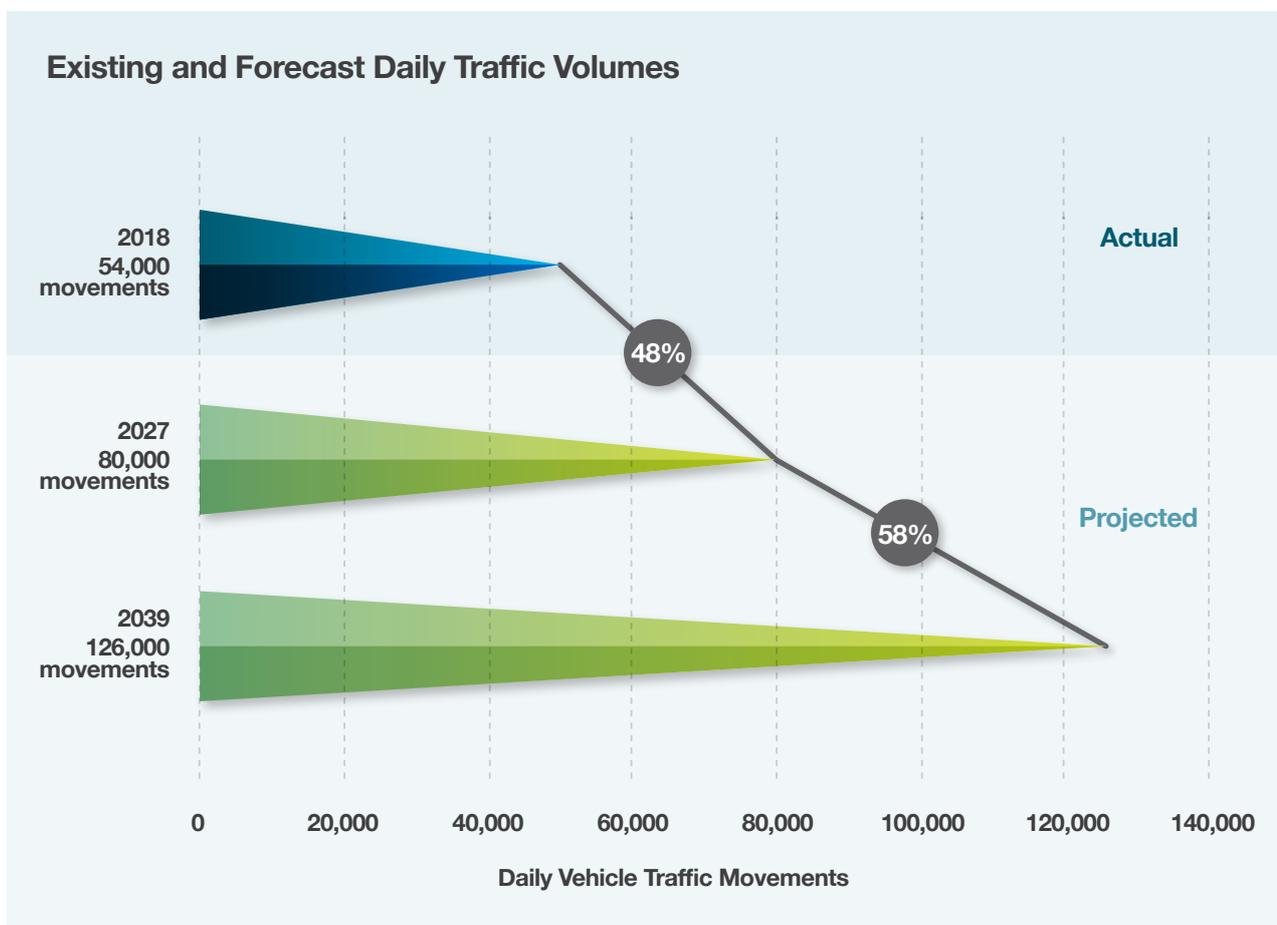


Figure 10-3: Existing and Forecast Daily Vehicle Traffic Volumes



10.8.2. Modes of Travel

Currently, approximately 78 per cent of access to the airport is by private motor vehicle. Taxi, rideshare, chauffeur and other commercial services make up a further 21 per cent of journeys. The current mode share of trips is shown in Figure 10-4. AAL continues to monitor how people travel to and from the airport – including trends in the potential uptake of emerging transport technologies such as autonomous vehicles – in order to plan for and provide appropriate infrastructure. Private motor vehicles will continue to be the highest mode share and it is expected that the overall mode share will not shift significantly within the planning period.

10.8.3. Future Technologies

There have and will continue to be substantial developments in emerging and innovative transport technologies, which include autonomous vehicles, air taxis (personnel airborne rideshare) and the use of drones for parcel delivery.

While these technological advances have the potential to improve access and connectivity, they may also create challenges for ground transport systems and other infrastructure associated with airports. The views on the impacts of transport technologies vary significantly, nationally and globally, and will likely require government intervention or policy to adapt as these technologies are realised.

A number of technological advances – particularly autonomous vehicles – are in their infancy and are being trialled across Australia. Planning for air taxis and use of drones requires careful consideration of aircraft operations and airspace requirements.

AAL will continue to monitor emerging technologies. Adaptable staging and timing of infrastructure investment allows AAL to consider and respond to opportunities for incorporating innovative and sustainable access options.

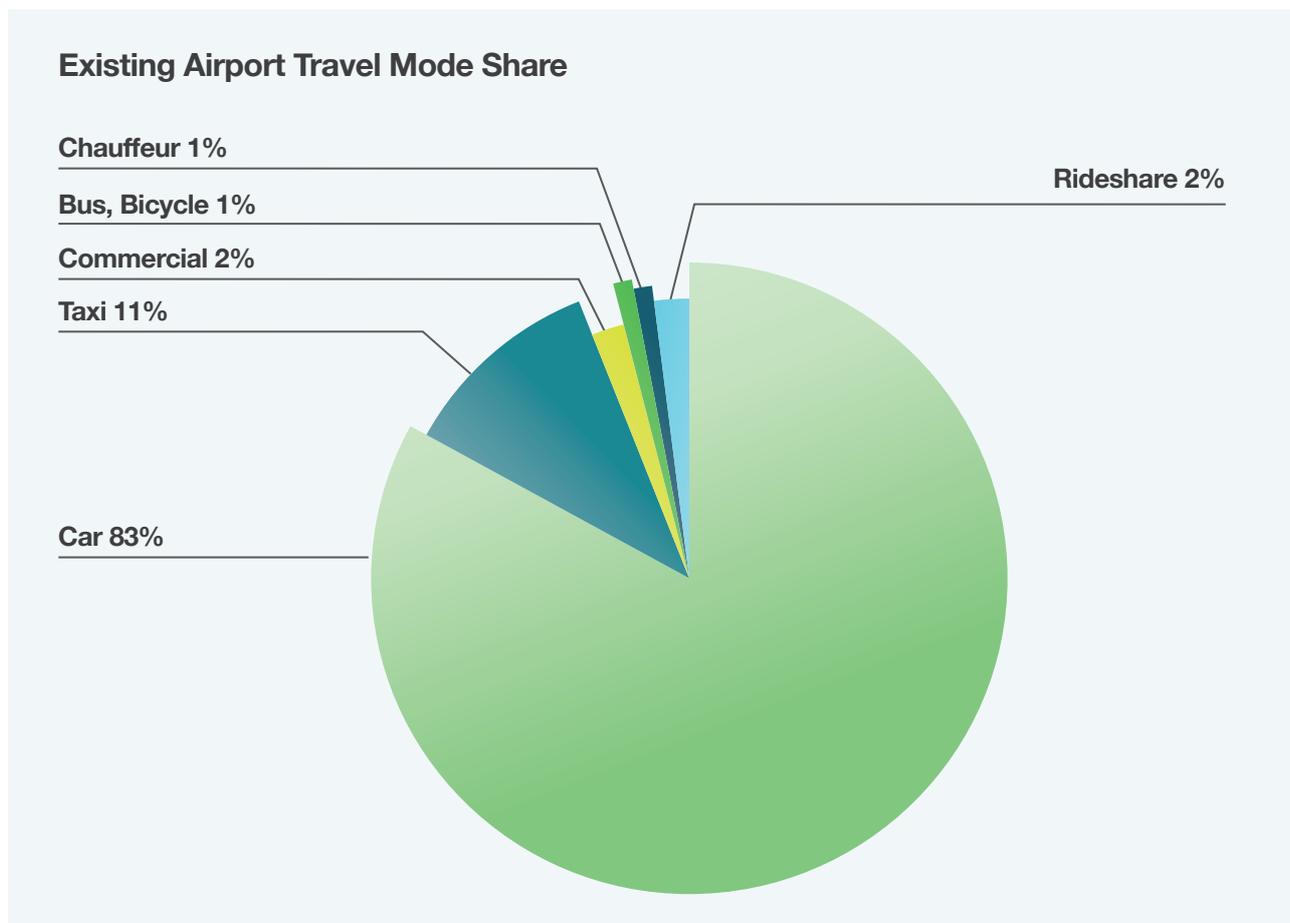


Figure 10-4: Existing Mode Share for Travel to/from the Airport



10.9. Precinct Planning

Adelaide Airport is responsible for all roads within the boundary of the airport. This includes both landside (publicly accessible) and airside (restricted access) roads. Figure 10-5 shows Adelaide Airport's internal road network and access points to the external State and Local Government road networks.

10.9.1. Modelling

The existing and proposed future road network and intersections both within the airport site and at the boundary were assessed using a SIDRA model. This model assesses the performance of each intersection outside of the airport using several key metrics such as average vehicle delays and queuing distances.

This type of model assesses the requirements of the road network and intersections at a conceptual level. The final alignment of proposed new roads, locations and the layout of new intersections as well as upgrades to existing infrastructure will be determined following detailed traffic modelling and consultation with airlines, Local and State Government, as required.

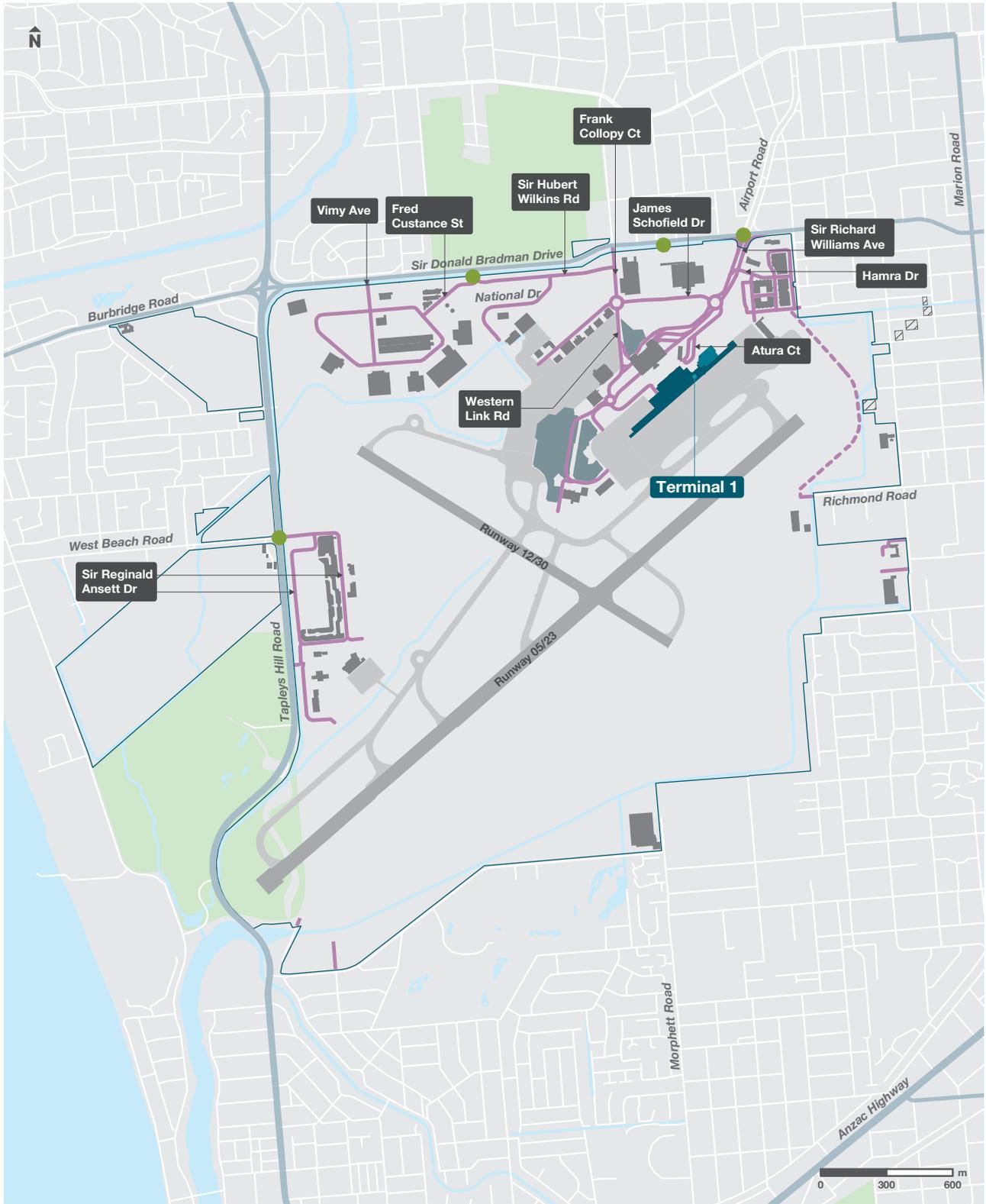
10.9.2. Terminals & Business Precinct

Most of the landside roads at the airport are in the Terminals & Business Precinct, including those that provide the primary access to Terminal 1. This network of roads provides efficient and reliable access to the terminal drop-off/pick-up zone, Atura Hotel, car parking areas, car rental, taxi and rideshare facilities, and public transport. This internal network also provides access to the commercial, office and retail businesses within the precinct.

Sir Richard Williams Avenue, James Schofield Drive and Western Link Road form the primary internal circulation in this precinct. Multi-lane roundabouts have been established at intersections to provide efficient traffic flows. Sir Richard Williams Avenue is a two-way dual lane carriageway and is the main entry and exit point to the precinct. As such, it carries the greatest volume of traffic within the airport. Beyond James Schofield Drive, Sir Richard Williams Avenue provides a one-way passenger drop-off/pick-up zone and ingress/egress lanes to the multi-level car park.

The drop-off/pick-up area is located below the multi-level car park, directly adjacent to the Terminal 1 plaza. It caters for domestic passenger drop-off/pick-up, taxi and rideshare drop-off; and buses which provide connection to the long-term car park south of Terminal 1. It is comprised of two traffic lanes and a short-term standing lane. Approximately 20 to 25 vehicles can be accommodated in the standing lane. The planned relocation of the taxi drop-off to a newly constructed facility at Atura Circuit in mid to late 2019 is expected to progressively reduce the demand on the drop-off/pick-up area by up to 30 per cent.

Sir Hubert Wilkins Avenue and Frank Collopy Court provide a secondary access route for vehicles travelling between the signalised intersection on Sir Donald Bradman Drive and the Terminals & Business Precinct. These roads also provide access to the current car rental storage facilities, fuel storage facility, and links to Burbridge Business Park via Fred Custance Street.



LEGEND

- | | | |
|------------------|-----------------------------|--------------------------------|
| Airport Boundary | Airport Terminal | Signalled Intersection |
| Freehold Land | Airport Car Parks | Arterial Roads |
| Runways | Parks, Forests and Reserves | Local Roads |
| Taxiways/Aprons | Watercourses | Internal Airport Roads |
| Buildings | | Internal Airport Secured Roads |

Figure 10-5: Existing Internal Road Network

The Ground Transport Plan includes a range of improvements for both existing and forecast traffic demand to ensure an efficient customer experience for people travelling to, from and within the airport. The projected increase in passenger and vehicle activity is mainly focused around access to Terminal 1. In response, most improvements have been identified in the Terminals & Business Precinct.

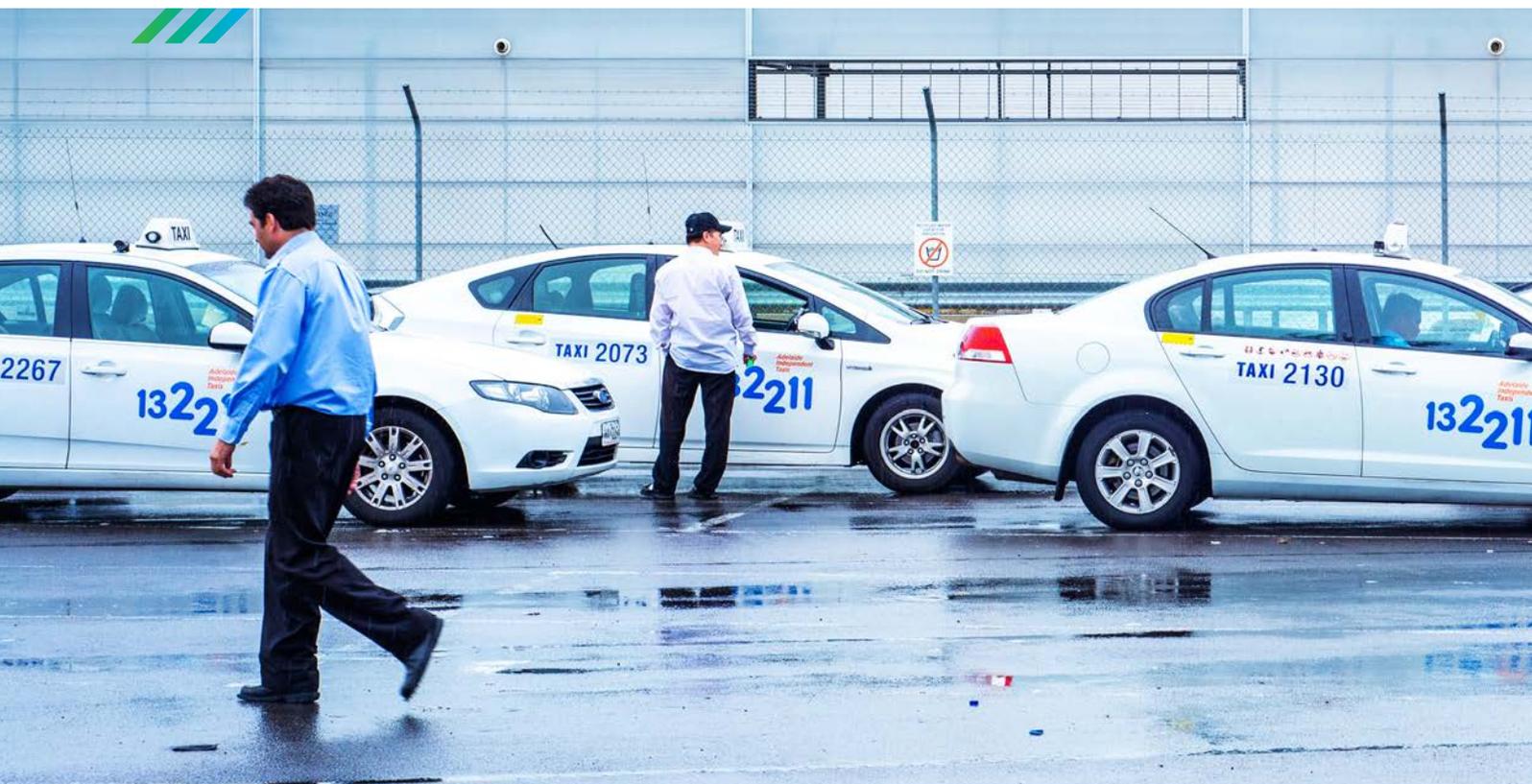
To provide for further traffic growth in the medium term, AAL proposes a road network which facilitates primarily one-way traffic movements from the existing access point at the intersection of Sir Richard Williams and Sir Donald Bradman Drive to a new signalised intersection with Sir Donald Bradman Drive. The redistribution of traffic to this new intersection will improve the efficiency and capacity of the network. An upgrade to the Sir Richard Williams Avenue and Sir Donald Bradman Drive intersection is also likely to be required in the medium term to meet forecast traffic demand.

Assessment of future ground transport demand for Burbridge Business Park has identified the need for a new signalised intersection at Sir Donald Bradman Drive and Vimy Avenue to provide access and egress to this area for both westbound and eastbound traffic. To create adequate separation and efficient traffic flow between signalised intersections, the existing signalised intersection at Sir Donald Bradman Drive and Fred Custance Street is proposed to be changed to a non-signalised intersection. A road link between Burbridge Business Park and the Tapleys Precinct is also proposed to provide connectivity and allow for redistribution of traffic within the airport site, maximising the efficiency of key intersections with the external network.

The proposed ground transport improvements within this precinct minimises the mix of heavy vehicles with other vehicle types and airport users.

The medium term plan makes provision for a potential secure, internal road link between the Terminals & Business Precinct and the Airport East Precinct (Richmond Road), should an alternative access and egress point be required to meet future traffic demand.

Figure 10-6 shows the 8-year Ground Transport Plan for the Terminals & Business Precinct.



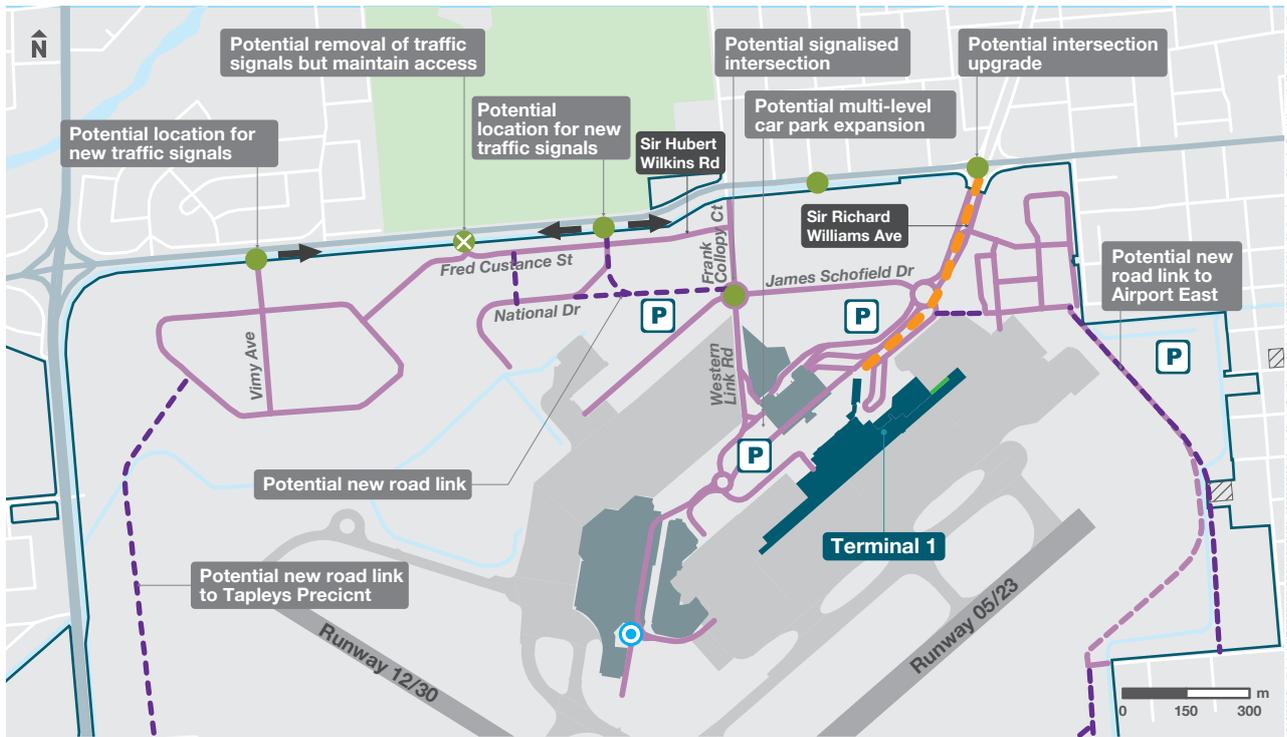


Figure 10-6: 8-year Ground Transport Plan for the Terminals & Business Precinct



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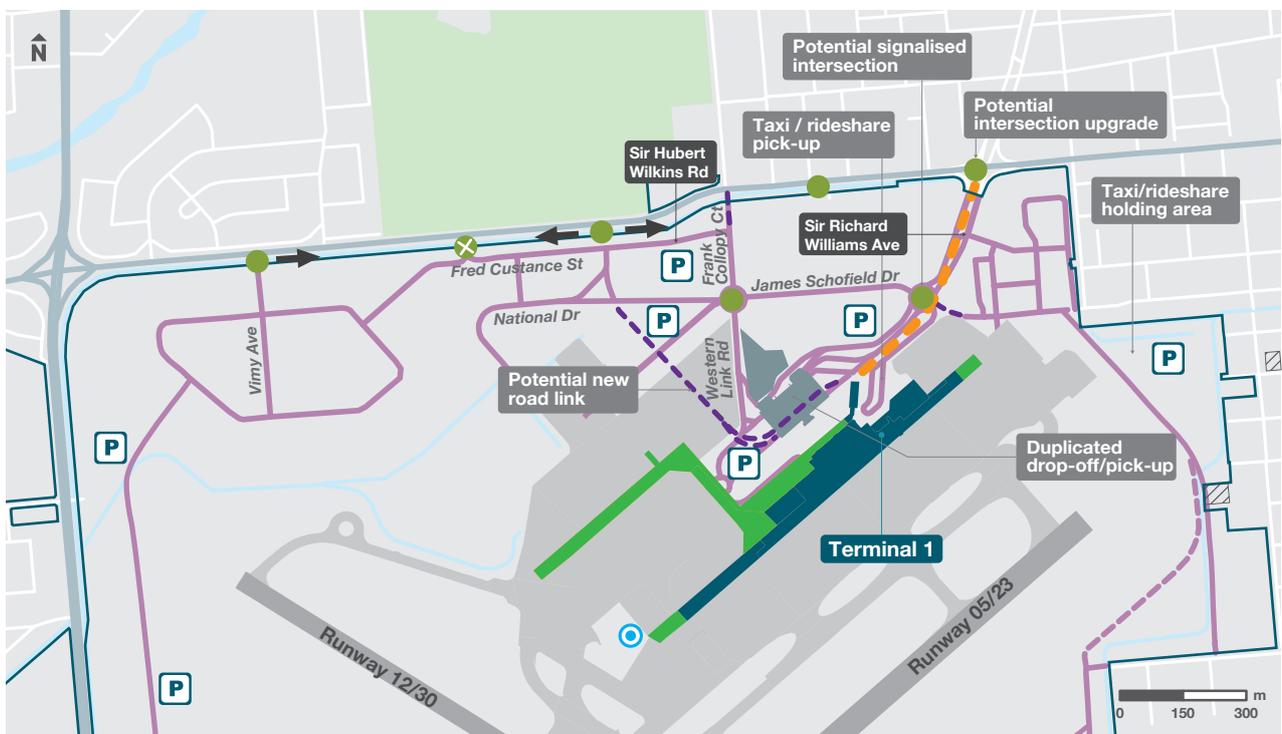


The long term Ground Transport Plan will provide appropriate infrastructure for the forecast growth in traffic movements through maximising the efficient use of existing infrastructure, where possible, and maintaining the key principles of flow, access and egress for the road network. Proposed developments also build from the 8-year plan.

To meet medium to long term demand, the Terminal 1 drop-off/pick-up area is planned to be duplicated, parallel to the existing alignment below the multi-level car park, with seamless exit and connection to the Western Link Road.

Upgrades to the road network and intersections from the drop-off/pick-up area to the new Sir Donald Bradman Drive intersection will also be considered. Options may include a proposed realignment of the road to allow for a more direct departure route, or alternatively the widening of Western Link Road.

Figure 10-7 shows the 20-year Ground Transport Plan for the Terminals & Business Precinct.



LEGEND

- | | | | |
|------------------|---|------------------------------|---|
| Airport Boundary | Airport Terminal | Potential Car Park Locations | Internal Airport Roads |
| Freehold Land | Proposed Expansion Within Terminal Zone | Signalised Intersection | Security Restricted Roads |
| Runways | Airport Car Parks | Arterial Roads | Potential High Capacity Public Transport Corridor |
| Taxiways/Aprons | Parks, Forests and Reserves | Local Roads | Potential New Road Links |
| Buildings | Watercourses | Air Traffic Control Tower | |

Figure 10-7: 20-Year Ground Transport Plan for the Terminals & Business Precinct

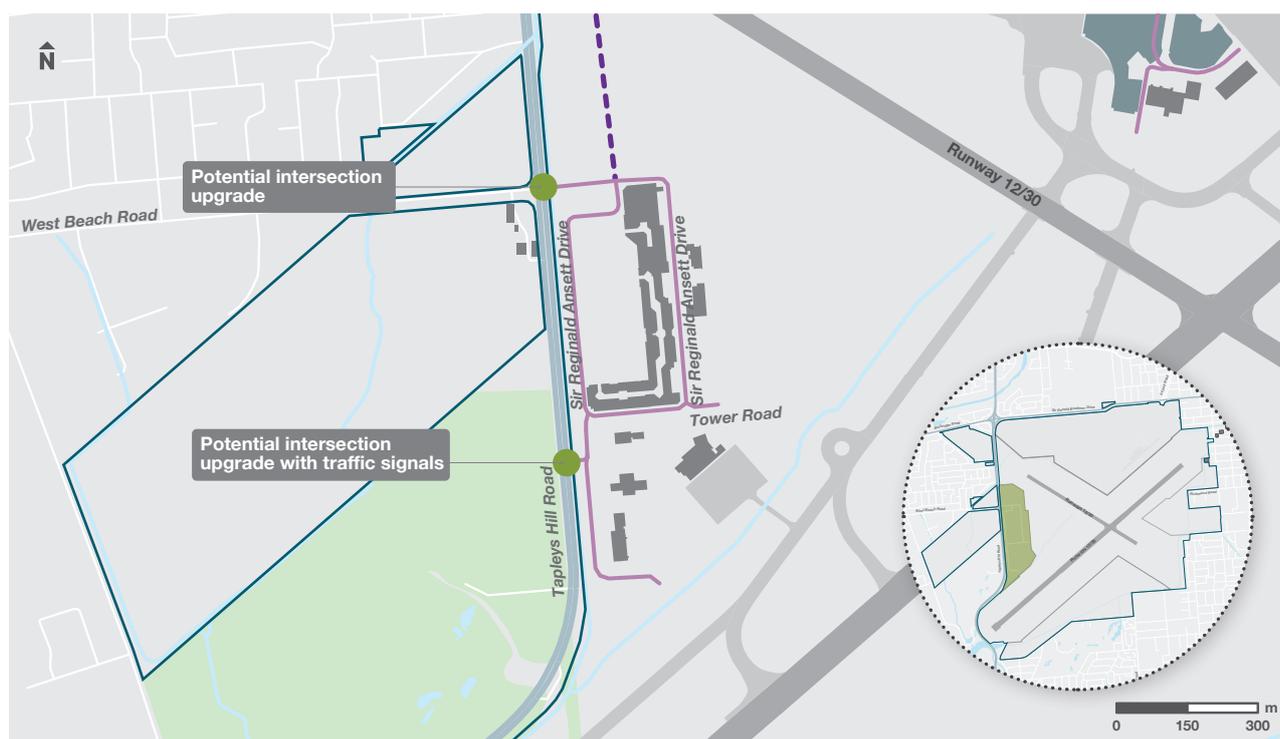




10.9.3. Tapleys Precinct

Sir Reginald Ansett Drive provides access for Tapleys Precinct (including the Harbour Town Shopping Centre, Pet Hotel, and aviation support and emergency services facilities). To cater for planned development growth within the precinct and increased traffic volumes on Tapleys Hill Road, it is proposed that the two intersections be upgraded in the medium term to improve capacity and provisions for right-turning vehicles from various approaches. The southern intersection may be signalised to achieve these outcomes.

Figure 10-8 shows the Ground Transport Plan for the Tapleys Precinct.



LEGEND

Airport Boundary	Watercourses	Signalised Intersection
Freehold Land	Parks, Forests and Reserves	Internal Airport Roads
Runways	Arterial Roads	Potential Landside Roads
Taxiways/Aprons	Local Roads	
Buildings		

Figure 10-8: Ground Transport Plan for Tapleys Precinct





10.9.4. Airport East Precinct

Adelaide Airport is a key freight hub for metropolitan Adelaide and South Australia. It connects South Australia to national and international destinations. Freight and logistics operators are currently located within the Terminals & Business Precinct, Airport East Precinct and the Runways Precinct. Several freight and logistics businesses operate with secure airside access.

Freight and logistics operators use a wide range of commercial vehicles, from minivans through to larger semi-trailers and B-double (double semi-trailer) vehicles. Gazetted routes provide access by B-double vehicles to/from several of the precincts. These routes include the adjacent arterial road network (including Sir Donald Bradman Drive, Tapleys Hill Road and Richmond Road). Several roads within the airport are also gazetted for B-double operations.

The progressive upgrade of South Road as part of the North-South Corridor is vital for providing continued access to Adelaide Airport and the Airport East Precinct.

To cater for the future freight and logistics needs of South Australia, AAL is planning for the development of the Airport East Precinct to consolidate freight and logistics operators into a single precinct, creating an efficient, secure, safe and effective air freight and road interface. The Ground Transport Plan includes the future construction of an internal road network to facilitate the development of the Airport East Precinct, which will include suitable airside access to the Terminal 1 apron and freight-storage areas. An application for gazettal of Transport Avenue, within the City of West Torrens, for B-double access will be submitted in the short term. This may require further assessment in the long term if there is a shift towards larger vehicles within the freight industry.

The future ground transport concept for the Airport East Precinct is shown in Figure 10-9. The consolidation of freight into this area has benefits to the wider road network, including:

- Reduced vehicle movements within the Terminals & Business Precinct, through the separation of heavy vehicles accessing the Airport East Precinct from private, taxi, rideshare and public transport vehicles operating within the Terminals & Business Precinct
- Reduced apron-freight movements between relevant facilities, through the consolidation of freight and logistic operators

10.9.5. Morphett Precinct

Internal roads within the Morphett Precinct are limited to individual property access points for the existing developments within the precinct.

AAL continues to reserve land for a new access road adjacent the south-eastern corner of the airport, between the Morphett and Airport East Precincts which aligns with the State's Integrated Transport and Land Use Plan. The new road could potentially connect to Marion Road via Richmond Road, originating from Morphett Road, with the primary aim to cater for B-double and commercial traffic to and from Camden Park and North Plympton. The feasibility, scope and timing of the new access road will be determined in consultation with the City of West Torrens and the State Government.

Future requirements, including access, will be determined as required to support development and traffic demand.

10.9.6. West Beach Precinct

The West Beach Precinct has limited internal access provision (limited to minor maintenance roadways). Access to/from the precinct is generally via adjacent public roads: namely West Beach Road, Military Road and Tapleys Hill Road.

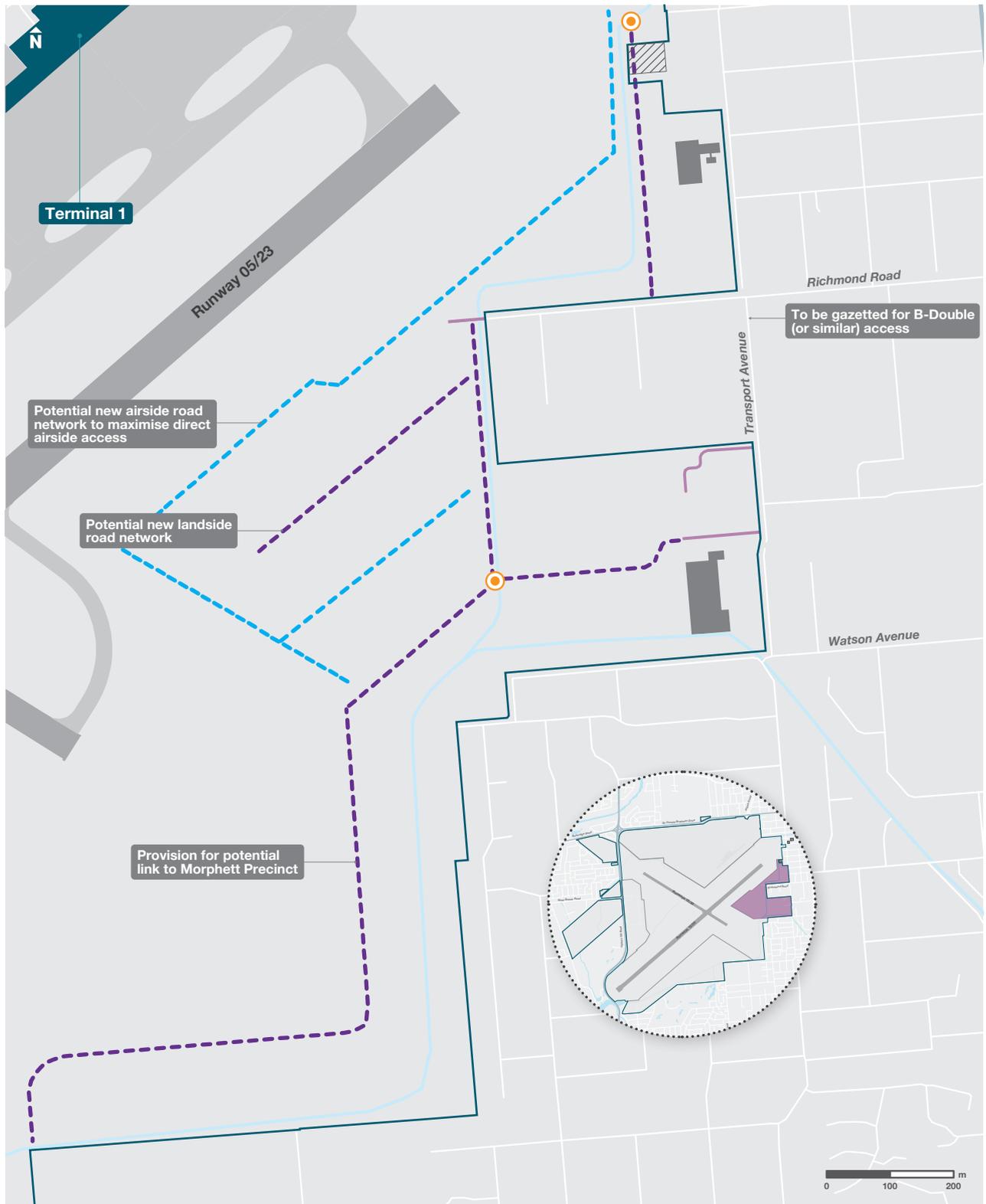
Future requirements will be determined as required to support development and traffic demand.

10.9.7. Torrens Precinct

The Torrens Precinct is largely undeveloped. Currently, an internal access road is provided for access to the Adelaide University hockey grounds (via Sir Donald Bradman Drive) and direct access to an aged-care facility.

Future requirements will be determined as required to support development and traffic demand.





LEGEND

- | | | |
|------------------|-----------------------------|--------------------------|
| Airport Boundary | Watercourses | Internal Airport Roads |
| Freehold Land | Parks, Forests and Reserves | Potential Landside Roads |
| Runways | Arterial Roads | Potential Airside Roads |
| Taxiways/Aprons | Local Roads | Potential Bridges |
| Airport Terminal | | |
| Buildings | | |

Figure 10-9: Airport East Internal Road Layout

10.10. Public Transport

Public transport access to and from Adelaide Airport is currently provided by Adelaide Metro. As shown in Figure 10-10, nine bus routes regularly service Adelaide Airport, connecting to the CBD and suburbs including Glenelg, West Lakes and Elizabeth.

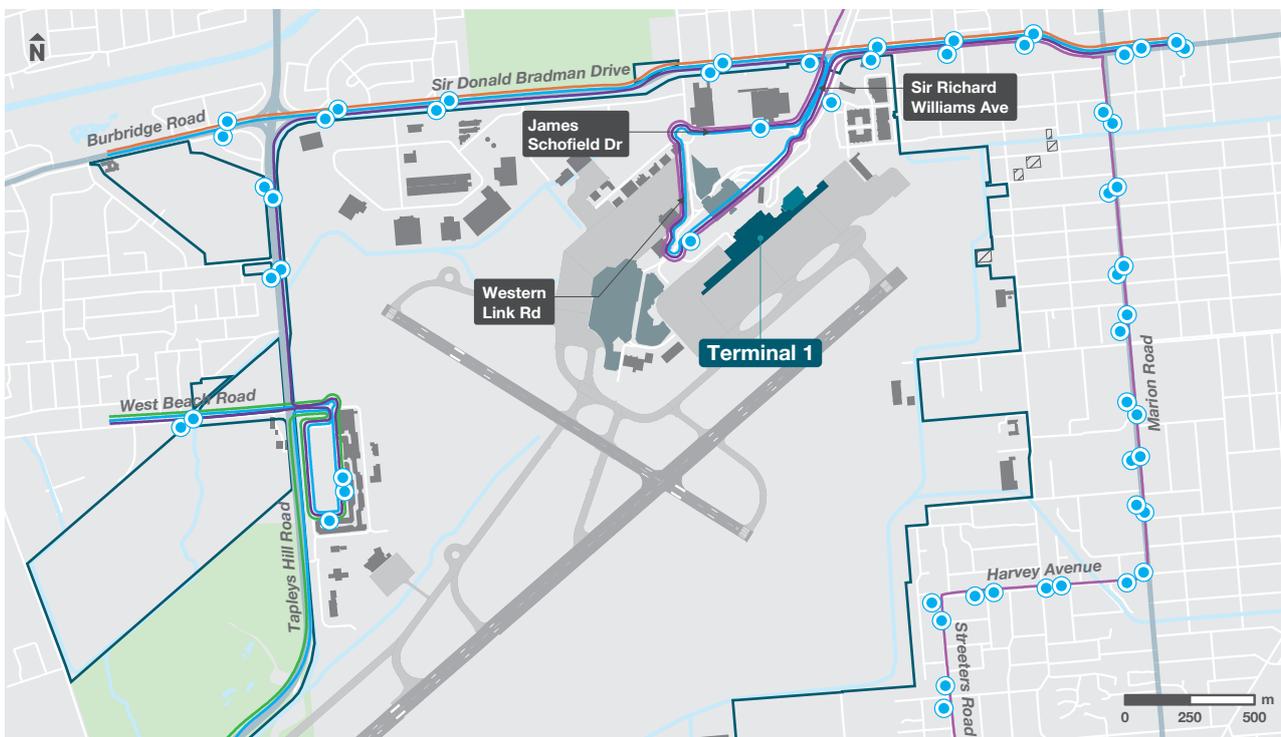
Seven of these bus routes (J1, J1X, J1A, J2, J2G, J7, J8) stop at the bus stop closest to Terminal 1, located near the taxi pick-up. Six of the bus routes (J1, J1X, J1A, J2, J2G and 200) service the Harbour Town Centre via Sir Reginald Ansett Drive. Bus route 163 also operates along Sir Donald Bradman Drive and provides access to the northern part of the Terminals & Business Precinct.

A bus journey from the airport to the Adelaide CBD typically takes 20 minutes. An express bus service runs between the airport and Adelaide CBD. The JetExpress double-decker bus, operates every 30 minutes Monday to Friday.

10.10.1. Potential High Capacity Public Transport Corridor

Public transport to and from Adelaide Airport is anticipated to increase, with buses likely to remain the primary mode of public transport access in the short to medium term. Adelaide Airport has made provision for increased public transport, by reserving land for a potential high capacity public transport corridor along Sir Richard Williams Avenue. This could provide connectivity to Terminal 1 (in line with the State Government's Integrated Transport and Land Use Plan).

The increased use of public transport continues to be a high priority for both AAL and the State Government. Not only will improved provision and use of public transport help to improve the efficiency of the internal and external road networks, it will also provide environmental and sustainability benefits. Improved wayfinding for pedestrians to promote use of public transport is part of the short term plan for Adelaide Airport. Future public transport improvements to the airport and bus services within the airport will continue to be discussed with the State Government.



LEGEND

Airport Boundary	Airport Terminal
Freehold Land	Airport Car Parks
Runways	Parks, Forests and Reserves
Taxiways/Aprons	Watercourses
Buildings	

BUS ROUTES

Arterial Roads	J7, J8 Route
Local Roads	J1, J1X, J1A Route
	J2, J2G Route
	163 Route
	300 Route
	Adelaide Metro Bus Stops

Figure 10-10: Bus Routes and Stops Within and Surrounding Adelaide Airport

10.11. Taxis, Rideshare and Chauffeur Vehicles

Taxi services are a key component of the ground transport system and accommodate a large proportion (11 per cent) of passenger access to and from the airport. There has also been growth in rideshare trips since starting at the airport in 2017, as well as ongoing demand for chauffeured vehicles as a result of services provided by some airlines for business and first class travellers.

Adelaide Airport provides designated areas for:

- Taxi pick-up, located adjacent to the plaza
- Taxi holding area, located approximately 900 metres north of the pick-up area
- Chauffeur pick-up and drop-off, located adjacent to the plaza (expanded in 2018)
- Rideshare pick-up, located immediately west of the multi-level car park (opened in 2017)
- Taxi drop-off, located on Atura Circuit (to open mid to late 2019)

In the medium to long term, duplication of the drop-off/pick-up area will increase capacity and provide opportunities to improve taxi and rideshare arrangements. The taxi/rideshare drop-off facilities to be co-located with private vehicles in this area would provide a consistent drop-off experience for passengers. This could allow the taxi/rideshare pick-up area to be relocated to Atura Circuit. The taxi/rideshare holding area could be relocated to an area north of Terminal 1. Due to these changes, the existing taxi pick-up area could then be used for other purposes, which aligns with the proposed terminal expansions to the south.

10.12. Cycleways

There are a series of cycling paths within, around and connecting to the airport site. These consist of off-road shared paths and on-road bicycle paths. There are on-road bicycle lanes along Sir Donald Bradman Drive, James Schofield Drive and Western Link Road. Off-road shared paths that connect to Adelaide Airport include:

- Anna Meares Bike Path
- Airport Bikeway
- Reece Jennings Bikeway
- Captain McKenna shared-use pathway

State Government planning has identified a shared used pathway connection between the Airport East Precinct and Terminals & Business Precinct in the medium term, in partnership with the City of West Torrens. This link will provide safe access and complete the cycleway to the perimeter of the airport site.

In the short to medium term, a connection from the Anna Meares Bike Path, adjacent to Sir Donald Bradman Drive, into the airport via Frank Collopy Court, is proposed. This will connect cyclists to the bicycle facilities located on the ground level of the multi-level car park. This facility includes bicycle-service stations, free parking facilities (for up to 12 bicycles), secure parking facilities (provided on a fee-for-service basis) and short-term lockers.

10.13. Car Parks

Adelaide Airport has almost 4,700 parking spaces for use by passengers, visitors and staff, with a mix of at-grade and multi-level facilities.

Additional car parks are provided for commercial use within lease boundaries or in consolidated locations shared by several businesses.

Currently, seven car rental operators provide services at Adelaide Airport. Service kiosks are located within Terminal 1 and passengers collect and return rental cars on the ground level of the multi-level car park. Additional parking and storage for car rental operators is provided adjacent to Sir Hubert Wilkins Avenue.

Demand for passenger, visitor and staff car-parking across the airport is expected to more than double in the period to 2039. This is based on the current mode share of vehicles that access the airport. This indicates that existing car parking facilities will likely require expansion by the early to mid-2020s. By 2039, there is a potential demand for an additional 6,500 car parking spaces, which would also cater for car parking that may be displaced due to the expansion of Terminal 1. Increased use of public transport and the potential uptake of autonomous vehicles may over time reduce the demand for car parking.

Key considerations for AAL in planning for and operating car parks include:

- Distance to Terminal 1
- Access options (bus service, walkways, emerging technologies)
- Wayfinding and ease of access
- Customer preferences
- Provision of various products and price points providing choice for the customer
- Viability of infrastructure investment
- Availability of land

Proposed car park developments in the long term include the potential construction of new at-grade parking across the airport and the expansion of the multi-level car park. The requirement and timing for car park development will be determined as required to support the demand from passengers and commercial developments.

AAL will continue to adopt advances in technology to provide an efficient and seamless experience for users of the airport. This includes reliable and regular bus services and links between car parking areas and Terminal 1. Electric buses are currently being introduced and autonomous bus services may be considered in the future as the technology matures.

Proposed car parking improvements are shown in Figure 10-11.

10.14. Development Plan

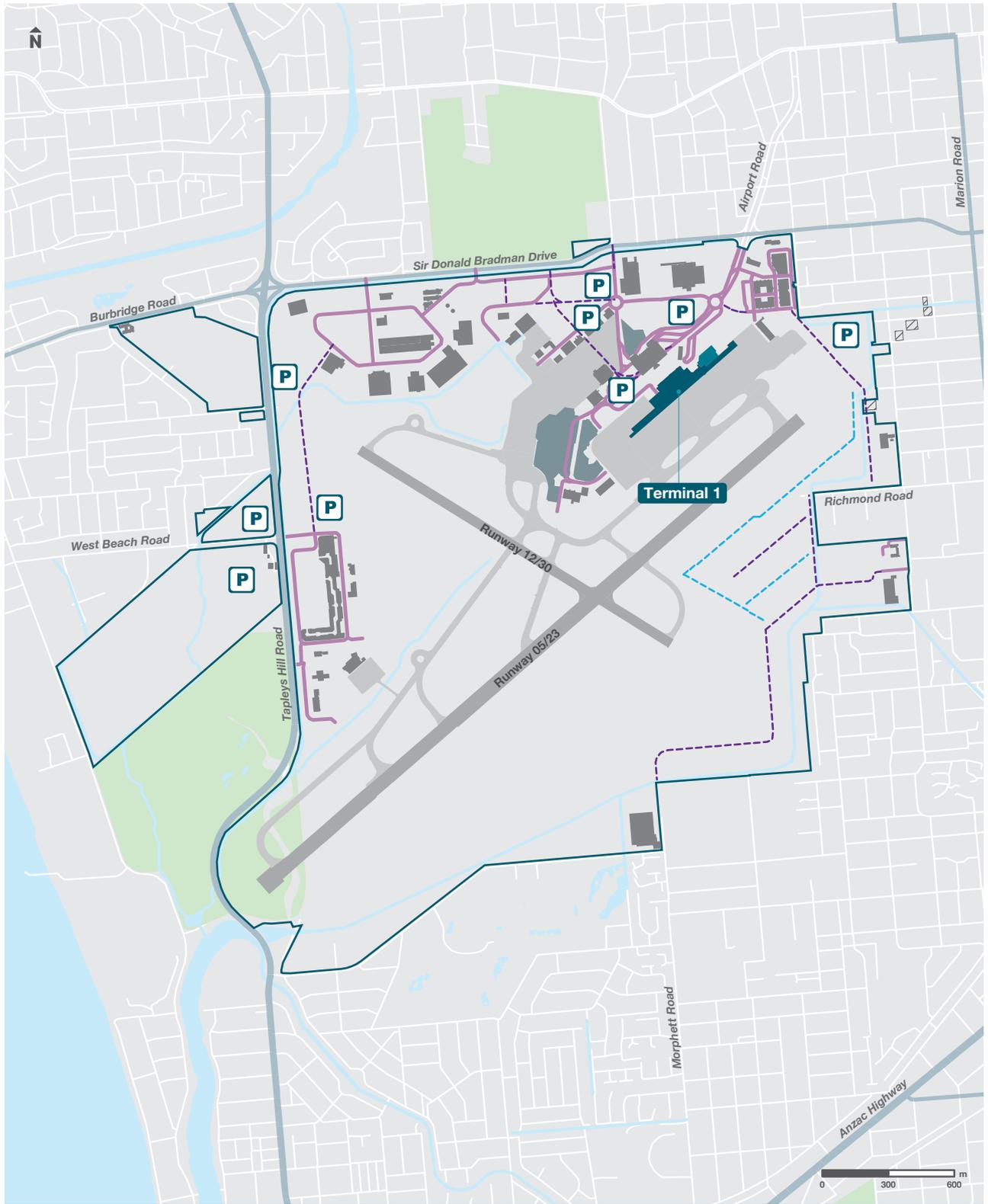
10.14.1. Development Triggers

The implementation plan for key ground transport upgrades proposed within the next 8 years and 20 years is based on current forecasts. The requirement and timing for ground transport developments will be informed by one or more of the following triggers, therefore the actual timing of developments may vary:

- Increased passenger demand
- Terminal expansion
- New commercial development
- Capacity constraints resulting in delays, congestion, car park overflow
- Improved customer experience
- Improved safety
- Change in mode share
- New technologies / innovation
- Viability of the proposed investment

The 8-Year Development Plan and the 20-Year Development Plan are detailed in Table 10-1 and Table 10-2, respectively.

AAL will continue to consult with relevant authorities and airlines as triggers are approached and further design and modelling is undertaken.



LEGEND

- | | | |
|------------------|-----------------------------|------------------------------------|
| Airport Boundary | Airport Car Parks | Potential Future Car Park Facility |
| Freehold Land | Parks, Forests and Reserves | Internal Airport Roads |
| Runways | Watercourses | Potential New Road Links |
| Taxiways/Aprons | Arterial Roads | Potential Airside Roads |
| Buildings | Local Roads | |
| Airport Terminal | | |

Figure 10-11: Proposed Car Parking Improvements



TYPE	POTENTIAL PROJECT	BENEFITS
Roads	New signalised intersection along Sir Donald Bradman Drive and associated internal road connections and intersection upgrades to create new primarily one-way route	<ul style="list-style-type: none"> Redistribution of traffic away from Sir Donald Bradman Drive / Sir Richard Williams Avenue intersection
	Modified intersection at Sir Donald Bradman Drive / Fred Custance Street. Removal of signals	<ul style="list-style-type: none"> Separation of fuel trucks and light vehicles
	New signalised intersection at Sir Donald Bradman Drive / Vimy Ave	<ul style="list-style-type: none"> Increased capacity for forecast volumes
	Modifications to Sir Donald Bradman Drive / Sir Richard Williams Avenue intersection	<ul style="list-style-type: none"> Increased capacity for forecast volumes
	Modifications to Richmond Road / Marion Road intersection	<ul style="list-style-type: none"> Increased capacity for forecast volumes Appropriate heavy vehicle access and egress
	Modifications to Tapleys Hill Road / Sir Reginald Ansett Drive intersection (north)	<ul style="list-style-type: none"> Increased capacity for forecast volumes Improved capacity for right turning vehicles
	Modifications to Tapleys Hill Road / Sir Reginald Ansett Drive intersection (south) to include signals	<ul style="list-style-type: none"> Increased capacity for forecast volumes Improved capacity for right turning vehicles
	New internal landside road between Tapleys Precinct and Burbridge Business Park	<ul style="list-style-type: none"> Redistribution of traffic on the internal and external network Connectivity within the Airport site including access to potential new car parks
	New internal airside and landside road network at Airport East aligned with proposed development, with possible future road link between Airport East Precinct and Morphett Precinct	<ul style="list-style-type: none"> Reduced vehicle movements within the Terminals & Business Precinct Separation of heavy vehicles from private, taxi, rideshare and public transport vehicles within the Terminals & Business Precinct Reduced apron freight movements between relevant facilities Access to potential new car park
	Possible secure road link between the Terminals & Business Precinct and Airport East Precinct with connection to Richmond Road	<ul style="list-style-type: none"> Reduced traffic volumes on primary road network More direct access to/from CBD
Car Parks	Transport Avenue gazetted for use by B-double heavy vehicles	<ul style="list-style-type: none"> Increased opportunity for freight development within the Airport East Precinct Ability to create a primarily one-way network for vehicles within the precinct for reduced vehicle conflict
	New at-grade car park north of the general aviation facilities to accommodate approximately 800 spaces	<ul style="list-style-type: none"> Increased capacity for forecast volumes
	New at-grade car park north-east of Terminal 1 to accommodate approximately 1,400 spaces	<ul style="list-style-type: none"> Increased capacity for forecast volumes
Public Transport	Expansion of the multi-level car park to accommodate approximately 2,000 additional spaces	<ul style="list-style-type: none"> Increased capacity for forecast volumes Proximity to Terminal 1 and Airport Business District office park
	Improvements to current infrastructure to promote increased use	<ul style="list-style-type: none"> Reduced traffic volumes on roads Sustainable mode of transport
	Provision for a high capacity public transport system servicing the airport along Sir Richard Williams Avenue	<ul style="list-style-type: none"> Reduced traffic volumes on roads Sustainable mode of transport





TYPE	POTENTIAL PROJECT	BENEFITS
Cycleways	Extension of Anna Meares Bike Path adjacent to the airport boundary between Watson Avenue and Sir Donald Bradman Drive	<ul style="list-style-type: none"> Completed cycle loop at airport perimeter
	Bike path along Frank Collopy Court between Anna Meares Bike Path and existing on-road path on Sir Richard Williams Avenue	<ul style="list-style-type: none"> Formal link from the external cycling network to the internal, providing improved safety

Table 10-1: 8-Year Ground Transport Development Plan

TYPE	POTENTIAL PROJECT	BENEFITS
Drop-off / Pick-up	Duplication of drop-off/pick-up area below the multi-level car park and associated modified road connections to Western Link Road	<ul style="list-style-type: none"> Increased capacity Seamless exit and connection to primary road network
	Relocation of taxi/rideshare pick-up to Atura Circuit	<ul style="list-style-type: none"> Reduced travel distance and time between holding area and pick-up More efficient operation Reduced traffic on primary road network
Roads	Upgraded road connection from drop-off/pick-up area to the new intersection at Sir Donald Bradman Drive	<ul style="list-style-type: none"> Increased capacity for forecast volumes Potential for a more direct route to exit
	Upgrade of the Sir Richard Williams Avenue / James Schofield Drive roundabout to a signalised intersection	<ul style="list-style-type: none"> Increased capacity for forecast volumes
	Modifications to Sir Donald Bradman Drive / Sir Richard Williams Avenue intersection	<ul style="list-style-type: none"> Increased capacity for forecast volumes
	Possible Sir Donald Bradman Drive / Frank Collopy Court access for service vehicles.	<ul style="list-style-type: none"> Heavy vehicle access to commercial development separated from other vehicles in the precinct
Car Parks	New at-grade car parks located within the western precincts of the airport site and associated internal road connections	<ul style="list-style-type: none"> Increased capacity for forecast volumes accounting for displaced car parks arising from terminal expansion
Public Transport	Provision for a high capacity public transport system servicing the airport along Sir Richard Williams Avenue	<ul style="list-style-type: none"> Reduced traffic volumes on roads Sustainable mode of transport

Table 10-2: 20-Year Ground Transport Development Plan







11

Services Infrastructure

11.1. Introduction

Services infrastructure is a key component of Adelaide Airport's operations both now and into the future. It comprises the power, water, sewer, telecommunications and stormwater networks that service aviation and non-aviation related developments across the Airport Business District.

The reliability, efficiency and sustainability of these networks and supply arrangements are the key objectives for Adelaide Airport when planning for services infrastructure. AAL works closely with external utilities providers to ensure these essential services are available to support the operation and growth of the airport.

11.2. Overview

- Services infrastructure at Adelaide Airport will continue to expand to meet increases in demand across the airport, arising from increased passenger movements and new developments.
- Augmentation of the existing utility networks will likely include:
 - Potential relocation of the 750 millimetre water main which transects the airport site
 - Expansion of networks to supply new areas of development
 - New services infrastructure to the Airport East Precinct



Figure 11-1: Installed Solar Photovoltaics on Multi-Storey Car Park Roof

11.3. Recent Developments

Improvements to the services infrastructure that have been implemented since Master Plan 2014 include:

- Installation of a 1.17MW solar photovoltaics on the roof of the multi-level car park (Figure 11-1). It is the second largest 'non-generator' system in South Australia, and the largest airport solar photovoltaic installation in Australia, reducing the airport's carbon footprint by approximately 8.5 per cent
- Terminal 1 heating and cooling analytics service which monitors and identifies improvements in real time
- Replacement of car park light fittings with LED fittings as part of an ongoing sustainability initiative
- Connection to the underground aquifers located along the southern boundary of the airport for use by the Terminal 1 cooling towers
- Flood protection to identified critical power and sewer infrastructure nodes across the airport site
- New and/or upgraded services to new developments across the airport site



11.4. Electrical Network

Adelaide Airport owns and operates an embedded (private) electricity network on the airport site, which is serviced by a network of high-voltage electricity mains and substations located around the periphery of the airport, owned and operated by the South Australian Power Network (SAPN) as shown in Figure 11-2. On-site electricity is also generated from the two solar photovoltaic installations located on the roof of the multi-level car park and the Terminal 1 building.

To support future growth and development, the internal network will continue to be expanded, underpinned by Adelaide Airport's objectives to:

- Optimise and maintain electricity infrastructure to ensure continuity of supply and meet development needs
- Support carbon-reduction goals in energy infrastructure and framework management decisions
- Ensure regulatory compliance
- Maintain commercial viability of the embedded electricity networks
- Drive continuous improvement

The forecast electrical demand associated with expansion of Terminal 1 and development of the office park within the Terminals & Business Precinct indicates that an increase in supply may be required. The development of the Airport East Precinct will require a new SAPN high-voltage feed. AAL will continue to work closely with SAPN to ensure that growth can be supported in line with the objectives of Adelaide Airport.

In an ongoing effort to minimise energy consumption, AAL will continue to:

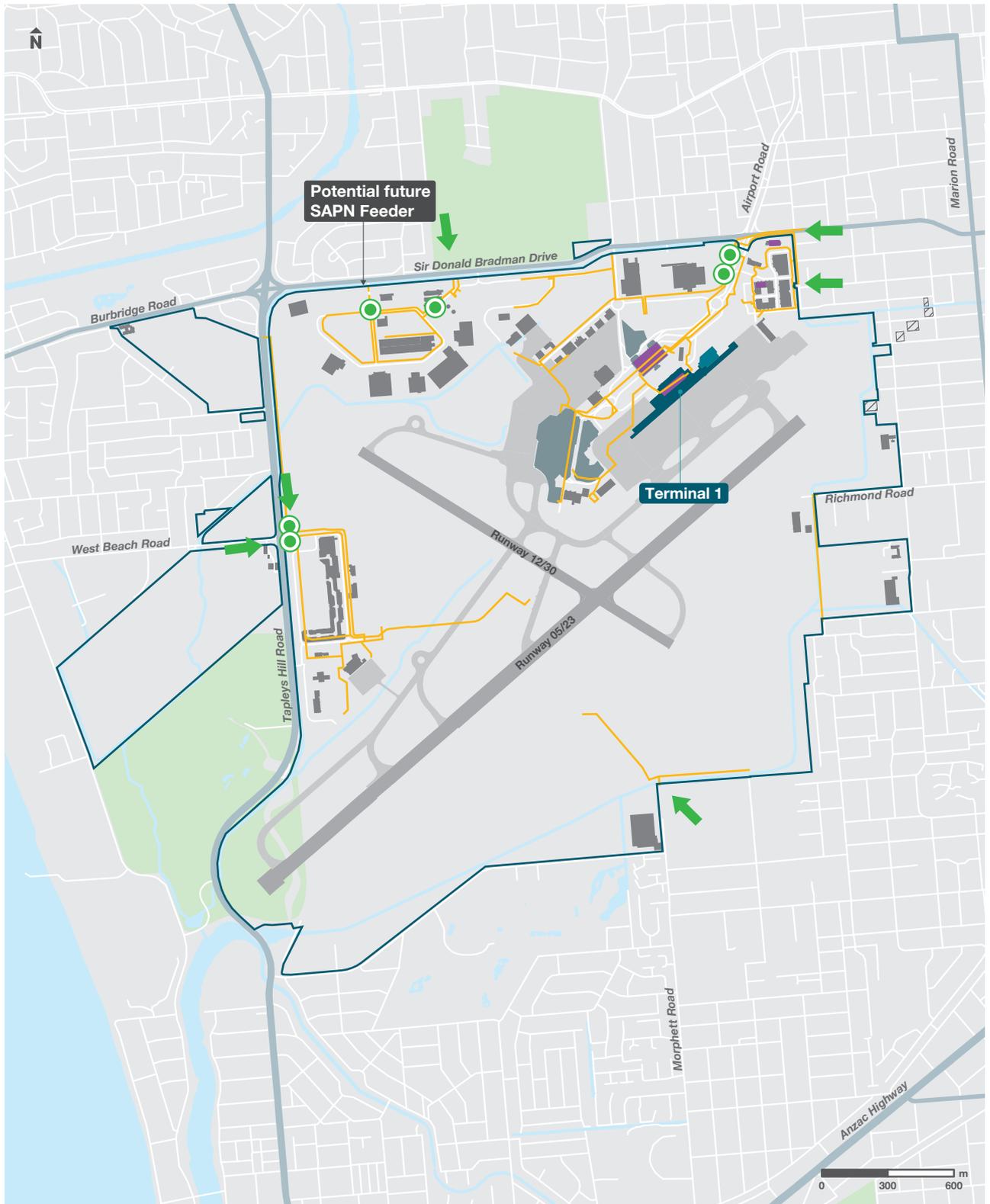
- Upgrade existing lighting to LED fittings (sensor-operated where appropriate)
- Identify and implement cost-effective energy reduction projects
- Expand the preventative maintenance program in alignment with development
- Educate employees and tenants on energy efficiency practices
- Identify opportunities to increase renewable-energy generation onsite

11.5. Telecommunications

Telecommunications infrastructure within the airport site is owned and managed by AAL and various telecommunications providers. AAL will continue to facilitate improvements and expansion of the telecommunications infrastructure including the rollout of NBN, upgrades to the Terminal 1 in-building communications system and system upgrades to align with technological advances and demand.

AAL is also exploring GigCity network technology for future proposed developments, which currently connects innovation precincts, co-working spaces and business districts across Adelaide via an ultra-fast internet service.

AAL will continue to facilitate improvements and expansion of the telecommunications infrastructure to meet customer needs and in response to changes in the communication industry. This will include upgrades to the fixed and wireless telecommunications infrastructure within Terminal 1 and airport wide technologies that allow high-speed connectivity both within Adelaide and across South Australia.



LEGEND

- | | | |
|------------------|-----------------------------|-------------------------------|
| Airport Boundary | Airport Car Parks | High Voltage Intake Station |
| Freehold Land | Parks, Forests and Reserves | High Voltage Electricity Line |
| Runways | Watercourses | SAPN Feeder |
| Taxiways/Aprons | Arterial Roads | Solar Panels |
| Buildings | Local Roads | |
| Airport Terminal | | |

Figure 11-2: Existing Electrical network

11.6. Water

11.6.1. Potable water and fire water

Adelaide Airport's potable water and fire water supply is primarily sourced from a 750 millimetre diameter water main that traverses the site from north to south which is owned and operated by SA Water. Water is also supplied from a series of SA Water mains surrounding Adelaide Airport. The internal network of pipelines connected to the SA Water mains supply and reticulated to airport sites and tenancies is owned and managed by AAL. Figure 11-3 shows the existing potable water network for Adelaide Airport.

SA Water has advised that there is a sufficient network of water mains adjacent to the Airport to supply the planned developments within each precinct. To support future growth and development, extensions and expansions of Adelaide Airport's water supply network will continue. AAL will continue to consult with SA Water regarding the impact of any major developments on the 750 millimetre diameter water main, including options for potential relocation and redundancy to the water network.

11.6.2. Recycled water

Adelaide Airport is committed to reducing its reliance on potable water sources through the expansion of non-potable water alternatives, including the use of:

- Recycled water supply from SA Water via a pipeline from the Glenelg Wastewater Treatment Plant and through reticulated recycled water pipelines on the western, northern and southern boundaries of the airport site. Recycled water is used for irrigation of lawns and gardens and toilet flushing within Terminal 1
- Stormwater run-off from the roof of the multi-level car park which is used within the Terminal 1 cooling towers
- Treated stormwater from the on-airport aquifer which supplements the supply to the Terminal 1 cooling towers
- Drought-tolerant plants for landscaping to aid the reduction of water usage across the airport site

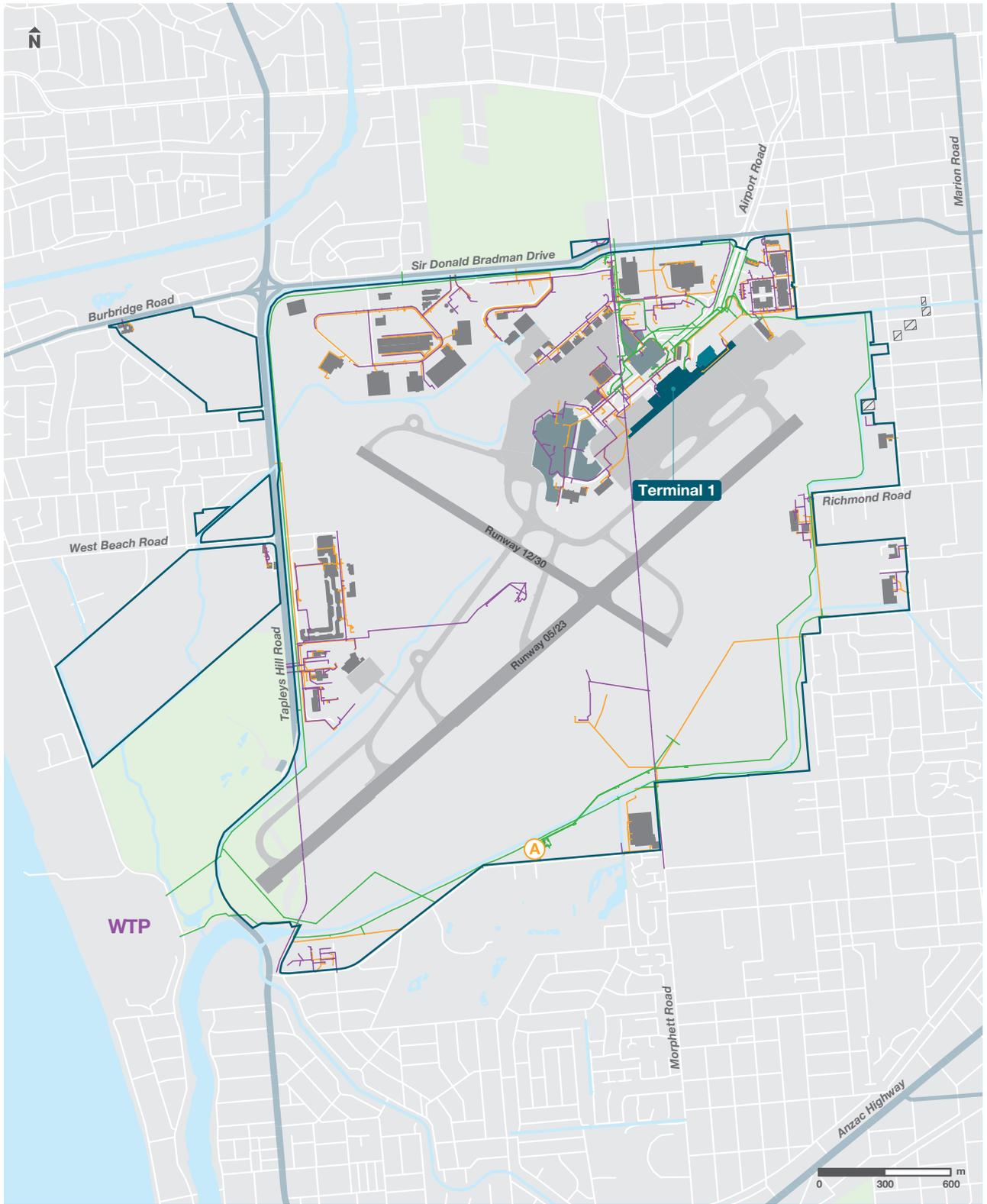
The existing recycled water infrastructure, shown in Figure 11-3, has sufficient capacity for planned development at the airport.

11.6.3. Wastewater

The airport's wastewater system is comprised of a network of gravity and pumped mains, which is owned and maintained by AAL. There are 16 wastewater connections to the SA Water network along the airport boundary. Figure 11-3 shows the existing wastewater network for Adelaide Airport.

The internal wastewater system will require upgrades, additional reticulation and/or expansion to accommodate the future Terminal 1 expansion and other planned developments. New wastewater infrastructure will be required in the Airport East Precinct. Additional connections to the SA Water network are also likely to be required.

AAL will work with SA Water to continue investigating efficiencies that can be made in the existing and future wastewater network.



LEGEND

- | | | |
|------------------|-----------------------------|---|
| Airport Boundary | Airport Car Parks | Water Main |
| Freehold Land | Parks, Forests and Reserves | Recycled Water Main |
| Runways | Watercourses | Waste Water Main |
| Taxiways/Aprons | Arterial Roads | Aquifer |
| Buildings | Local Roads | WTP SA Water Glenelg Wastewater Treatment Plant |
| Airport Terminal | | |

Figure 11-3: Existing Water and Wastewater

11.7. Stormwater Drainage

Adelaide Airport is located within the Patawalonga Catchment of metropolitan Adelaide, downstream of major urban stormwater catchments. All stormwater discharges to networks which bound the Adelaide Airport site and drain to the Gulf St Vincent via the Barcoo Outlet, including:

- The Cowandilla-Mile End Drain: Its catchment of 6.5 square kilometres extends to the suburbs to the north and east of Adelaide Airport and discharges into the Patawalonga Creek which flows to the Barcoo Outlet. It is located beyond the airport boundary and is the responsibility of the City of West Torrens
- Keswick Creek: Its catchment of 31 square kilometres extends to the Adelaide Hills and multiple suburbs of Metropolitan Adelaide. Keswick Creek is located within the airport boundary through an easement with SA Water and drains into Brown Hill Creek via the Watson Avenue Detention Basin in Netley
- Brown Hill Creek: Its catchment of 35 square kilometres extends to the Adelaide Hills and various suburbs of Metropolitan Adelaide and discharges to the Barcoo Outlet. Brown Hill Creek is located within the airport boundary through an easement with SA Water
- Airport Drain: Its catchment is located entirely within the airport and is the responsibility of AAL. It discharges to the Barcoo Outlet

Figure 11-4 shows major stormwater catchments for Metropolitan Adelaide.

Figure 11-5 shows the major drainage systems at and adjacent to Adelaide Airport.

The stormwater management arrangements on the airport are governed by an agreement formed in 1964 when parts of the airport's drainage system were transferred from the Commonwealth to the respective State and Local Governments to aid upstream water flows. This was made on the basis that the airport's stormwater flows, both current and future, could continue to flow into the Keswick Creek, Brown Hill Creek and the Cowandilla Mile End drain, could be crossed as necessary, and would be maintained by the respective authorities. These agreements have been used as the basis for the overall stormwater management arrangements at Adelaide Airport, and subsequent agreements with relevant authorities.

Upstream catchment flows independent of the airport have not been suitably upgraded to the levels consistent with the capacity of the existing drainage

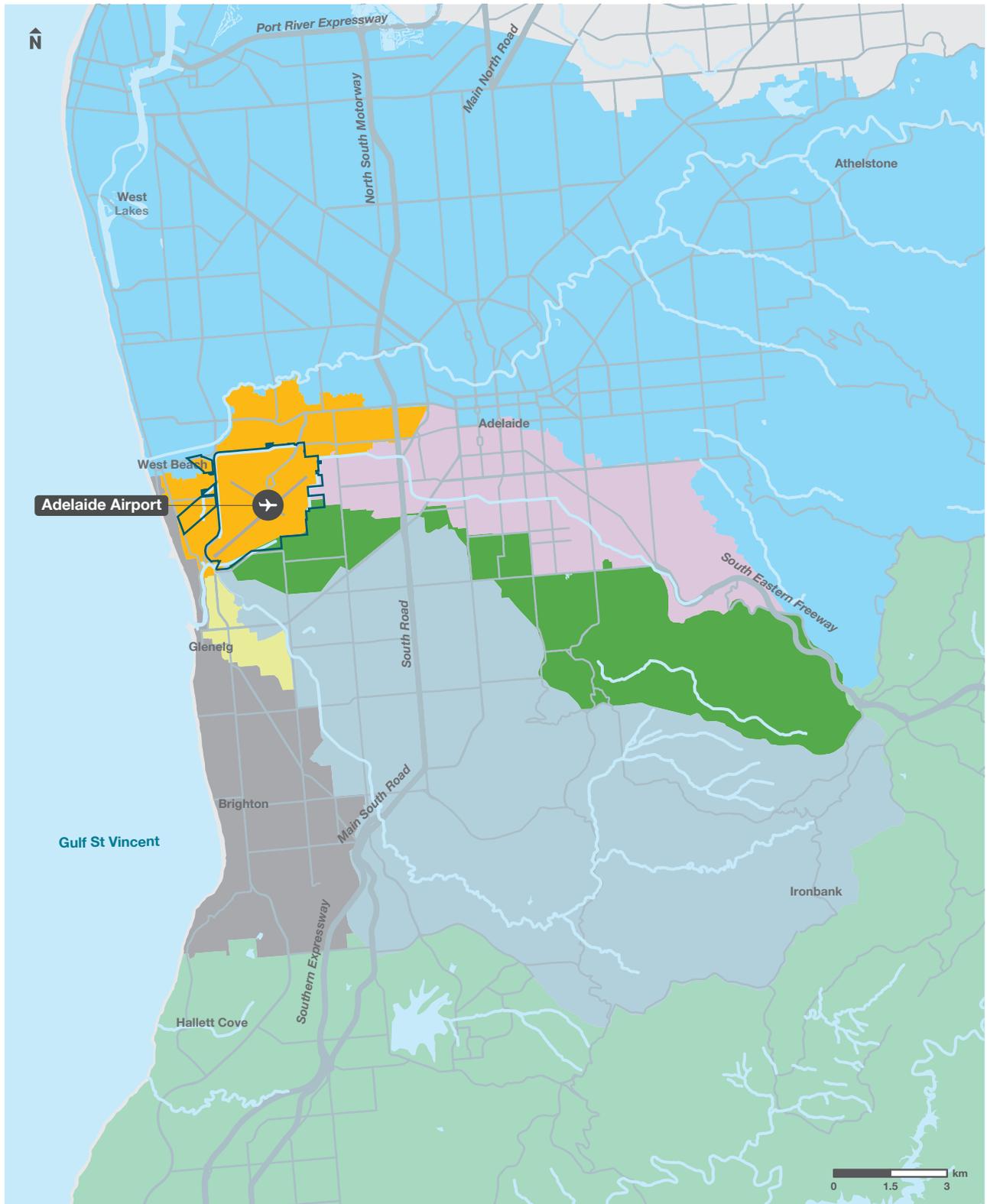
systems. While several projects have been carried out along the Brown Hill and Keswick Creek catchment in recent times to reduce the risk of flooding across the catchment, the project which will have the greatest effect on Adelaide Airport flood levels, and has not yet been undertaken, is the Flow Diversion of Keswick Creek to Brown Hill Creek. AAL will continue to work with relevant authorities and support the progression of this project.

Relevant flood-mitigation measures will continue to be implemented by AAL on the assumption that the benefits associated with the Flow Diversion of Keswick Creek to Brown Hill Creek project will not be realised for some time. This recently saw the upgrade to critical airport power and sewer infrastructure nodes across the airport site to address flood risk. AAL will also continue to work with the City of West Torrens to remove sediment within the Patawalonga Creek, as required, to improve the capacity of the creek and reduce the flood risk to Adelaide Airport and adjacent suburbs.

The effect of climate change on Adelaide Airport is being assessed through AAL's Climate Change Adaption Plan which responds to the effects of increased occurrences of extreme weather events and sea-level rise on stormwater runoff and the performance of infrastructure and drainage.

AAL owns and maintains the stormwater network within the airport site which includes underground pit and pipe drainage networks, open swale channels and detention basins. Water-quality treatment devices such as gross pollutant traps and oil and water separators treat stormwater prior to discharge. Water quality is monitored at strategic locations throughout the catchment to measure the effectiveness of the water-quality treatment devices. Adelaide Airport is also working in collaboration with the South Australian Environmental Protection Agency (EPA) to evaluate the potential impact of pollutants on drain ecology, including the establishment of appropriate water quality targets in accordance with the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines for Fresh and Marine Water Quality.

Future expansions and developments at Adelaide Airport will continue to be reviewed and assessed to ensure incorporation of the principles of water-sensitive urban design including the management of water quantity and quality.



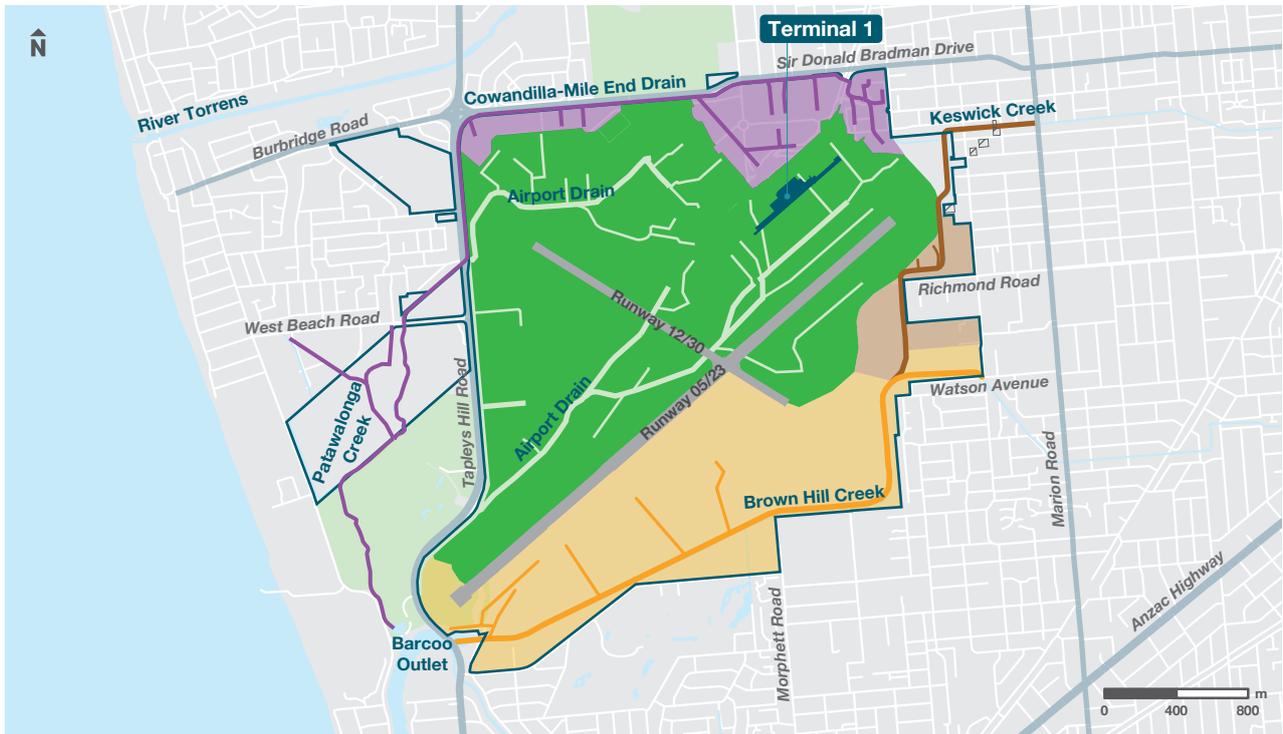
LEGEND

- Airport boundary
- Runways
- Major Transport Routes

STORMWATER CATCHMENTS

- | | |
|---|---|
| Brown Hill Creek | Onkaparinga |
| Coastal | Patawalonga |
| Cowandilla-Mile End | Sturt River |
| Keswick Creek | Torrens |

Figure 11-4: Major Adelaide Stormwater Catchments



LEGEND

- Airport Boundary
- Freehold Land
- Runways
- Airport Terminal
- Parks, Forests and Reserves
- Watercourses
- Arterial Roads
- Local Roads

DRAINAGE

- Airport Drain
- Brown Hill Creek
- Cowandilla-Mile End Drain-Patawalonga Creek
- Keswick Creek

CATCHMENTS

- Airport Drain
- Brown Hill Creek
- Cowandilla-Mile End Drain
- Keswick Creek

Figure 11-5: Adelaide Airport Major Drainage Systems



11.8. Gas

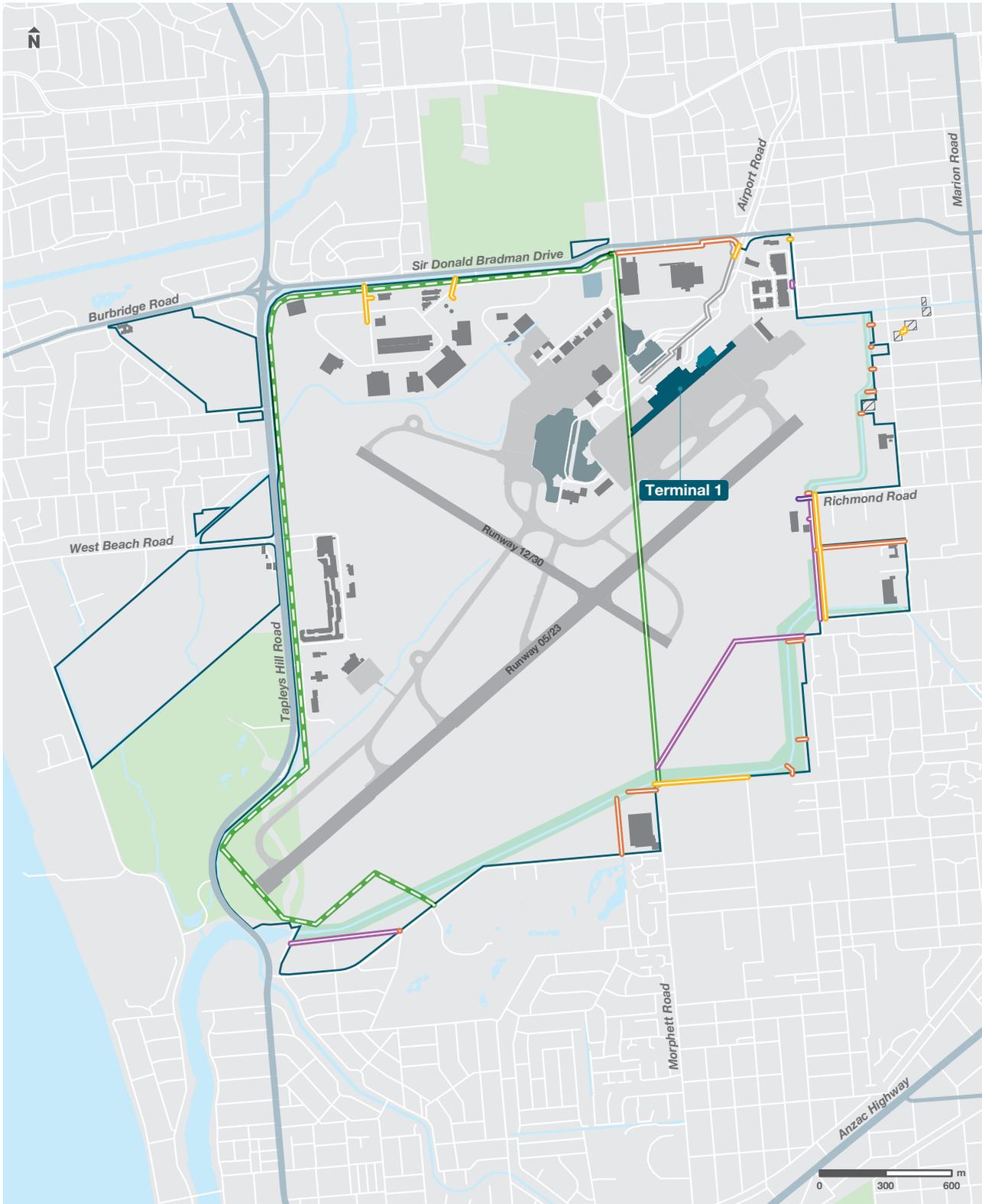
APA Group owns and manages the natural gas supply and the internal and external infrastructure at the airport. A major high-pressure gas main runs through the airport site from Sir Donald Bradman Drive and reticulates gas through the site, including Terminal 1 and the General Aviation area.

The existing gas supply is sufficient to service the existing and future development within the Terminals & Business Precinct and the Airport East Precinct. Adelaide Airport will work with the APA Group to investigate extending natural gas infrastructure to service other precincts should the demand for gas supply to these areas arise.

11.9. Easements

There are several existing easements over the airport site which are shown in Figure 11-6. In any proposal for future development on airport land, AAL will act consistently with the obligations or interests that exist with service providers.





LEGEND

- Airport Boundary
- Freehold Land
- Runways
- Taxiways/Aprons
- Buildings
- Airport Terminal
- Airport Car Parks
- Parks, Forests and Reserves
- Watercourses
- Arterial Roads
- Local Roads

EASEMENTS

- Keswick Brown Hill Creek
- SA Water
- Recycled Water
- Council Drainage
- Sewer
- Electrical
- Gas
- Right of Way

Figure 11-6: Existing Easements on the Airport Site

12

Safeguarding the Airport



12.1. Introduction

The safety of aircraft operations to and from Adelaide Airport, and the capacity of the airport to operate and respond to growing demand, can be directly impacted by inappropriate land use and activities that occur on the land surrounding the airport.

Long-term and effective protection and safeguarding of Adelaide Airport is critical to ensuring ongoing aviation operations and safety. The safeguarding of the airport, which refers to measures taken to minimise inappropriate land uses and activities, is the shared responsibility of AAL and all levels of government.

The Commonwealth Government has enacted regulations to protect airspace around airports (the Airports (Protection of Airspace) Regulations 1996) and, in recent years, has developed a series of Guidelines as part of the National Airports Safeguarding Framework (NASF) to protect the long term safe operations of airports. These Guidelines have been developed by the Commonwealth Government in conjunction with the relevant State and Territory planning Ministers and are being implemented throughout Australia by the relevant State and Territory planning authorities.

12.2. National Airports Safeguarding Framework

The current and future viability of aviation operations at Adelaide Airport can be impacted by inappropriate developments in areas beyond the airport boundary. The safeguarding measures applied by AAL in its planning include the NASF guidance documents, which are listed in Table 12-1.

GUIDELINE	DESCRIPTION
Guideline A	Measures for Managing Impacts of Aircraft Noise
Guideline B	Managing the Risk of Building Generated Windshear and Turbulence at Airports
Guideline C	Managing the Risk of Wildlife Strikes in the Vicinity of Airports
Guideline D	Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
Guideline E	Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
Guideline F	Managing the Risk of Intrusions into the Protected Airspace of Airports
Guideline G	Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)
Guideline H	Protecting Strategically Important Helicopter Landing Sites (HLS)
Guideline I	Managing the Risk in Public Safety Areas at the Ends of Runways

Table 12-1: National Airports Safeguarding Framework Guidelines

12.3. South Australian Government Planning Policies

The South Australian Government has given commitments to implementing the outcomes of NASF. The current South Australian planning system (established under the *Development Act 1993*) provides a framework for addressing some of the NASF Guidelines in relation to off-airport development.

The current planning policy module 'Buildings Near Airfields' has been included in most development plans within the State. The objective of this planning policy module states:

Development that ensures the long-term operational, safety, commercial and military aviation requirements of airfields (airports, airstrips and helicopter landing sites) continue to be met.

The Principles of Development Control provide general guidance with regard to:

- Limiting height and location of buildings and structures adjacent airports
- Considering the risks to public safety of development in the vicinity of an airport (i.e. consideration of lighting glare, smoke, dust and exhaust emissions, air turbulence, storage of flammable liquids, attraction of birds, reflective surfaces, and materials that affect aircraft navigational aids)
- Lighting within six kilometres of an airport
- Minimising development that increases the attraction of birds within three kilometres of an airport
- Limiting development within areas affected by aircraft noise

Development proposals which exceed building height limitations around airports, as shown in Development Plans, will trigger a referral to the Commonwealth Government for assessment.

The South Australian planning system is in transition. The new *Planning, Development and Infrastructure Act 2016* and the State-wide Planning and Development Code replacing the current *Development Act 1993* and associated development plans for each council area being replaced by 2021.

12.4. Aircraft Noise

Guideline A – Measures for Managing 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.

Guideline A Measures for Managing Impacts of Aircraft Noise relates to measures for managing the impacts of aircraft noise.

Chapter 13 of the Master Plan provides a detailed assessment of aircraft-noise exposure associated with Adelaide Airport.

The most effective way to manage aircraft-noise intrusion in areas forecast to be exposed to high levels of aircraft noise is to implement in operation and appropriate land-use and planning controls and acoustic standards for such areas.

AAL has prepared an Australian Noise Exposure Forecast (ANEF) for Adelaide Airport since 1999, with the Federal Airports Corporation developing an ANEF prior to privatisation. The ANEF has been reviewed as part of this Master Plan and was technically endorsed by Airservices in July 2019 (see Appendix B). The ANEF, which is a land-use planning tool to manage noise-sensitive land uses around the airport, provides guidance for the South Australian Government and Local Government authorities to make informed planning and development decisions. Preparation of the ANEF requires consultation with the South Australian Government and Local Government authorities in areas around the airport.

The ANEF underpins *Australian Standard AS2021:2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction*, which provides guidance on the siting and construction of new buildings within forecast aircraft noise exposure zones and on the acoustical adequacy of buildings in areas near airports and aerodromes.

New building developments on the airport will be designed to minimise aircraft-noise intrusion and achieve compliance with the Standard.

Within the West Torrens and Charles Sturt Council Development Plans, areas exposed to current or future aircraft noise have been defined. The planning controls seek to minimise new residential development within such areas.

Guideline A also recommended the use of additional metrics to communicate aircraft noise to the community. This Master Plan also includes noise-above contours as recommended in Guideline A (refer Chapter 13).

12.5. Windshear and Turbulence

Guideline B – Managing the Risk of Building Generated Windshear and Turbulence at Airports

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 in reducing the risk of building-generated windshear and turbulence. It also provides options to modify existing buildings.

Guideline B Managing the Risk of Building Generated Windshear and Turbulence at Airports relates to building-induced windshear which can be a risk to 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 could be diverted over or around the building and result in crosswind speeds varying along the runway.

The greatest risk from windshear and turbulence is on landing and take-off, when an aircraft's speed is low and the pilot's ability to respond is more limited.

Guideline B provides technical criteria to assess proposed buildings against the potential to generate windshear or turbulence and offers design techniques to mitigate these effects. AAL has undertaken windshear and turbulence assessments for key development areas at the airport, based on the Guideline B criteria as outlined on the next page.



12.5.1. Airport East Precinct

Any proposed buildings within the Airport East Precinct, and especially those close to the main runway (Runway 23) and the planned hangars, are recommended to be kept at a similar height to the existing buildings (generally single storey i.e. below about ten metres in height). The built form of any proposed buildings closest to the runways are recommended to be rounded in design to reduce the intensity of the wake effects that can occur from blunt, sharp-edged structures.

12.5.2. Terminals & Business Precinct

To limit potential wake effects, future developments within the Terminals & Business Precinct are recommended to maintain similar building heights to existing buildings. This is particularly important for the southern end of the area to the east of Sir Richard Williams Avenue. The proposed car park at the end of the main runway (Runway 23) is recommended to be ground level height.

The expansion of Terminal 1 should be maintained at the same height as the current terminal building. The proposed future western extension of the Terminal 1 building will place it closer to the cross runway (Runway 12) and will be assessed for wake effects, especially for east sector winds.

Within the Burbridge Business Park, the wake effects of the proposed buildings are anticipated to be below the path of approaching aircraft on the cross runway (Runway 12) and as such would not be expected to have a significant impact on flight operations. It is recommended to maintain the current proposed maximum building height of approximately 14 metres for any new development.

In unlikely crosswind conditions, it is likely (and recommended) that the main runway (Runway 05/23) will be used. The main runway is not susceptible to wake interference turbulence from the existing or proposed buildings within the Burbridge Business Park for north to north-east wind directions.

12.5.3. Morphett Precinct

The distance of any proposed buildings within the Morphett Precinct from the northern and southern ends of the main runway (Runway 05) and the cross runway (Runway 30) should be greater than 500 metres and allow for heights of proposed buildings being limited to typical warehouse heights of 10 to 14 metres. Any wake effects on aircraft operations would be expected to have diminished.

The distances of the Morphett Precinct from the eastern end of the cross runway (Runway 12) and northern end of the main runway (Runway 23) are sufficiently large to not be impacted by buildings in this precinct.

12.5.4. Tapleys Precinct

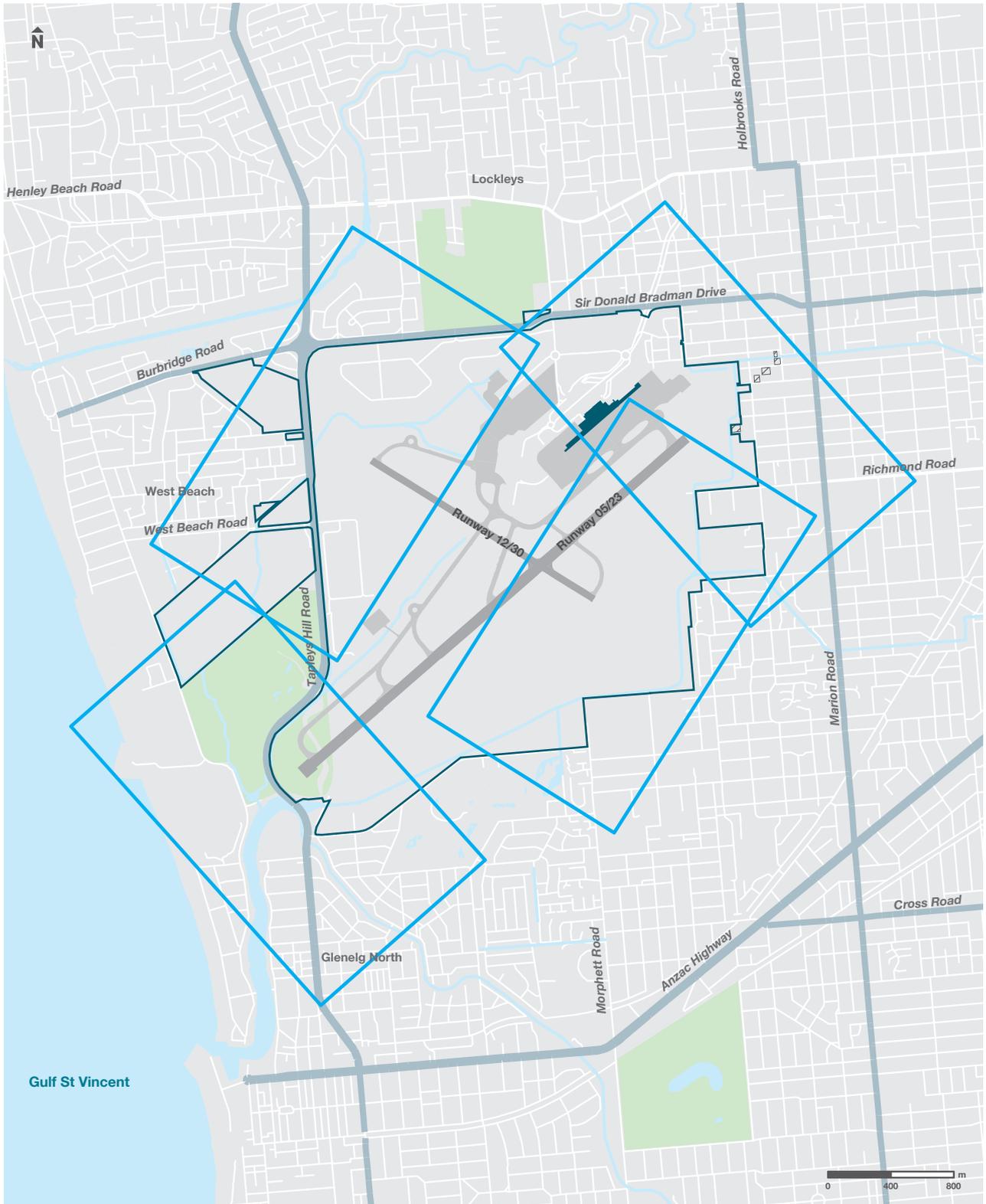
Future planning of structures and buildings should be carefully considered within this precinct, especially the southern end closest to the southern end of the main runway (Runway 05). Any development north of Sir Reginald Ansett Drive or any increase in height of development beyond existing building heights will need to be assessed for effects on aircraft operations from the cross runway (Runway 12).

Any future car parks north of Sir Reginald Ansett Drive are recommended to be at ground level.

12.5.5. Summary

Adelaide Airport will continue to assess proposed developments on the airport for potential to cause windshear or turbulence which could result in any safety issue to airport operations. Based on the Guideline B criteria, a number of windshear assessment envelopes have been defined around runway ends (Figure 12-1). Any proposed developments on the airport that are located in these envelopes will be assessed for windshear and turbulence.

AAL will work with relevant State and Local Governments to ensure that windshear and turbulence are incorporated into the assessment processes for off-airport developments in any areas which could potentially affect runways or flight paths.



LEGEND

- | | | | |
|------------------|--|----------------|-----------------------------|
| Airport Boundary | Taxiways/Aprons | Arterial Roads | Parks, Forests and Reserves |
| Freehold Land | Airport Terminal | Local Roads | Watercourses |
| Runways | Potential Windshear Assessment Envelopes | | |

Figure 12-1: Potential Windshear Assessment Envelopes

C12

12.6. Wildlife Strike

Guideline C – Managing the Risk of Wildlife Strikes in the Vicinity of Airports

Wildlife strikes and/or avoidance can cause major damage to aircraft and/or compromise aircraft safety. While 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.

As the airport operator, AAL is required to manage the risk of wildlife strikes to airport operations in accordance with the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998. AAL's Wildlife Hazard Management Strategy and Wildlife Hazard Management Plan detail the monitoring, assessment, reporting and control measures for managing the risk of wildlife strike. Vegetation mapping, aimed at identifying potential risks, and landscaping guidance, directed at minimising potential risks, are currently focused principally on development activities on-airport.

Guideline C Managing the Risk of Wildlife Strikes in the Vicinity of Airports highlights the importance of reducing the risk of wildlife strikes by appropriately managing the surrounding land uses; particularly as there are often areas surrounding airports that are attractive to wildlife, as is the situation at Adelaide Airport. The main risks are that wildlife could cross the flight path of aircraft or migrate onto the airport.

Figure 12-2 identifies the buffer zones as outlined in Guideline C. Buffer zones are split into three categories: Area A (three-kilometre radius), Area B (eight-kilometre radius) and Area C (13-kilometre radius). The radius is taken from each runway end for the long-term development concept.

Guideline C reiterates the need for airports to prepare a Wildlife Hazard Management Plan and for land-use zoning within 13 kilometres of airports to be appropriately monitored. Airport managers and operators are to work with Local Government

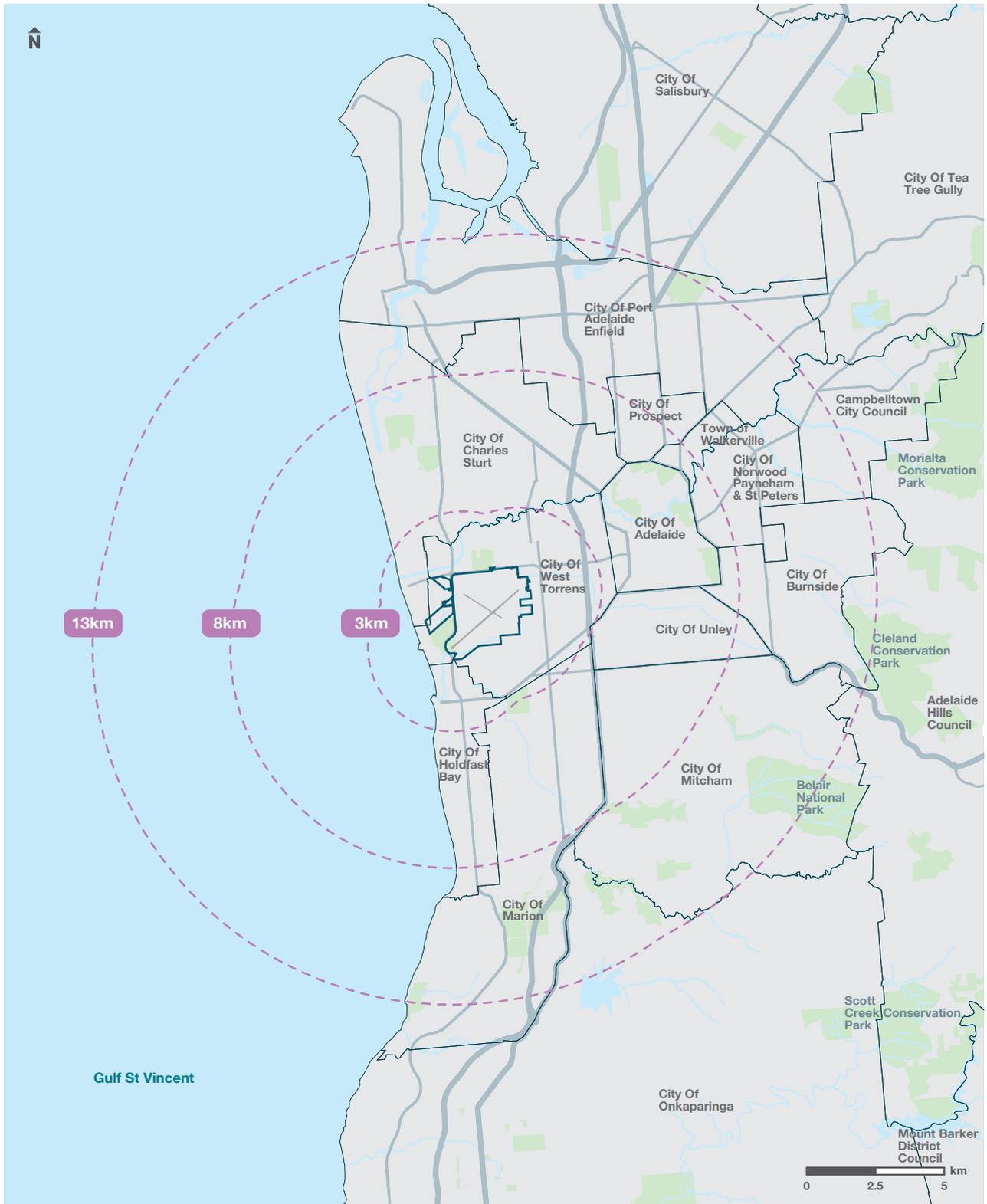
authorities to ensure that land is appropriately used and developed within the vicinity of the airport. An inclusion with this guideline identifies the level of risk for a number of land uses with respect to both new and existing airports, and the suitable distance of any high-risk proposed development from the airport site.

There are currently no established mechanisms within the South Australian planning system to facilitate Adelaide Airport's assessment of off-airport developments with potential implications in relation to Guideline C.

Adelaide Airport has established an Wildlife Hazard Management Group involving surrounding Local Government authorities, golf-course operators and other stakeholders with potential influence on wildlife hazard management.

Adelaide Airport has also instituted off-airport monitoring of wildlife to better understand potential aviation risks. The results of this monitoring are provided to the members of the Wildlife Hazard Management Group to assist in identifying and managing potential aviation risk associated with wildlife hazards.

Any new development and ongoing operational arrangements on the airport must seek to minimise the risk of wildlife strikes through minimising birdlife attraction. Such measures include building design (to minimise nesting opportunities), landscaping species selection, water-detention strategies and waste-management practices.



LEGEND

- Airport Boundary
- Runways
- Wildlife Buffer Zones
- Local Government Authority
- Major Transport Routes
- Parks, Forests and Reserves
- Watercourses

Figure 12-2: Wildlife Buffer Zone

12.7. Wind Turbines

Guideline D – Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation

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 similar structures.

The risk of wind turbines as physical obstacles to air navigation around Adelaide Airport is controlled under the Airports (Protection of Airspace) Regulations 1996 (see Chapter 12.9).

Wind turbine farms are not considered a significant risk to the operations of Adelaide Airport given the highly urbanised nature of the surrounding areas around the airport.

12.8. Lighting at the Airport and Surrounding Areas

Guideline E – Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports

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.

Guideline E Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports recognises the potential hazard of inappropriate lighting by specifying appropriate performance standards for lighting installations on and in proximity to airports.

Developers and designers of lighting within a six-kilometre radius of Adelaide Airport are required to comply with lighting guidelines to ensure ground lighting does not interfere with pilot vision on approach to the runways for landing. Advice is available in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998, Chapter 9 which is available from AAL. CASA has authority under Regulation 94 of the Civil Aviation Regulations 1988 to request interfering lights to be extinguished or modified. The lighting requirements also apply to on-airport developments including aeronautical infrastructure and facilities. Figure 12-3 shows a plan of the lighting control zones around the airport.

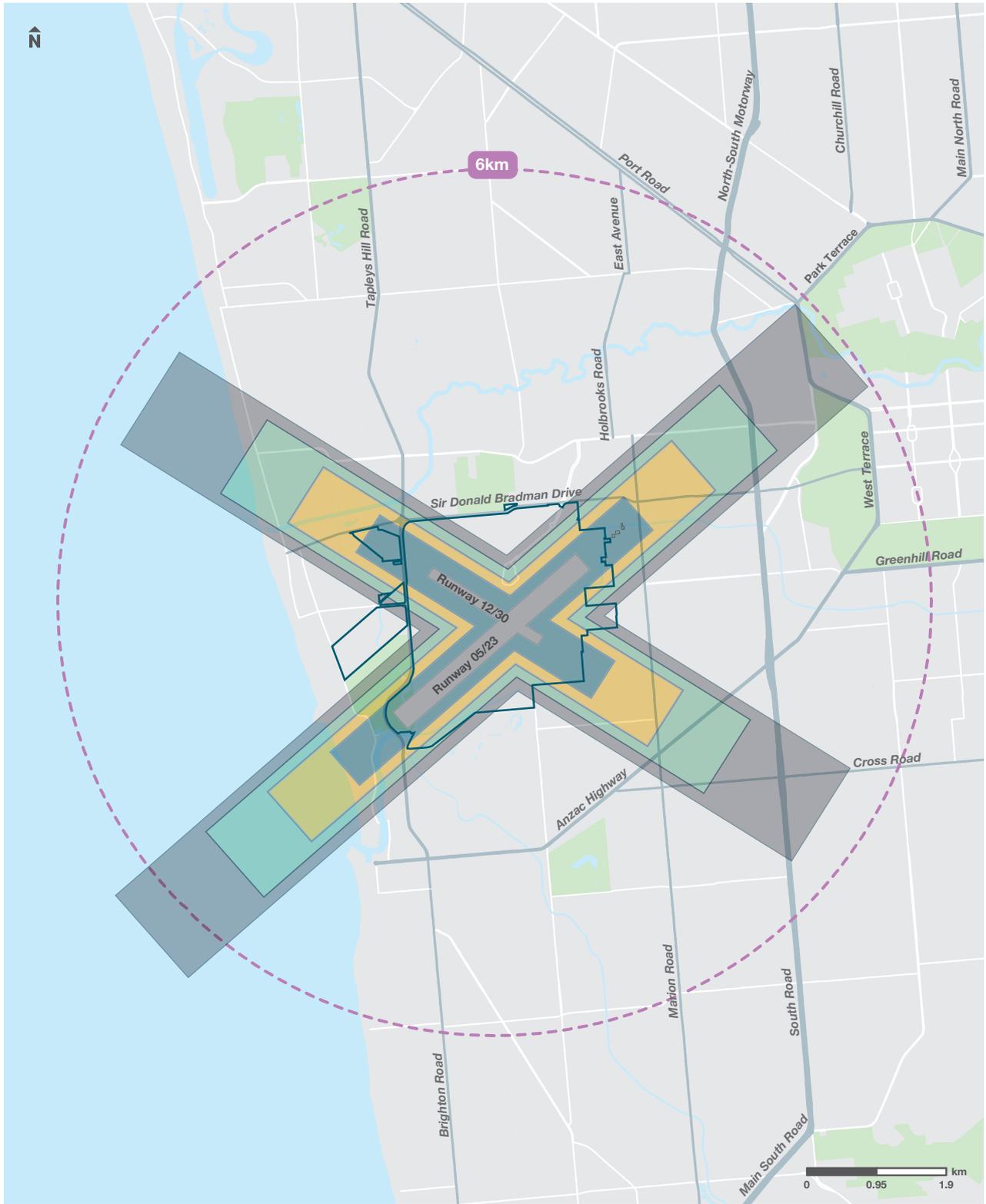


Figure 12-3: Lighting Control Zones

12.9. Protected Airspace

Guideline F – Managing the Risk of Intrusions into the Protected Airspace of Airports

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 Surfaces) and PANS-OPS (Procedures for Air Navigational Services – Aircraft Operation) intrusions, and how these can be better integrated into local planning processes.

Guideline F Managing the Risk of Intrusions into the Protected Airspace of Airports considers the critical nature of obstacles in the vicinity of an airport, whether they are natural or constructed, may seriously limit the scope of an airport's operations.

While it is generally appreciated that tall structures can impact upon airport operations, this is often only considered within the immediate approach and take-off areas, and of structures that are located a short distance away from the airport. While this is of primary concern, it is equally true that objects up to 15 kilometres from the airport and apparently unrelated to the runway alignment can impact upon aircraft approaching or departing an airport – particularly in poor weather conditions or in instances of engine failure.

12.9.1. Airports Act And Airports (Protection of Airspace) Regulations

The Commonwealth Minister for Infrastructure, Transport and Regional Development protects the airspace surrounding an airport in accordance with the directions provided in the Airports Act and Airports (Protection of Airspace) Regulations 1996 (APA Regulations).

The Airports Act defines protected airspace surrounding the airport. Under the Airports Act, any activity which results in an intrusion into protected airspace is prohibited. However, the APA Regulations provide a framework for the assessment and approval of applications to carry out controlled activities (which include buildings, construction cranes, and activities that cause glare, air turbulence or the emission of smoke, dust or other particulate matter) with conditions if certain criteria are satisfied.

Details of proposed controlled activities are required to be provided to AAL for assessment. Any proposed activity that would result in an infringement of the prescribed airspace is referred to Airservices and CASA for assessment before being submitted to the DITCRD for approval. Infringements of the obstacle limitation surfaces (OLS) that are short-term (typically up to three months), such as cranes, can be approved by AAL following an assessment by Airservices and CASA.

Controlled activities within the airport site are identified through the building activity approvals described in Chapter 4. Local Government authorities are required to refer applications for developments or structures that may constitute a controlled activity to AAL for assessment.

In addition, the Civil Aviation Safety Regulations 1998 Part 139 also apply. These regulations set the standards for the establishment of OLS at an airport and regulate the development of instrument procedure designs by CASA and approved entities, including Airservices.

12.9.2. Airservices Australia – Air Traffic Services

Airservices is responsible for the airspace surrounding Adelaide Airport. Within this airspace, Airservice provides aerodrome and approach control services to arriving and departing aircraft, as well as ground control for taxiways and runways. Airservices also provides services to aircraft transiting the designated control zone in which Adelaide Airport is situated.

These operations are conducted in accordance with published procedures, requirements and air traffic control clearances and instructions.



12.9.3. Protected Airspace

International standards have been adopted which define two sets of invisible surfaces above the ground around Adelaide Airport. The airspace above these surfaces forms the airport's protected airspace. These two surfaces are the:

- Obstacle Limitation Surface (OLS)
- Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces

12.9.3.1. Obstacle Limitation Surface

The OLS is a series of surfaces, which determine when an object may become an obstacle to aircraft manoeuvring in the vicinity of an airport, during approach or departure or during circuit flying. The OLS defines protection requirements for the initial and final stages of a flight. During these manoeuvres, appropriate visibility must be maintained for the pilot to see and maintain visual reference to the airport and take responsibility for obstacle avoidance and separation from other aircraft.

The objective of the OLS is to define a volume of airspace, in proximity to an airport, which is to be kept free of obstacles that may endanger aircraft in visual operations or during the visual stages of an instrument flight. The intention is not to restrict or prohibit all obstacles but to ensure that either existing or potential obstacles are examined for their impact on aircraft operations and that their presence is properly considered.

As the OLS is relevant only to visual operations, in exceptional instances it may be sufficient to ensure that the obstacle is conspicuous to pilots by appropriate obstacle marking and lighting as nominated by CASA.

If an obstacle is located in the approach and take-off areas, pilots will be forced to make adjustments to their normal take-off and landing to ensure obstacle clearance. This may restrict the operation of a runway by reducing the available length and impose operational penalties as the aircraft must be lighter to use the remaining runway available. The aircraft may therefore have fewer passengers, less cargo and fuel uplift.

The most stringent requirements apply on the extended centre line of a runway in the approach and take-off areas that extend to 15 kilometres from the runway strip end.

At either side of the runway strip and the approach surface are two OLS components called the transitional surfaces. These are intended to protect an aircraft that encounters severe cross winds during the final phase of the approach to land and may then drift sideways as the pilot decides to 'go around' for another approach to landing.

The OLS surfaces extend to a 15 kilometre radius surrounding the airport. Figure 12-4 displays the OLS Plan for Adelaide Airport under the current runway configuration. An OLS plan representing the reservation of a third runway will eventually be developed.





12.9.3.2. Procedures for Air Navigational Services - Aircraft Operations

A second group of criteria is used to determine the volumes and dimensions of airspace required to protect the safety of aircraft operating under instrument flight rules (IFR). Under IFR operations, pilots are reliant on aircraft instruments for navigation. Airspace protection for IFR operations cannot allow for any long-term penetrations.

The relevant criteria are established by the International Civil Aviation Organization (ICAO) and are published in a document titled Procedures for Air Navigation Services – Operations (PANS-OPS). The surfaces determined in accordance with the criteria in the PANS-OPS publication are called PANS-OPS surfaces.

The PANS-OPS surfaces are used in the construction of take-off, landing and approach procedures which are based on navigation solely reliant on aircraft instruments. They are designed to protect aircraft from colliding with obstacles when flying on navigation instruments. Minimum safe altitudes are established for each segment of an instrument procedure.

The minimum obstacle clearance requirement is simply added to the height of the tallest object under the PANS-OPS surface to determine the minimum or lowest safe altitude to which a pilot may descend in attempting to establish visual reference to the airport. The landing cannot be made unless the pilot 'is visual' at or before reaching this minimum descent altitude.

If the minimum for an instrument procedure has to be raised to account for new buildings or other structures, there may be direct impact on airport usability. The higher this altitude needs to be, the less likely it becomes that a pilot will be able to land during low visibility conditions.

Figure 12-5 and Figure 12-6 display the PANS-OPS chart for Adelaide Airport. There are no changes to PANS-OPS surfaces attributable to this Master Plan timing horizon.

12.9.4. Development Assessments

As noted in Chapter 12.9, Protected Airspace is administered in accordance with the Airports Act and Airports (Protection of Airspace) Regulations.

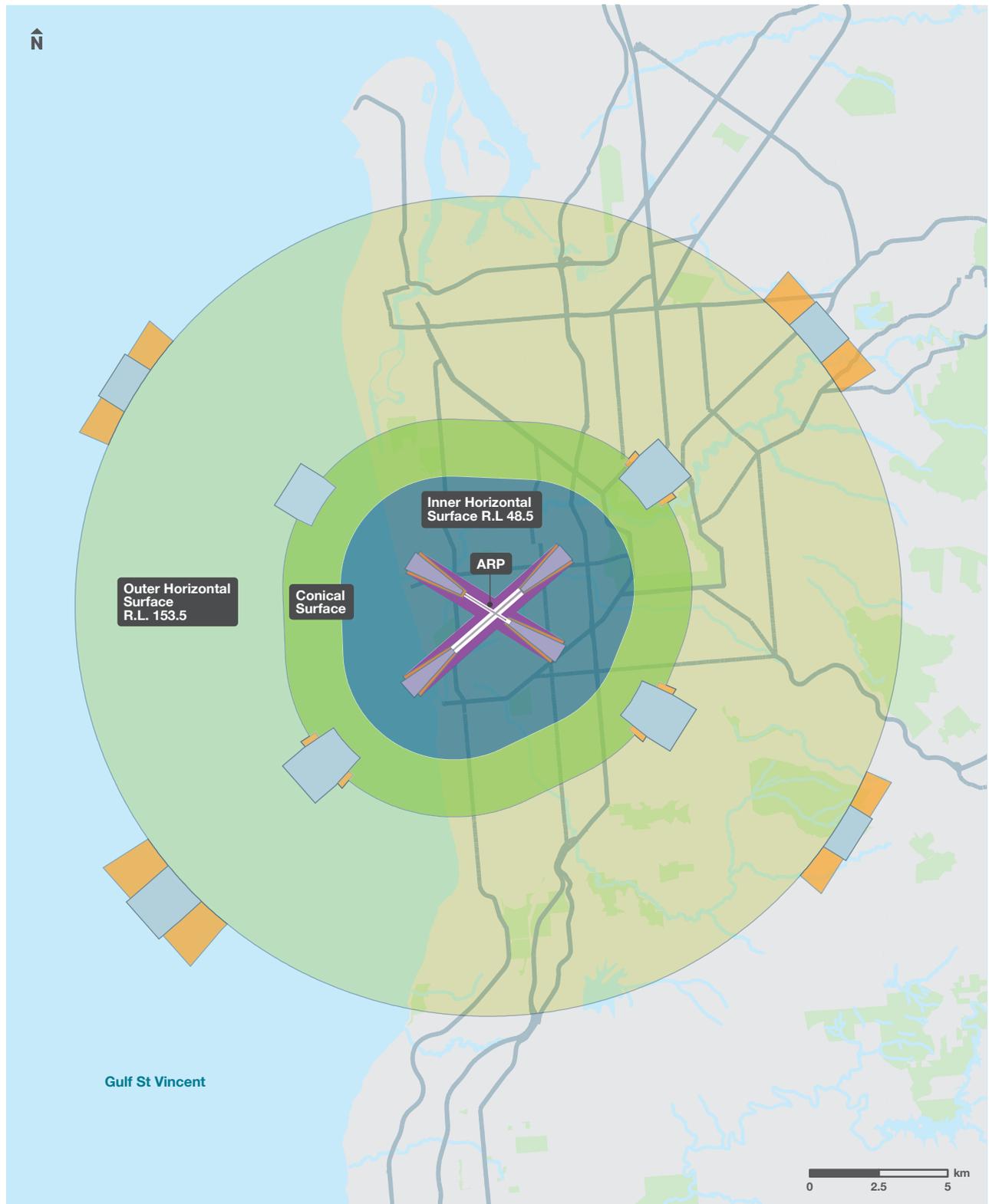
The airport will endeavour to work with development proponents to ensure buildings are below the obstacle limitation surfaces (OLS) by providing the applicable height limitations.

There are areas of the Adelaide metropolitan area where developments are likely to infringe the obstacle limitation surface, requiring assessment in accordance with the Regulations. In the Adelaide CBD generally buildings greater than five stories will, and have, infringed the OLS due to proximity to the airport and elevation of the ground level.

Adelaide Airport will generally support proposed CBD developments that may infringe the OLS but are shielded by surrounding tall buildings in accordance with the CASA Manual of Standards Part 139 Chapter 7.4.1 or supported by an Aeronautical Impact Study.

However, Adelaide Airport will not support developments which potentially infringe the PANS-OPS protected airspace that may diminish aviation safety, prevent optimal procedure design or cause operational limitations.

Adelaide Airport will not support any development that may impact safe operations or limit growth of the airport now or into the future.

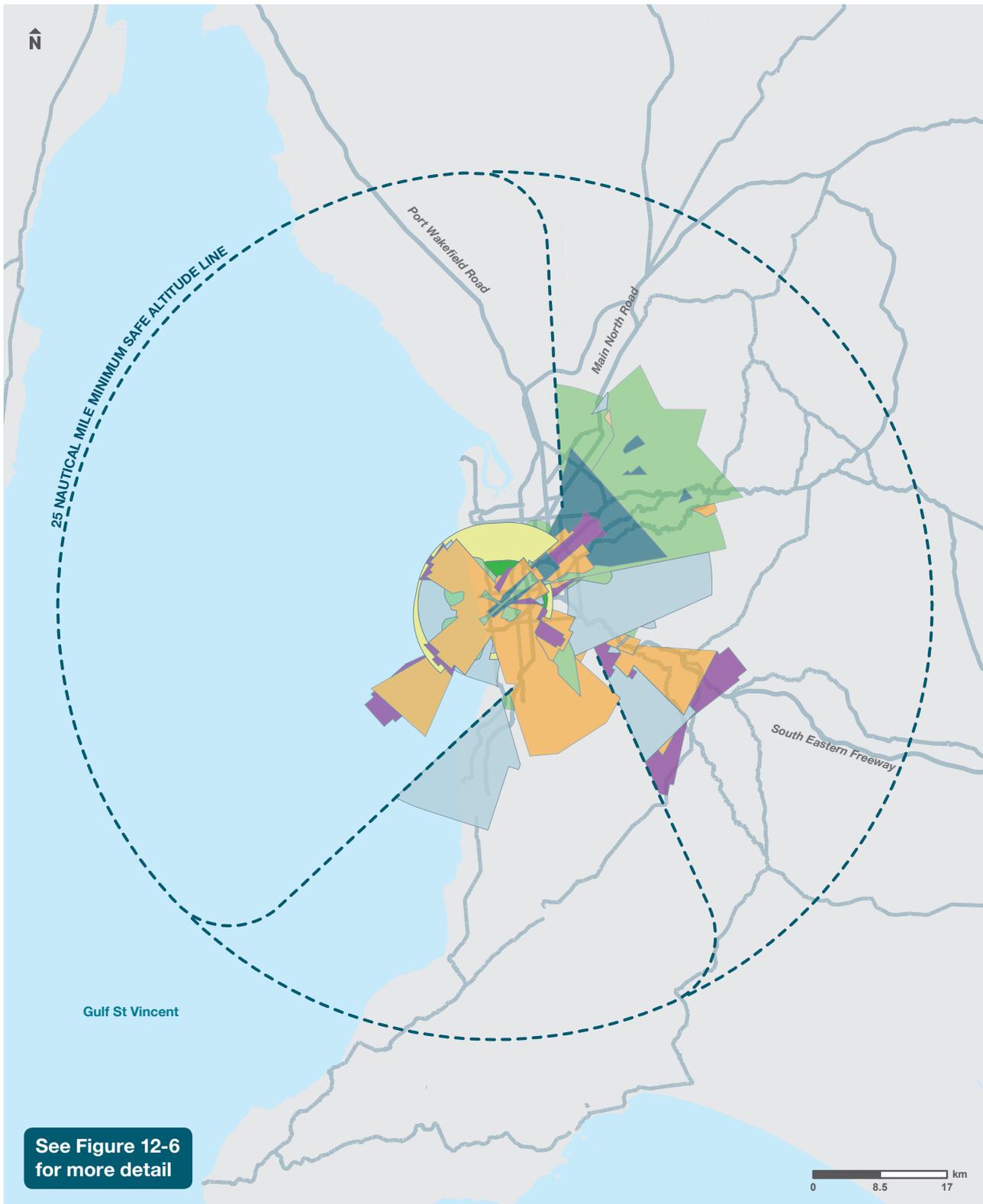


LEGEND

- | | | |
|-----------------------------|---------------------------------|--------------------------|
| Runways | Aerodrome Reporting Point (ARP) | Outer Horizontal Surface |
| Major Transport Routes | Inner Horizontal Surface | Approach Surface |
| Watercourses | Conical Surface | Take Off Surface |
| Parks, Forests and Reserves | | Transitional Surface |

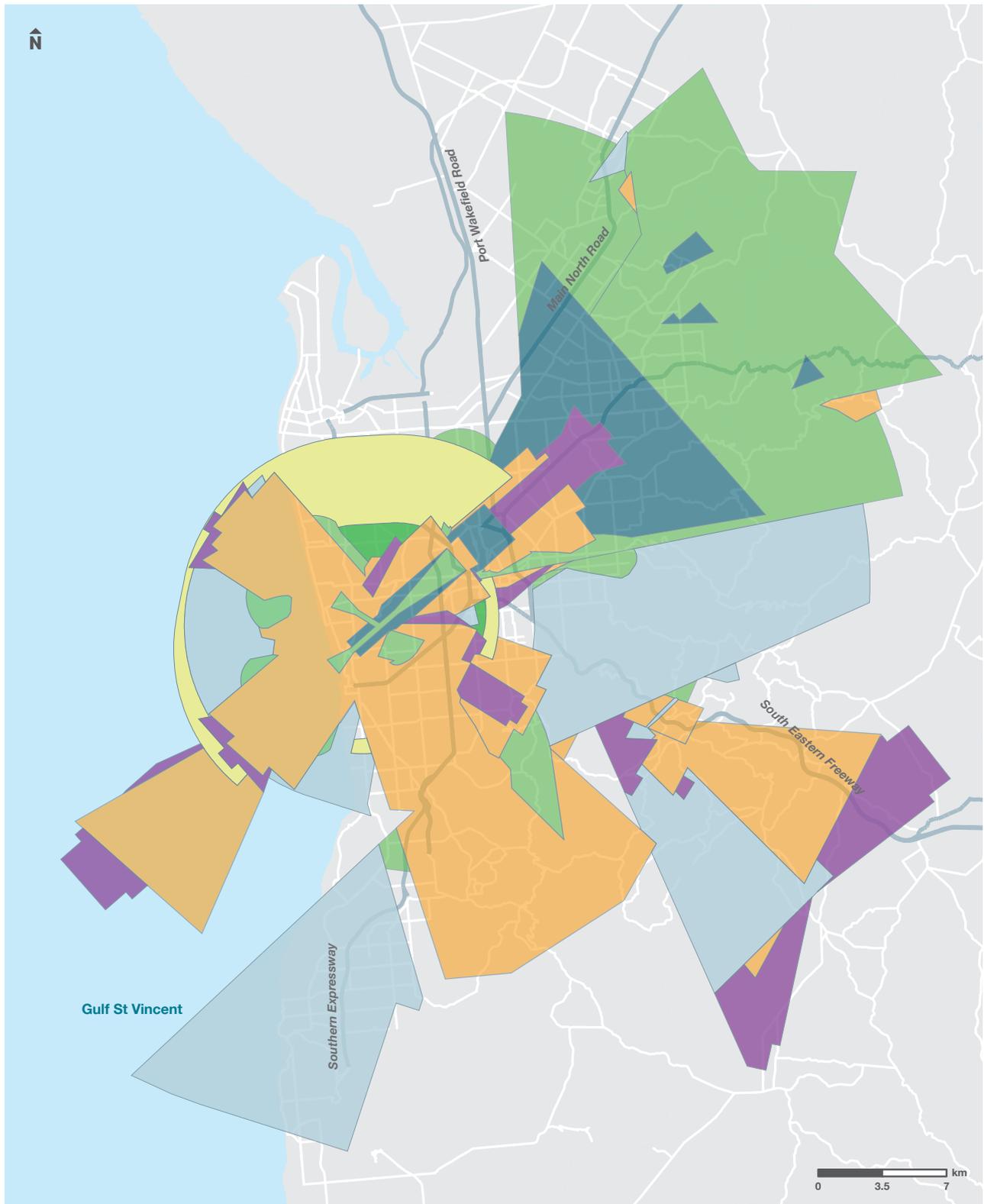
Figure 12-4: Obstacle Limitation Surfaces (OLS) Plan





LEGEND		PANS-OPS	
Runways	Standard Instrument Departure (SID) Surface	Circling Radii C+D Approach Surface	DME/GPS Arrival Surface
Major Transport Routes	Instrument Landing System (ILS) Precision Approach Surface	RNAV (GPS) Approach Surface	VOR Non-Precision Approach Surface
Local Roads	Circling Radii A+B Approach Surface		

Figure 12-5: Procedures for Air Navigation Services Aircraft Operations (PANS-OPS)



LEGEND

- Runways
- Major Transport Routes
- Local Roads

PANS-OPS

- | | |
|---|---|
| <ul style="list-style-type: none"> Standard Instrument Departure (SID) Surface Instrument Landing System (ILS) Precision Approach Surface Circling Radii A+B Approach Surface | <ul style="list-style-type: none"> Circling Radii C+D Approach Surface RNAV (GPS) Approach Surface DME/GPS Arrival Surface VOR Non-Precision Approach Surface |
|---|---|

Figure 12-6: Procedures for Air Navigation Services Aircraft Operations (PANS-OPS) inset

12.10. Protecting Communications, Navigation and Surveillance Facilities

Guideline G – Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)

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 interactions with Airservices and the Department of Defence on when to consult on development proposals and in gaining up-to-date geographical locations for these facilities.

There are many communications, navigation and surveillance systems operating both on and off airports.

Airservices use radar, radio and satellite communications for the safe and efficient management of aircraft movements on and around airports.

There are additional systems for monitoring wind and other weather parameters by the Bureau of Meteorology to provide up-to-the minute data for pilots and air traffic controllers to safely make decisions about runway selections and landing procedures.

Off-airport, there are navigational aids that assist pilots to navigate en route between airports.

Building restricted areas generally surround the communications, navigation and surveillance systems to ensure development and associated activities do not adversely affect the facility or cause interference to air traffic controllers or aircraft in transit.

The purpose of Building Restricted Areas is to trigger an assessment of potential impacts on such facilities from proposed developments by Airservices. They are not intended to prohibit development except where it would lead to an adverse impact on a communications, navigation or surveillance facility.

CASA is responsible for enforcing safety requirements under the *Civil Aviation Act 1988* (Civil Aviation Act) and the *Air Navigation Act 1920* (Air Navigation Act). Section 21 of the Civil Aviation Act enables CASA to take enforcement action if it believes on reasonable grounds that a development is or may be causing active or passive interference to a communications, navigation or surveillance facility.

When developing near CNS facilities on the airport site, AAL considers Guideline G and works with Airservices to understand and minimise any impacts when necessary.

12.11. Strategic Helicopter Facilities

Guideline H – Protecting Strategically Important Helicopter Landing Sites (HLSs)

The protection of strategically important helicopter landing sites (HLSs) (such as those associated with hospitals) from the adverse impacts of development has become a critical issue in recent years. There have been times where hospital emergency helipads have been closed due to safety concerns arising from the nearby operation of construction cranes.

Guideline H seeks to provide a consistent national approach for land-use planning in the vicinity of these facilities. State and Territory Governments are responsible for identifying HLSs that are considered to be of strategic importance, or those that are to be protected in the interest of public safety.

Guideline H Protecting Strategically Important Helicopter Landing Sites (HLSs) applies to the protection of strategically important helicopter sites located off airport.

Even so, helicopter landing sites away from Adelaide Airport are linked to the on-airport helicopter landing sites and so are of interest to the airport. For instance, one of the more frequently flown helicopter routes in Adelaide is between the medical retrieval and transfer helicopter base in the Tapleys Precinct and the helicopter landing site at the Royal Adelaide Hospital. Thus, the interaction of the two sites is important, particularly the safety of the helicopter flight paths between the two sites and any interaction with fixed-wing flight paths.

12.12. Public Safety Areas

Guideline I – Managing the Risk in Public Safety Areas at the Ends of Runways

Public safety areas (PSAs) are designated areas of land at the end of airport runways within which certain planning restrictions may apply. While air crashes are rare events, the majority occur in the vicinity of airports during take-off and landing. The PSAs Guideline was developed to mitigate the risk of on-ground fatalities from an aircraft incident by informing a consistent approach to land use at the end of Australian airport runways.

Guideline I Managing the Risk in Public Safety Areas at the Ends of Runways was formally adopted by the Standing Committee on Transport and Infrastructure in 2018 to guide the State and Territory governments in the implementation of Public Safety Areas at the ends of runways at major airports.

Public Safety Areas are defined areas of land on and off-airport at the end of an airport runway within which certain planning restrictions may apply. Public Safety Areas are defined using risk-assessment models to determine acceptable levels of risk for given land uses. The risk considered is the risk of an aircraft crash which affects public safety.

The purpose of these areas is to restrict, through the introduction of future land-use planning controls, over time; to decrease the number of people living, working or congregating in the zone; and limit or remove the storage of hazardous materials in the defined areas.

The introduction of the Guideline is the responsibility of South Australian Government following the State Government signing an agreement with the Commonwealth Government. Adelaide Airport has engaged with the Department of Planning, Transport and Infrastructure in assessing the best way of introducing the Public Safety Areas.

For developments on the airport site, public safety areas are considered by AAL in the approval process when assessing any proposed developments on the airport.





13

Aircraft Noise

13.1. Introduction

The Airports Act requires a master plan to specify the following noise-related matters:

- An Australian Noise Exposure Forecast (ANEF) for the areas surrounding Adelaide Airport
- Flight paths at Adelaide Airport
- Adelaide Airport's plans (developed following consultation 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 (i.e. 30 ANEF levels)

Additional information is provided to ensure stakeholders are informed about aircraft-noise management.

13.2. Overview

- A curfew currently operates at Adelaide Airport between 11:00pm and 6:00am. Some aircraft are permitted to operate during curfew hours (mainly for medical emergency flights and delivery of freight and mail).
- A new Australian Noise Exposure Forecast has been technically endorsed by Airservices.
- Adelaide Airport has a broad range of programs in place to manage aircraft noise exposure around the airport. These include:
 - Working with stakeholders to observe the existing curfew arrangements
 - Consulting and engaging with the local community
 - Working closely with the Commonwealth, State and Local Governments
 - Consulting with the airlines that use the airport
 - Investing in airport infrastructure to support new-generation quieter aircraft

13.3. Aircraft Noise Management

Aircraft noise is an unavoidable impact of aircraft operations.

Roles and responsibilities regarding aircraft-noise management vary across a range of organisations, as shown in Table 13-1.

Management

ORGANISATION	RESPONSIBILITY
Airlines	Airlines purchase particular types of aircraft which are suitable for the routes they wish to fly or are currently flying.
International Civil Aviation Organization	ICAO is responsible for setting noise standards for manufacturers of new aircraft.
Civil Aviation Safety Authority	CASA is responsible for regulation and ensuring safe operation of civil aviation in Australia. CASA is responsible for approving the use of new aircraft types in Australia.
Airservices Australia	Airservices manages the airspace around Australia to maintain control over the movement of aircraft into, and out of, airports in Australia. Airservices also designs and manages the flight paths and manages aircraft-noise complaints and enquiries through its Noise Complaints and Information Service (NCIS).
Aircraft Noise Ombudsman	The Aircraft Noise Ombudsman oversees the handling of aircraft-noise enquiries and complaints by Airservices and the Commonwealth Department of Defence.
Department of Infrastructure, Transport, Cities and Regional Development (DITCRD)	The Commonwealth Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) develops and enforces the policy and regulatory framework for airports and the aviation industry and administers the Airports Act. DITCRD also administers the Adelaide Airport curfew, including dispensations and regulators matters for quiet aircraft to operate during the curfew period.
Adelaide Airport Limited (AAL)	AAL is responsible for providing and maintaining aviation infrastructure at a high standard for aircraft movements and passenger moments at the airport. AAL does not control aircraft noise. However, through direct engagement and through the Adelaide Airport Consultative Committee and the Technical Working Group sub-committee, it implements aircraft noise-management activities. AAL actively manages ground-based noise at the airport.
Adelaide Airport Technical Working Group	The Adelaide Airport Technical Working Group sub-committee discusses aircraft-noise management and improvement opportunities.
South Australian Government	The State Government is responsible for developing land-use planning frameworks, implemented by Local Governments, to prevent inappropriate (noise-sensitive) developments in the vicinity of the airport.

Table 13-1: Responsibilities for Aircraft Noise



13.3.1. Aircraft Noise Mitigation

There are a broad range of programs in place to manage aircraft-noise exposure around the airport. These include:

- Working with stakeholders to observe curfew arrangements
- Consulting and engaging with the local community
- Working closely with the Commonwealth, State and Local Governments to ensure a consistent approach, management and implementation of noise-mitigation measures
- Consulting with the airlines that use the airport
- Investing in airport infrastructure to support new-generation quieter aircraft

13.3.1.1. Current Curfew Arrangements

Adelaide Airport currently operates under a legislated curfew (*Adelaide Airport Curfew Act 2000*) to limit noise exposure from aircraft at night. During curfew hours (11:00pm to 6:00am), take-offs and landings at the airport are restricted to specific types of aircraft and operations. For departing flights to meet the curfew they must be given taxi clearance by Airservices Air Traffic Control after 6:00am and before 11:00pm.

Some aircraft can operate during the curfew if they meet certain low-noise criteria and observe noise-abatement procedures. These aircraft movements include:

- A maximum of 15 take-offs and 25 landings each week during the curfew by low-noise heavy freight aircraft that meet the noise level requirements set out in the *Adelaide Airport Curfew Act 2000*
- Prescribed types of low-noise heavy freight aircraft that may operate during the curfew
- Aircraft that are listed as specified types of jet aircraft, of a maximum take-off weight of 34,000 kilograms or less, that comply with the Air Navigation (Aircraft Noise) Regulations 1998
- Medical emergency flights, such as Royal Flying Doctor Service flights, by turbo-propeller aircraft and small jets that comply with the Air Navigation (Aircraft Noise) Regulations 1998
- Medevac helicopters are permitted to use the airport during curfew hours

The Secretary of the Commonwealth Department of Infrastructure, Transport, Cities and Regional Development has the power to grant a dispensation that allows an aircraft to operate during a curfew period. In practice, a dispensation is granted by the Minister where there are exceptional circumstances to justify the flight. Dispensations must be granted before a flight operates into, or out of, Adelaide Airport and can be granted for certain situations such as:

- Search and rescue or medical emergencies
- A declared flight emergency landing or resumption of that flight
- A low-fuel emergency
- For safety or security emergencies

During the curfew period, aircraft take-off and land over Gulf St Vincent using the main runway (Runway 05 for arrivals and Runway 23 for departures). Under Section 15 of the *Adelaide Airport Curfew Act 2000*, Runway 23 can be used for arrivals only when Runway 05 is declared by Airservices to be not operationally acceptable for arrivals.

The *Adelaide Airport Curfew Regulations 2000* provide for international passenger movements between 11:00pm and midnight and between 5:00am and 6:00am (the curfew shoulder periods) subject to:

- Jet aircraft meeting the strictest ICAO noise standards
- No more than eight arrivals per week and no departures

13.3.1.2. Commonwealth Noise Insulation Scheme

In 2000, the Commonwealth Government introduced and operated a noise insulation program for buildings in areas of high aircraft noise exposure. Residential properties in the ANEI 30 contour and public buildings (schools, places of worship, day care centres and hospitals) in the ANEI 25 contour were eligible for assistance under the programs.

The noise insulation scheme was funded by a Commonwealth levy on passengers that was in place until 2010. Insulation works on some houses and public buildings continued until 2012.

The Commonwealth Government closed the noise insulation scheme in 2012.



13.3.1.3. Consultation with Local Communities

AAL continues to engage with local communities surrounding the airport through a range of committees and forums. Principally, the Adelaide Airport Consultative Committee, which includes local community representatives, is a forum where any issue relating to the operations of the airport and potential effects on the local community can be raised. This includes issues such as aircraft ground-based noise, car parking, flood mitigation, landscaping, bike path access and commercial developments.

Management of the curfew and the reporting of dispensations and levels of allowable night-time flights are regularly reviewed. Master planning (including the formulation of ANEFs) and aircraft flight path improvements are regularly discussed, including presentations from airlines and Airservices.

Information about aircraft noise and curfew arrangements is published on the Adelaide Airport website.

Airservices has developed an online WebTrak system, available at airservicesaustralia.com, which provides information about individual flights and allows users to submit noise inquiries and complaints.

13.3.1.4. Consultation with Commonwealth, State and Local Governments

Representatives of the Commonwealth, State and Local Governments participate in the Adelaide Airport Consultative Committee and the Adelaide Airport Planning Coordination Forum. These regular meetings consider off-airport land-use planning including land-use development suitability, aircraft noise and airspace protection.

AAL continues to work with State and Local Governments to formalise the long-term land-use planning of land surrounding the airport. The South Australian Government has committed that the new Planning, Development and Infrastructure Act and the associated Planning and Design Code will include planning policy for the implementation of the National Airports Safeguarding Framework (NASF). This includes taking into consideration the location of noise-sensitive development and building-height limitations to ensure the ongoing operations of the airport.

13.3.1.5. Consultation with Airlines and Airservices Australia

AAL conducts regular consultative meetings with the airport operators and Airservices to review the operation and efficiency of the airport and airfield infrastructure and discuss opportunities for aircraft noise improvements. Airline and general aviation representatives are represented on the Adelaide Airport Consultative Committee.

The views of the Adelaide Airport Consultative Committee are noted in formal applications to the Commonwealth Minister for permission to operate low-noise freighter aircraft in the curfew period.

Airservices participates in consultative meetings and reports on aircraft noise complaint trends and any investigations associated with the complaints.

13.3.1.6. Investing in Airport Infrastructure to Reduce Ground-Based Noise

AAL regularly consults with airlines to encourage use of the ground power and pre-conditioned and compressed air facilities provided at Terminal 1, which reduces noise associated with the use of auxiliary power units and early engine start-ups.

Additionally, AAL has implemented an Engine Ground Running Policy and guidelines for the ground running of aircraft engines.

AAL is also planning for infrastructure that supports new generation quieter aircraft such as the Boeing B787 Dreamliner, B737 MAX, B777X and Airbus neo aircraft types.

Further information on the management of ground-based noise is provided in Chapter 14.



13.4. Understanding Aircraft Noise

Under the Airports Act, Adelaide Airport is not responsible for the noise generated from aircraft while landing, taking-off or taxiing. However, AAL does recognise the need for the airport to assist in managing aircraft noise for the surrounding communities by working closely with the airlines (the generators of the noise) and Airservices (the airspace manager).

The most effective means for reducing the impact of aircraft noise is through the effective long-term planning of land use for areas adjacent to the airport site. Other means include a combination of land use with alternative runway allocations and/or adopted flight path procedures; restrictions of aircraft movements by aircraft type; and the implementation of aircraft operational procedures aimed at achieving desired noise-abatement objectives. The current trend in renewing airline fleets also has the advantage that newer aircraft types are generally quieter than existing or older aircraft.

The Airports Act requires a Master Plan to include forecasts of noise levels resulting from the operation of the airport. The Commonwealth Government has specified the use of the computer-based Integrated Noise Model (INM) which produces the Australian Noise Exposure Forecast (ANEF) for an airport. The ANEF is applied by State and Local Government planning authorities to determine the suitability of land-use and proposed developments around an airport.

To inform the community of current and future noise exposure, Number-Above contours are prepared to identify the frequency of aircraft noise events above a specified decibel threshold. N70 contours are included in this Master Plan to show the average number of daily noise events above 70 decibels (dB) caused by over-flying aircraft.

13.4.1. Describing Aircraft Noise

Aircraft noise is generated both by the aircraft's engines and by air passing over its airframe. Different models and sizes of aircraft produce different types and loudness of noise. These characteristics depend on the type of engine (propeller or jet), aerodynamic noise (affected by how modern the aerodynamic design is) and how the aircraft is flying (its speed and weight characteristics; how it takes off and lands).

Aircraft noise is different to other forms of noise in that it occurs sporadically and from an elevated source. Other forms of noise such as background urban transport noise occur more frequently, with morning and evening peaks and at ground level.

Although aircraft noise is sporadic, it can occur at regular or frequent intervals, depending on airline schedules. The noise from aircraft increases closer to airports when aircraft descend prior to landing. At low levels, aircraft noise can be very loud but only for a short period of time. This makes traditional methods of measuring and reporting aircraft noise (such as average sound levels) unsuitable.

To address this, aircraft noise is measured and analysed in terms of frequency of occurrence, peak noise levels during an overflight, loudness levels, and duration of the noise event. These characteristics are integrated over longer periods of time to describe the aircraft noise exposure at locations around airports.



13.4.2. Noise Plots

The Commonwealth Government has adopted a system for modelling current and forecast aircraft noise exposure around airports.

There are a range of different types of plots that display noise exposure, including:

- ANEI (Australian Noise Exposure Index): An ANEI is a plot of defined noise exposure based on the actual historical operations of the airport and uses an analysis of actual aircraft types and movements over a 12-month period (usually a calendar year). An ANEI is primarily used to establish a base case from which an ANEF can be developed
- ANEF (Australian Noise Exposure Forecast): An ANEF is a plot of estimated noise exposure based on a forecast of aircraft movements and fleet mix for a defined future horizon. The ANEF provides an indication of the change in noise exposure over time and is used to determine appropriate land-use zoning in areas surrounding the airport. An ANEF is a chart endorsed by Airservices for technical accuracy. An airport can only have one endorsed ANEF at any one time
- Number-Above contours are a frequency-based metric that shows the number of aircraft noise events greater than a specified decibel level that can be expected on an average day. N70 modelling provides maps of areas that are likely to experience a predicted number of average daily noise events above 70 decibels (dB) from aircraft flying overhead. An outdoor noise level of 70 dB is approximately 60 dB indoors, with windows open to a normal extent, which is the approximate noise level that could interfere with normal conversation or with listening to television



13.5. The Australian Noise Exposure Forecast (ANEF) System

The ANEF system is the aircraft noise exposure forecasting system currently adopted in Australia. The aircraft Noise Exposure Forecast (NEF) modelling was developed in the United States of America in the late 1960s and recognised internationally. It was modified in Australia to the ANEF in 1982.

The ANEF system provides a scientific measure of noise exposure from aircraft operations around airports. It provides guidance for land-use planning near the airport. Table 13-2 shows the land-use compatibility as recommended by Standards Australia: Australian Standard AS2021-2015 *Acoustics – Aircraft noise intrusion – Building, siting and construction* in relation to the specific ANEF contours.

The ANEF computation is based on forecasts of traffic movements on an average day. Allocations of the forecast movements to runways and flight paths are on an average basis over a year and take into account the existing and forecast air-traffic-control procedures at the airport because they nominate preferred runways and preferred flight paths for noise-abatement purposes.

The following factors are considered in calculating the ANEF:

- The intensity, duration, tonal content and spectrum of audible frequencies of the noise of aircraft take-offs, landings and reverse-thrust after landing (The noise generated on the airport from ground running of aircraft engines or taxiing movements is not included for practical reasons)
- The forecast frequency of aircraft types and movements on the various flight paths
- The average daily distribution of aircraft take-offs and landing movements in both daytime (7:00am to 7:00pm) and night time (7:00pm to 7:00am) hours
- The topography of the area surrounding the airport

13.5.1. Calculation of the Australian Noise Exposure Forecast

The ANEF system combines noise level and frequency of operations to calculate the average noise level at any point along, and to the side of, the flight path using the following reasonably simple mathematical procedure.

Partial ANEFs are calculated for the frequency of night-time and day-time operations of each aircraft type and flight path. These calculations use a value of Effective Perceived Noise Level (EPNL) for each aircraft and take into account all known annoying aspects in the temporal, frequency spectrum and spatial domains. The EPNL is obtained by the algebraic addition of the maximum perceived noise level at any instant corrected by noise tonal and duration factors. The EPNL unit is also used for the international certification of new aircraft.

These partial ANEFs are computed for each significant type of noise intrusion. The total ANEF at any point on the ground around the airport is composed of all individual noise exposures (summed logarithmically) produced by each aircraft type operating on each path over the period of one day. These calculated values do not take account of any background noise levels such as road or rail activities which, particularly in ground transport corridors, could be much higher than aircraft noise.

13.5.2. Noise Threshold Levels

In the area outside the 20 ANEF contour, noise exposure may be of concern for some individuals. Within the area between the 20 to 25 ANEF contour, levels of noise are generally accepted to emerge as an environmental problem, and within the 25 ANEF contour the noise exposure becomes progressively more severe. It should be noted that the actual location of the 20 ANEF contour is difficult to accurately define. This is because variations in actual flight paths, operating techniques of pilots, meteorological conditions and topography all have a largely unpredictable effect on the position of the 20 ANEF contour for any given day.

Aircraft noise elicits a wide range of individual responses and the reasons for the differences between individuals are largely socially based and complex to quantify. Research has indicated however, that community response to noise exposure is more predictable than an individual's response.



BUILDING TYPE	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	25-30 ANEF	Greater than 30 ANEF
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)	20-25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20-30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25-35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30-40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Table 13-2: AS2021 Table of Building Site Acceptability Based on ANEF Zones

Notes:

- (1) 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 in AS2021: 2015 may be followed for building sites outside but near to the 20 ANEF contour
- (2) 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 in AS2021: 2015)
- 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 12-1 should be used to determine site acceptability but internal design noise levels within the specific spaces should be determined by Table 3.3 in AS2021: 2015
- 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 aircraft-noise reduction determined according to Clause 3.2 in AS2021: 2015. For residences, schools etc., the effect of aircraft noise on outdoor areas associated with the building should be considered
- In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations



13.6. Noise Modelling

Modelling of aircraft noise exposure was carried out using the United States Federal Aviation Administration (FAA) approved Integrated Noise Model (INM Version 7.0d). This internationally-recognised, computer-based noise simulation model calculates contours from an analysis of the contribution the various defined aircraft and their operations have on the overall noise emissions from the airport.

The resulting noise footprint can then be used to assess the relative noise exposure that different aircraft fleets and/or operational procedures have on

the surrounding environs. The INM model contains a database of civil passenger and military aircraft along with their performance and typical noise characteristics.

The preparation of ANEFs is transitioning from INM to the Aviation Environmental Design Tool (AEDT) software, which is also developed by the US Federal Aviation Administration. The ANEF prepared for the next Adelaide Airport Master Plan will be prepared using AEDT.

AIRCRAFT CATEGORY	AIRCRAFT TYPE (FLEET MIX)	ULTIMATE CAPACITY TOTAL MOVEMENTS ANEF
Large Jets	Boeing 777-300 ER	17,643
	Boeing 787-8	18,473
	Airbus 350 - 900	3,727
Medium Jets	Boeing 717-200	3,575
	Airbus 330 Neo	12,553
	Boeing 737-8 MAX	68,387
	Fokker 100	2,049
	British Aerospace 146	1,352
	Airbus 320 Neo	29,126
	FA18 Hornet Fighter Jet	28
Small Turbo Prop and General Aviation	Bombardier Dash 8	25,700
	SAAB 340 B	9,733
	Cessna 208	4,704
	Cessna 441	17,221
	Beech Baron EC58P	3,458
	Single engine variable pitch propeller and/or turbine aircraft	15,267
Helicopters	Eurocopter EC130B4	1,184
	Bell 430	5,582
TOTAL MOVEMENTS		239,762

Table 13-3: Aircraft Movement Numbers Used in Noise Modelling



13.6.1. Methodology

Aircraft noise exposure was modelled for two scenarios:

- 2018 actual movements (ANEI)
- Ultimate capacity of existing runway system (ANEF)

Based on the forecast movement numbers provided in Chapter 6, it is estimated that the practical capacity of the existing runway system would be reached well beyond the 20-year planning horizon of this Master Plan and relies on no changes to current air traffic control procedures or other air traffic management practices or satellite-based technologies that could extend this estimate. Hence the estimate for when the airport will reach existing runway capacity is considered a conservative one.

13.6.2. Flight Movements

The forecast number of flights operating from Adelaide Airport in the future is outlined in Chapter 6. The number of flights used in the aircraft noise modelling was based on the central forecast scenario. The estimated aircraft movement numbers for each aircraft type are provided in Table 13-3.

13.6.3. Fleet Mix

The fleet mix of aircraft operating from Adelaide Airport 20 years or more into the future cannot be defined accurately. At best, the mix of aircraft using the airport in the future can be inferred from current fleet mixes and discussions on the intentions of major airlines regarding future purchases and operational arrangements. Major manufacturers of aircraft also provide notification of new aircraft likely to enter the world's fleet in the next 20 years.

The expected fleet mix for international, domestic, regional and general aviation that was used for the modelling is provided in Table 13-3, and generally reflects the current fleet mix types. However, the modelling has included newer aircraft types that do not presently fly into Adelaide on a regular basis. These include the Airbus A320 Neo and the Boeing B787 which have commenced service in Australia.

The proposed fleet mix also includes aircraft types such as the Airbus A350 (which has recently commenced regular flights to Adelaide by two airlines); new-generation variations of the Boeing B737 type aircraft that have recently entered service; and some future aircraft anticipated to enter service in the next decade (these include the Boeing B777X and the Boeing B797 type aircraft).

13.6.4. Runway Utilisation

The choice of runway can also be influenced by aircraft type, as the larger aircraft can only use the main runway while smaller aircraft have more options available. Operational rules may also be imposed to limit the number of flights on runways that have greater impacts on noise (as a standard noise-abatement procedure).

Runway usage for the noise modelling was based on analysis of the 2018 Adelaide radar data provided by Airservices. The allocations were made onto the existing runway layout.

Runway allocations were also made recognising the existing curfew requirements and the existing noise-abatement procedures.

13.6.5. Flight Paths

The Airports Act requires a Master Plan to include the current and future flight paths for an airport.

Aircraft generally fly along flight paths following navigational procedures which have been designed to guide the aircraft between waypoints either away from, or towards, an airport.

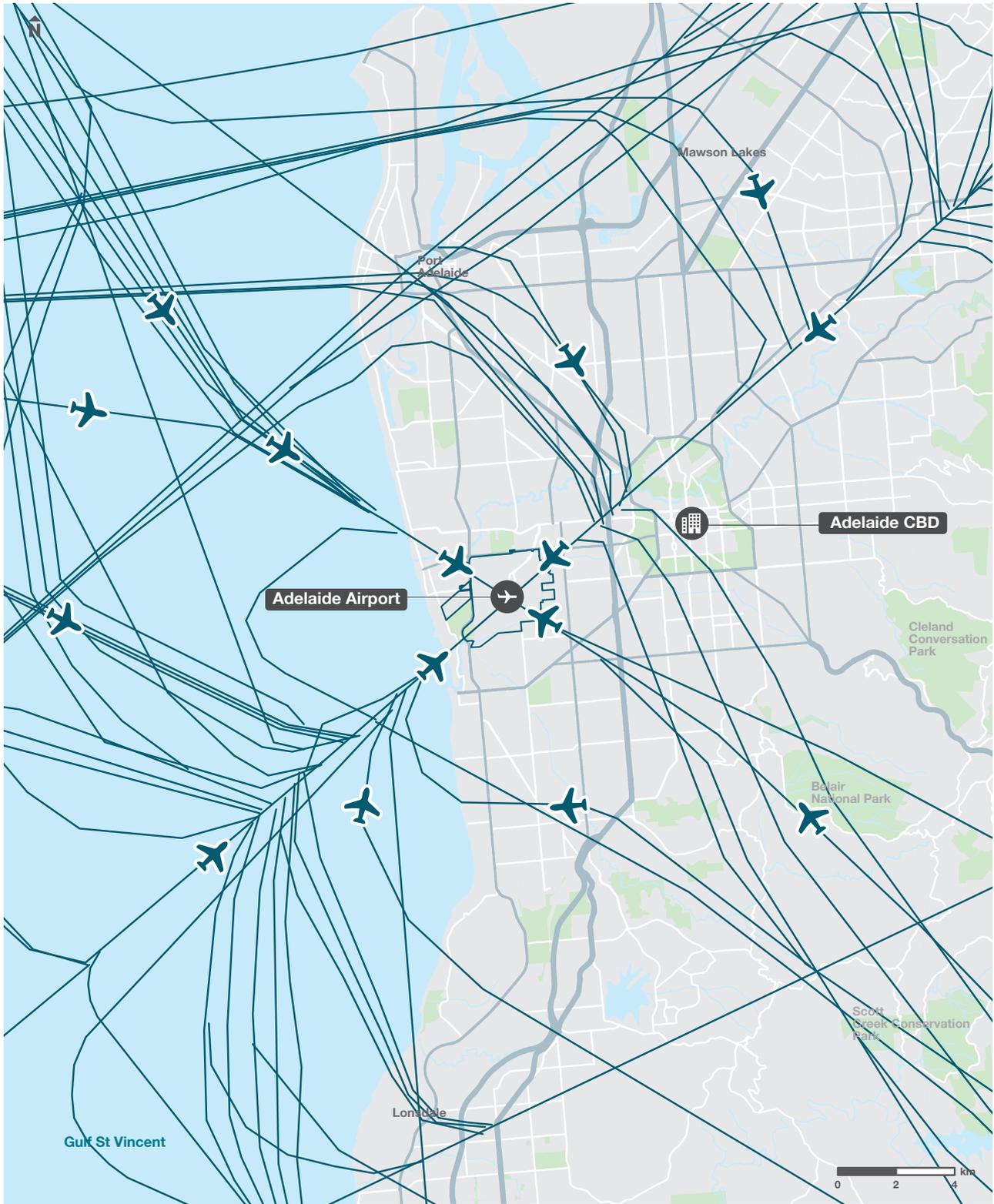
The flight paths used for future noise modelling were developed through a detailed analysis of radar flight-track data provided by Airservices, which show the actual tracks that aircraft have flown. These flight paths were verified by Airservices.

There is always some variation in the actual tracks flown by aircraft. To account for this variation, flight paths are illustrated as an indication of the spread of flight tracks. The flight paths are densest in the centre, where most aircraft are expected to fly.

There have been very few changes to published flight paths since the Master Plan 2014. Airservices has introduced Required Navigational Procedures (RNP), which were specifically designed to align with existing flight paths, and there has also been a realignment of non-jet (i.e. turbo propeller aircraft) flight paths which were moved to align with the existing jet flight paths.

Maps showing the general placement of designed flight paths are shown in Figure 13-1 and Figure 13-2. Helicopter flight paths are shown in Figure 13-3. These flight paths reflect the current operating procedures designed by Airservices.

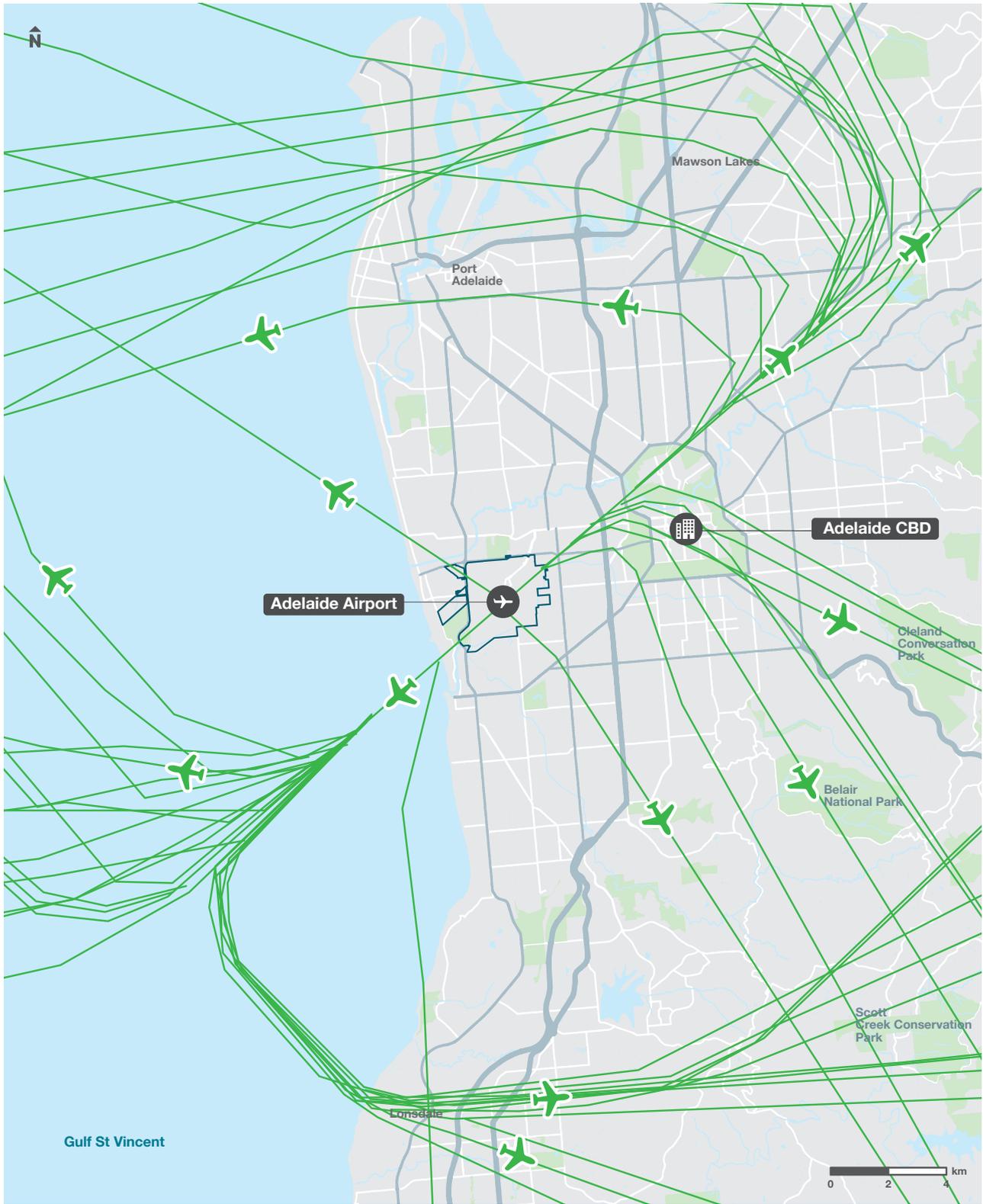




LEGEND

- Airport Boundary
- Parks, Forests and Reserves
- Watercourses
- Major Transport Routes
- Local Roads
- Direction of Aircraft Travel (Arrivals)
- Arrivals Flight Paths

Figure 13-1: Arrival Flight Paths

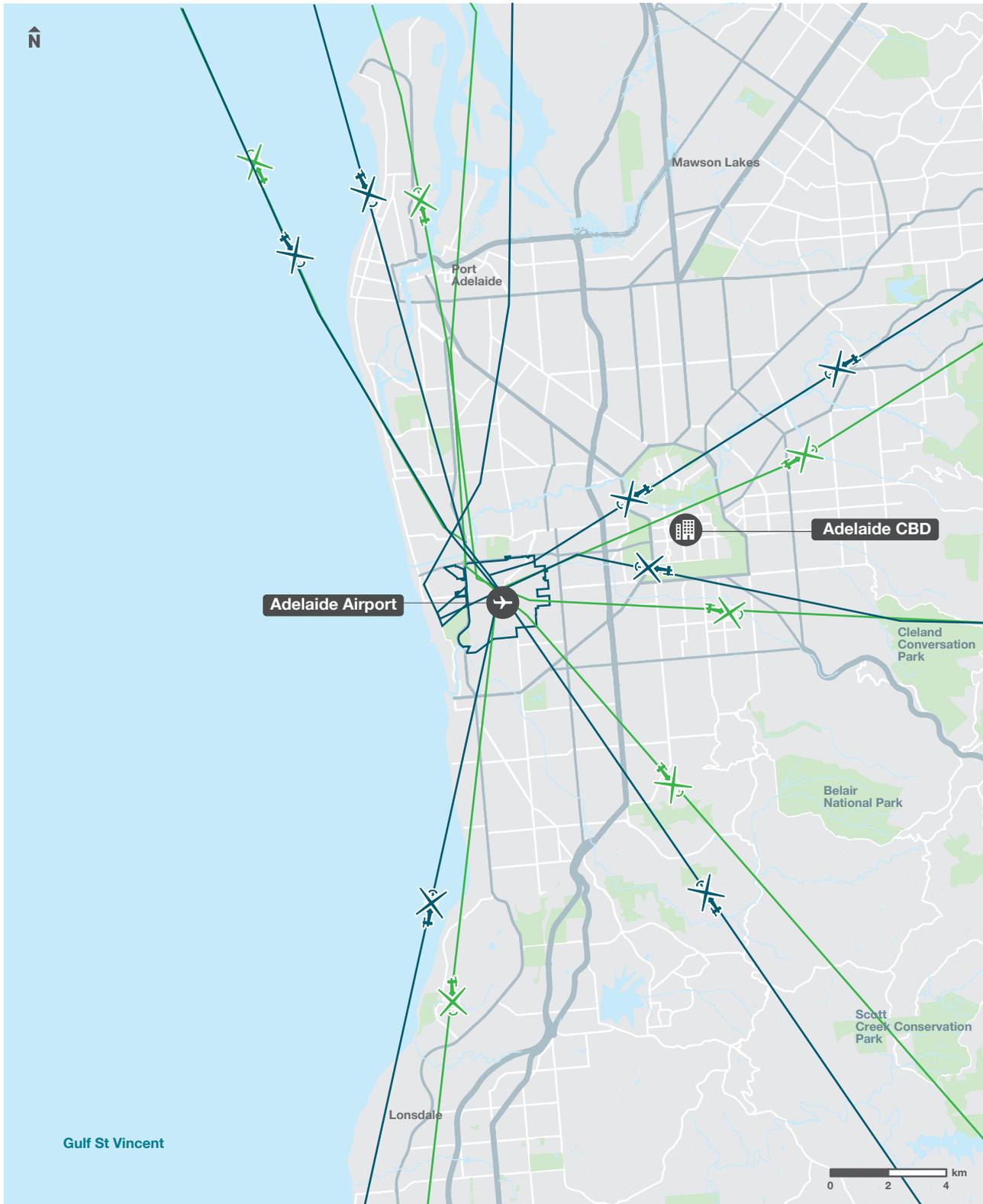


LEGEND

- | | |
|-----------------------------|---|
| Airport Boundary | Major Transport Routes |
| Parks, Forests and Reserves | Local Roads |
| Watercourses | Direction of Aircraft Travel (Departures) |
| | Departure Flight Paths |

Figure 13-2: Departure Flight Paths

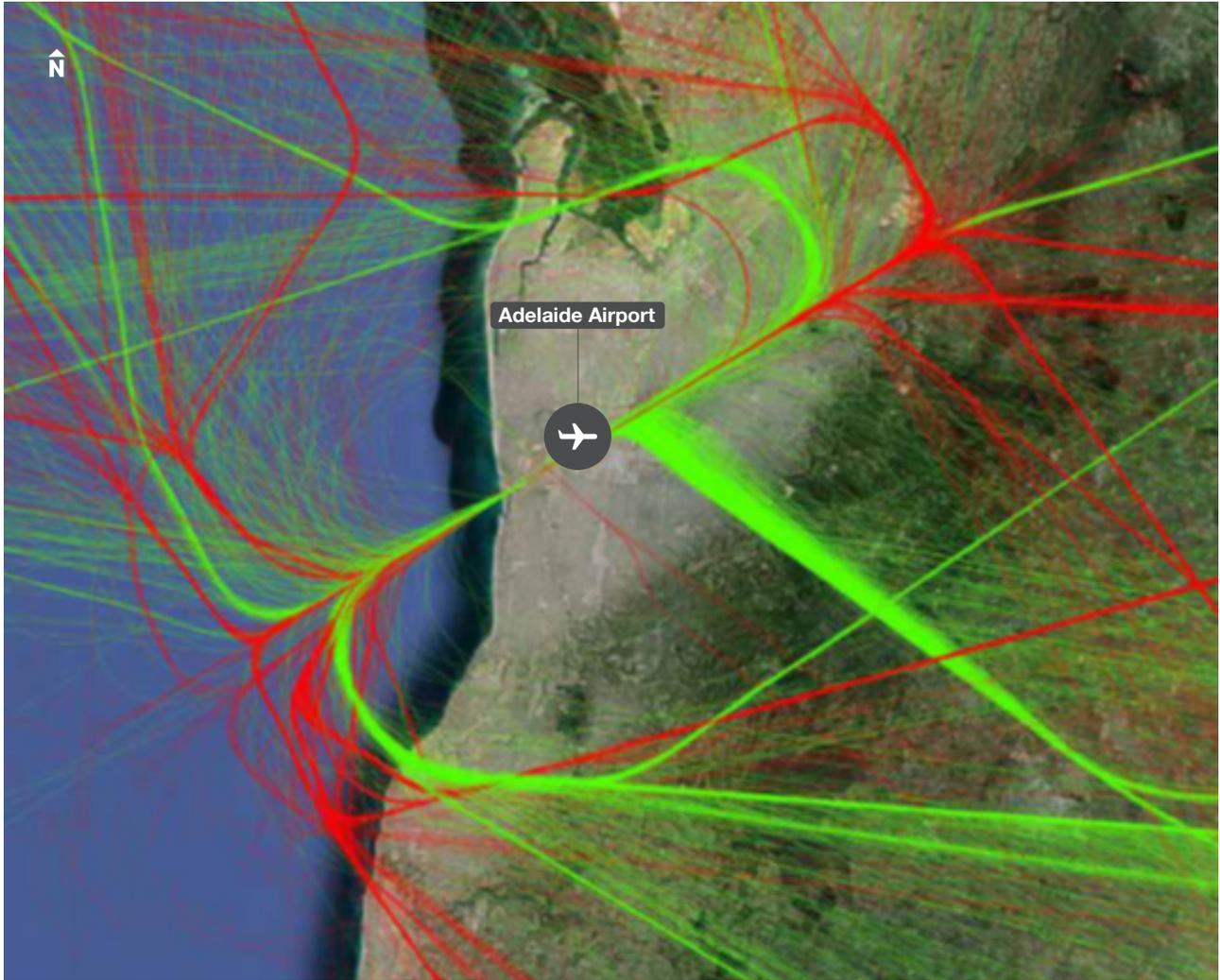




LEGEND

- | | | |
|-----------------------------|------------------------|---|
| Airport Boundary | Major Transport Routes | Helicopter Arrival Flight Paths |
| Parks, Forests and Reserves | Local Roads | Helicopter Departure Flight Paths |
| Watercourses | | Direction of Aircraft Travel (Arrivals) |
| | | Direction of Aircraft Travel (Departures) |

Figure 13-3: Helicopter Flight Paths



LEGEND

■ Arrival ■ Departure

Figure 13-4: January 2018 Jet Aircraft Tracks Source: Airservices Australia

Flight tracks show the actual routes flown by aircraft. The flight tracks of all jet aircraft movements in January 2018, based on Airservices radar track data, is shown in Figure 13-5. (green represents departure tracks and red represents arrival tracks).

The actual flight tracks flown generally follow the designed flight paths. Non-jet tracks (turbo-propeller, piston-engine aircraft and helicopters) arrive and depart Adelaide Airport on more spread-out flight tracks. For safety and operational reasons, these aircraft may be directed by Airservices to operate outside of the published flight paths.

Weather conditions and seasonal shifts in prevailing wind directions will generally determine which runway end is being used for aircraft arrivals and departures, and therefore which flight paths are being used at a given time.

As an example, a comparison of departures in January 2018 and August 2018 is shown in Table 13-4 and identifies the difference in the main runway direction use. Figure 13-5 also shows a comparison of departures between January and August 2018.

Similarly, comparison of arrivals in January and August 2018 shows the variation in runway direction use (refer to Table 13-5 and Figure 13-6).

DEPARTURES	MAIN RUNWAY 23	MAIN RUNWAY 05
January 2018	33-40%	10%
August 2018	23%	28%

Table 13-4: Main Departure Runway Usage January and August 2018

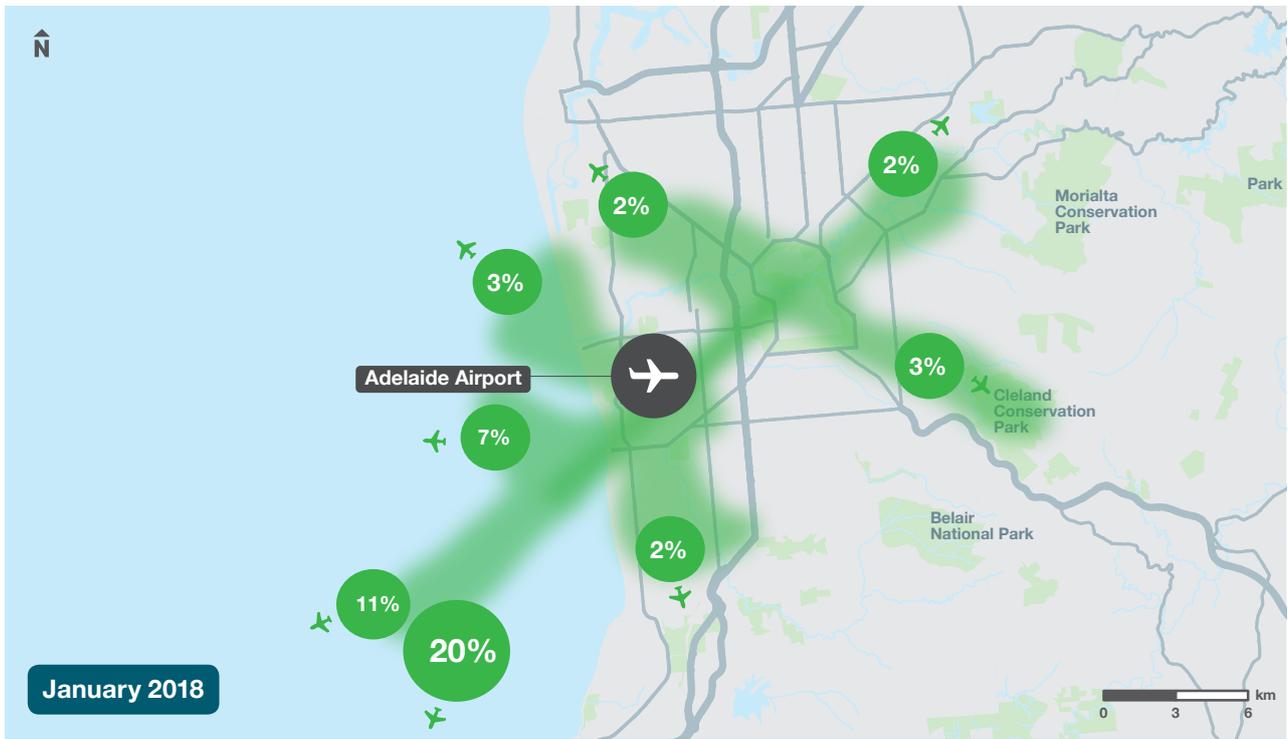
Source: Airservices Australia

ARRIVALS	MAIN RUNWAY 23	MAIN RUNWAY 05
January 2018	40%	8%
August 2018	23-29%	21%

Table 13-5: Arrivals Runway Usage January and August 2018

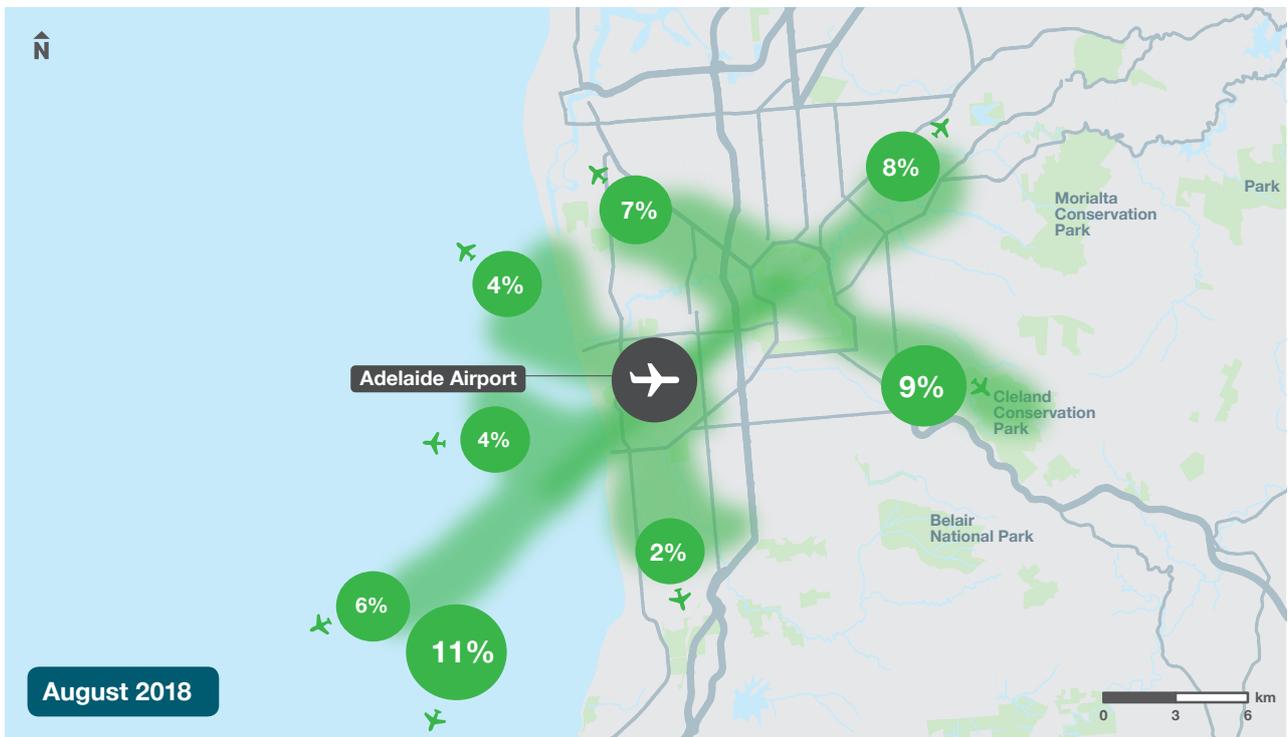
Source: Airservices Australia

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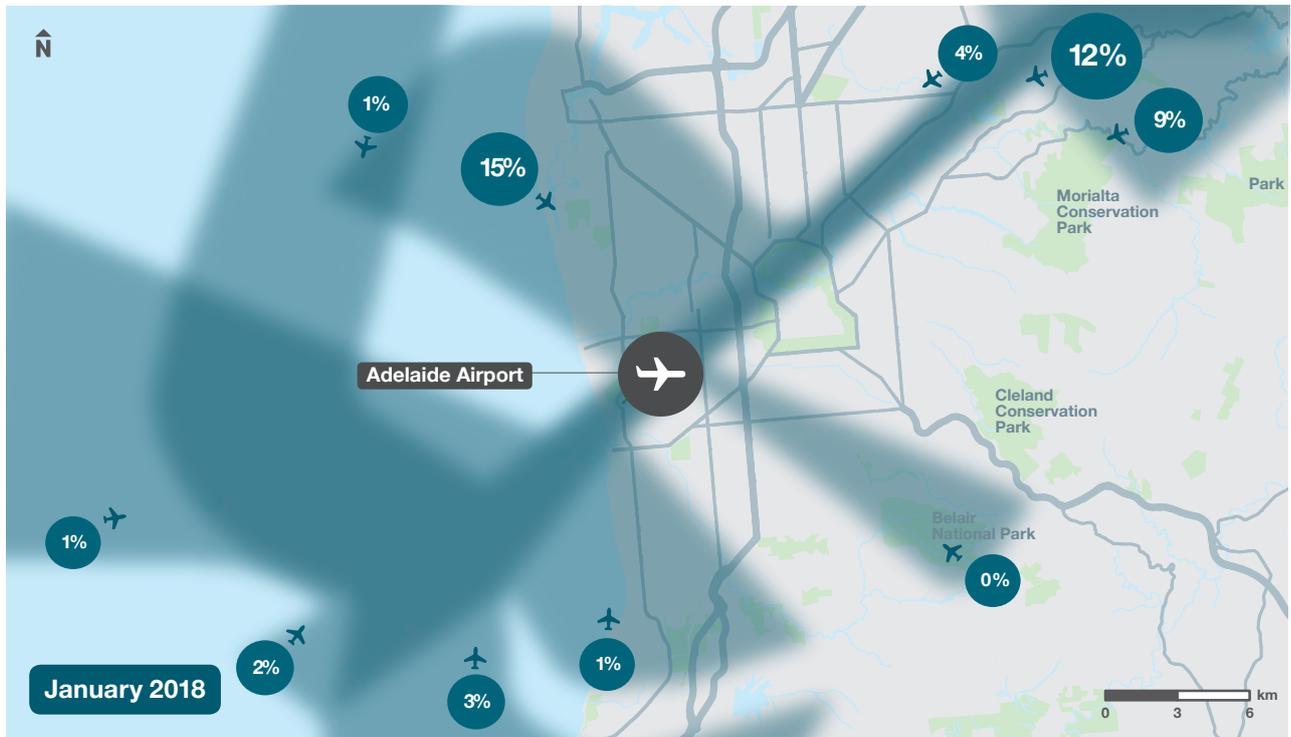
- Runways
- Parks, Forests and Reserves
- Departures
- Major Transport Routes
- Watercourses



LEGEND

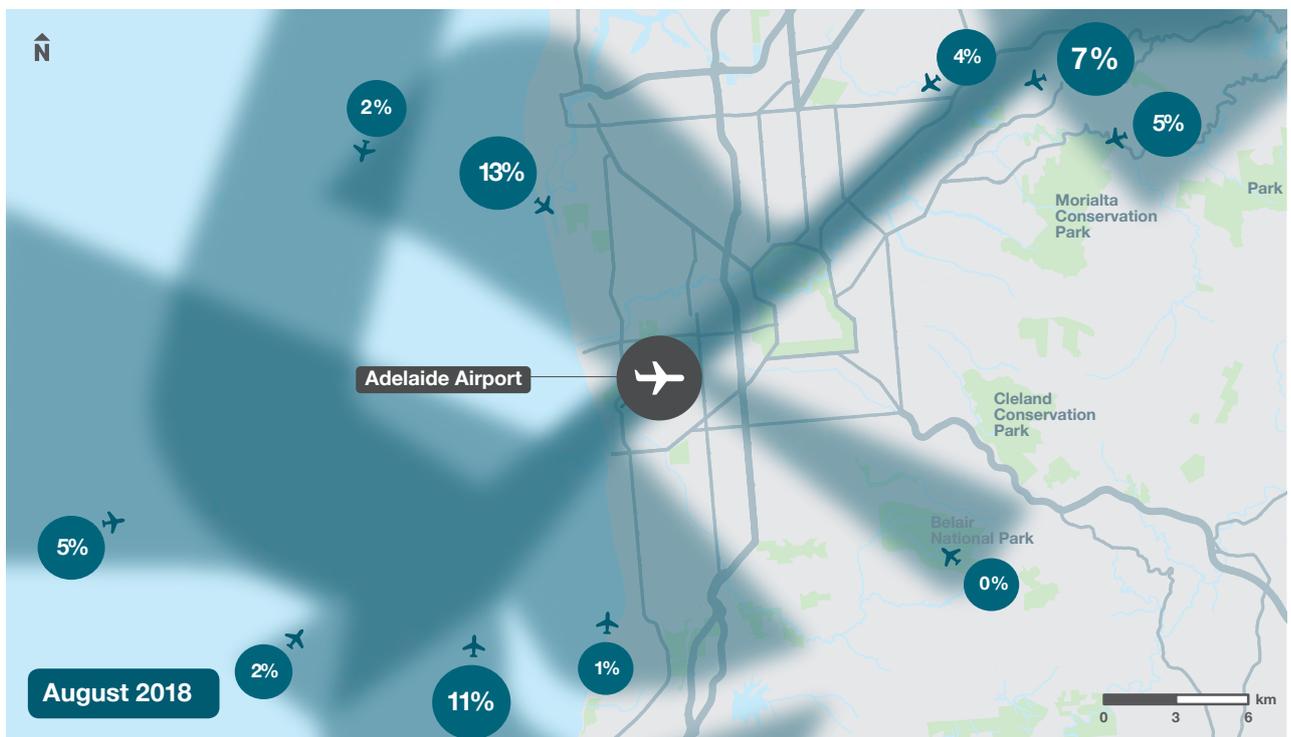
- Runways
- Parks, Forests and Reserves
- Departures
- Major Transport Routes
- Watercourses

Figure 13-5: Comparison of Flight Path Usage for Departures Between January and August 2018



LEGEND

- Runways
- Parks, Forests and Reserves
- Arrivals
- Major Transport Routes
- Watercourses



LEGEND

- Runways
- Parks, Forests and Reserves
- Arrivals
- Major Transport Routes
- Watercourses

Figure 13-6: Comparison of Flight Path Usage for Arrivals Between January and August 2018

13.7. Noise Modelling Outputs

13.7.1. Australian Noise Exposure Index (ANEI)

The ANEI for 2018 is shown in Figure 13-7. This is based on the actual numbers and types of aircraft that flew into and out of Adelaide Airport in calendar year 2018. The ANEI includes some newer more advanced aircraft types that have recently entered service (both in Adelaide and the rest of the world) such as the Airbus A350 and the Boeing 787.

13.7.2. Existing Runway Capacity Australian Noise Exposure Forecast (ANEF)

The ANEF is modelled for a point in time when the existing airfield infrastructure approaches a theoretical capacity. This is currently estimated to occur when annual movements near 240,000 aircraft movements per year and is shown in Figure 13-8. It is based on a scaling of the forecast numbers and types of aircraft used. This also includes the more advanced aircraft types either just entering service in Australia and the rest of the world; or known future aircraft types that are likely to fly into or out of Adelaide.

The following sections provide detail of the relevant inputs used when developing the ANEI and ANEF. Airservices has formally endorsed the ANEF for technical accuracy.

13.7.3. Frequency-Based Noise Charts

The ANEF system in conjunction with *Australian Standard AS 2021-2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction (AS2021)* is used by Local and State governments for land-use planning purposes around airports, particularly in relation to development suitability and sound-insulation requirements.

The Commonwealth Government has recognised the limitations of the ANEF system for communicating aircraft noise exposure to the community and recommended additional metrics to describe current and future aircraft noise exposure.

A widely-used metric is the numbers above modelling. This displays the number of aircraft noise events greater than a specified decibel level that can be expected on an average day.

N70 modelling provides maps of areas that are likely to experience a predicted number of average daily noise events above 70 decibels (dB) from aircraft flying overhead. An aircraft noise level of 70 dB outdoors is expected to be attenuated by 10 dB in a house with open windows (in accordance with AS2021). A noise event of 60 dB inside a house could interfere with a normal conversation or with listening to television.

Two to three decibels is the minimum change in sound level that most people can detect, while every 10 dB decrease in sound level is perceived as a halving of loudness.

Typical noise levels are shown in Figure 13-9.

An N70 map for the area around Adelaide Airport in 2018 is shown in Figure 13-10. Additionally, an N70 map for when the existing runway system reaches capacity is shown in Figure 13-11.

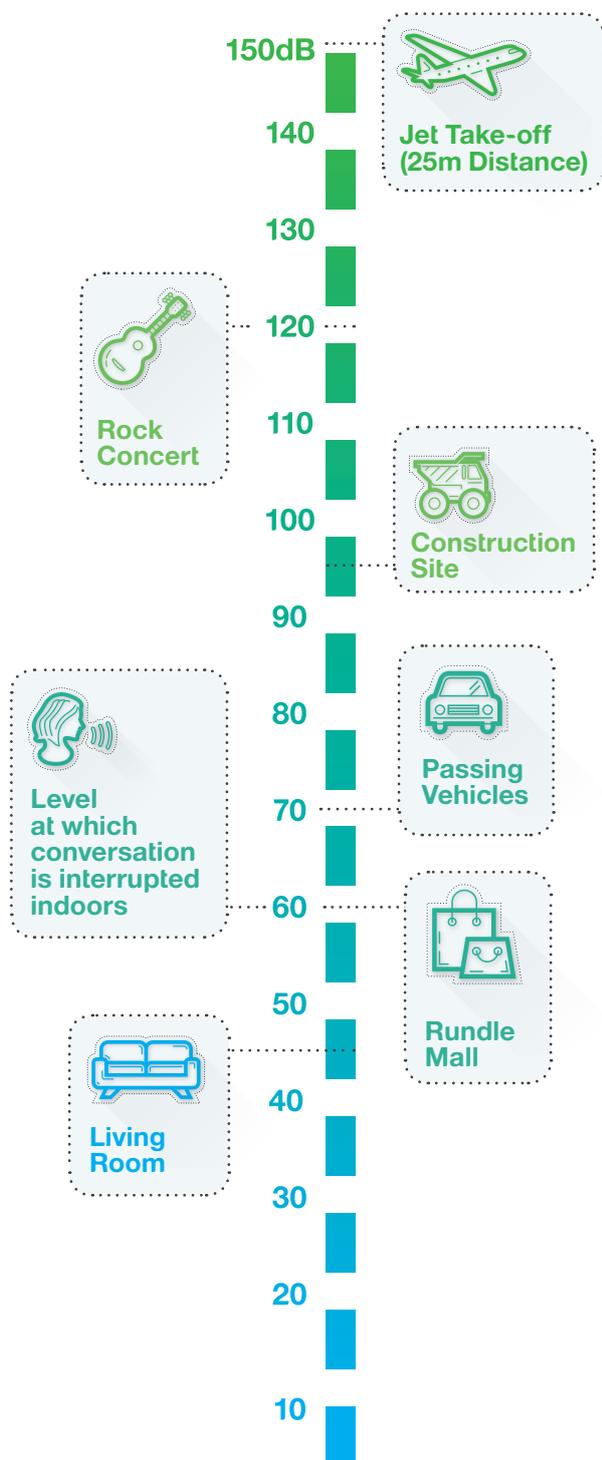


Figure 13-7: Example Noise Levels (in decibels)
Source: Airservices Australia and Australian Airports Association

13.7.4. Assessment of Changes

The ANEI chart shown in Figure 13-7 provides an estimate of the current position of the noise contours around the airport. These contours can be used as a baseline guide in the assessment of future proposed changes to the noise contours in the ANEF chart.

The ANEF, indicate an extension in the area of the contours along the main runway ends (Runways 05 and 23) compared to their present position in the ANEI. The reasons for the extensions are mainly due to two factors. Firstly, since the last Master Plan in 2014, Airservices has ceased using 'land and hold short operations' (LAHSO) on the cross runway 12/30. This change has resulted in a large number of cross runway operations being transferred to the main runway 05/23. Secondly, there has been an increase in the forecast numbers of international and domestic movements of larger types of aircraft using the main runways. The forecast increases in domestic and international passengers, coupled with the trend for airlines to service routes with larger and more fuel-efficient aircraft, mean that the number of movements will not increase significantly but the number of larger and slightly noisier aircraft will increase.

In terms of ANEF contours, the 35-ANEF contour extends outside the airport boundaries and just crosses Marion Road. The 30-ANEF contour extends further to the north-east and just reaches Henley Beach Road. The 25-ANEF contour extends north-east and extends across Wellington Square in North Adelaide. To the south-west, the 25-ANEF contour extends over an area of residential land in North Glenelg and the 30 ANEF contour also passes over some residential properties in this area. The 35-ANEF contour is generally restricted to airport land, public open space and the Glenelg Sewage Treatment Plan.

Adelaide Airport continues to work with all levels of Government, airlines and community to effectively manage aircraft noise exposure with particular focus on houses within the 30 contour.

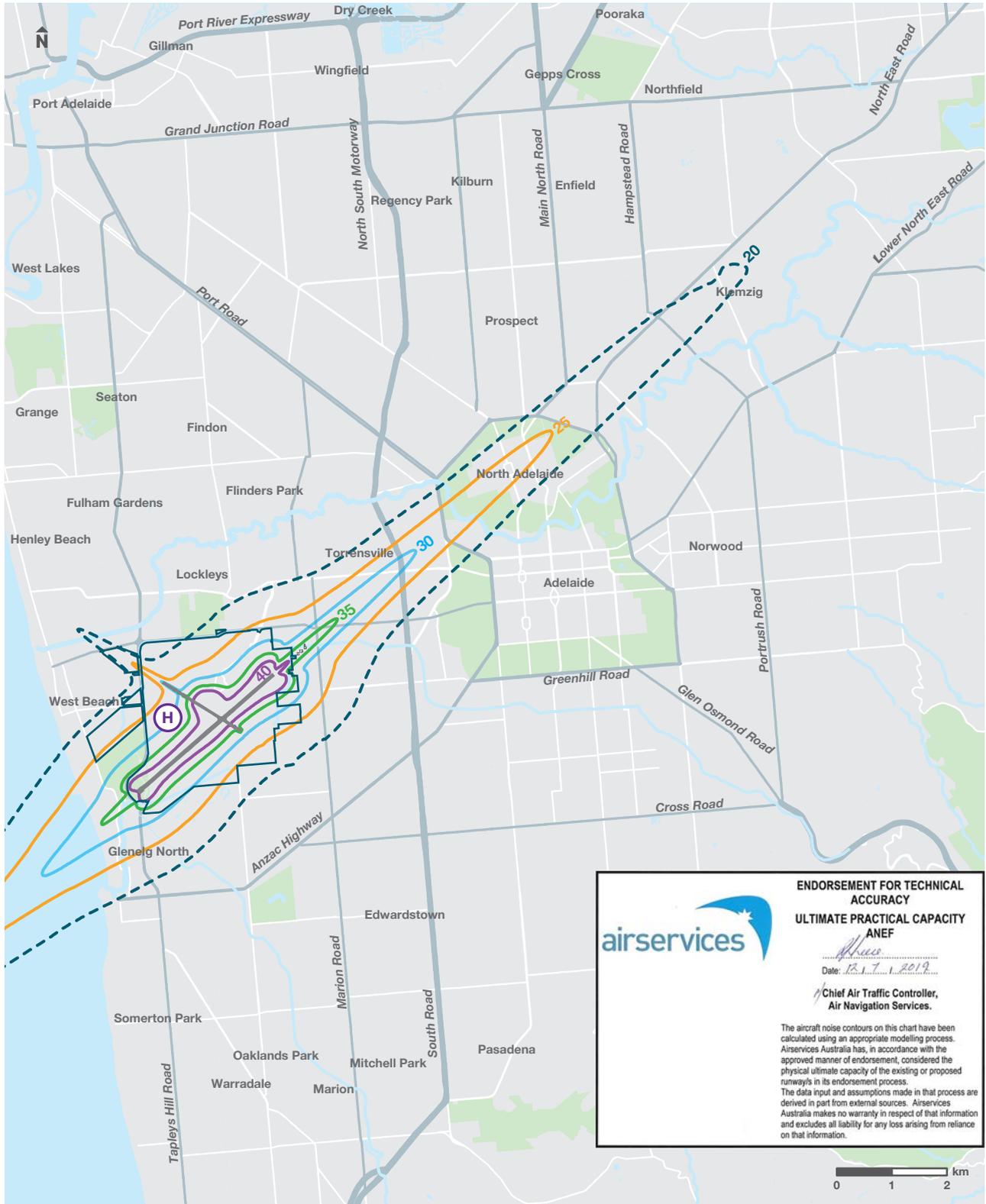




LEGEND

- | | | |
|------------------|------------------------|---------|
| Airport Boundary | Parks and Reserves | ANEI 40 |
| Freehold Land | Watercourses | ANEI 35 |
| Existing Runway | Major Transport Routes | ANEI 30 |
| Helipad West | Local Roads | ANEI 25 |
| | | ANEI 20 |

Figure 13-8: Australian Noise Exposure Index 2018



ENDORSEMENT FOR TECHNICAL ACCURACY
ULTIMATE PRACTICAL CAPACITY ANEF

[Signature]
 Date: 12.17.2019
 Chief Air Traffic Controller,
 Air Navigation Services.

The aircraft noise contours on this chart have been calculated using an appropriate modelling process. Airservices Australia has, in accordance with the approved manner of endorsement, considered the physical ultimate capacity of the existing or proposed runways in its endorsement process. The data input and assumptions made in that process are derived in part from external sources. Airservices Australia makes no warranty in respect of that information and excludes all liability for any loss arising from reliance on that information.

LEGEND

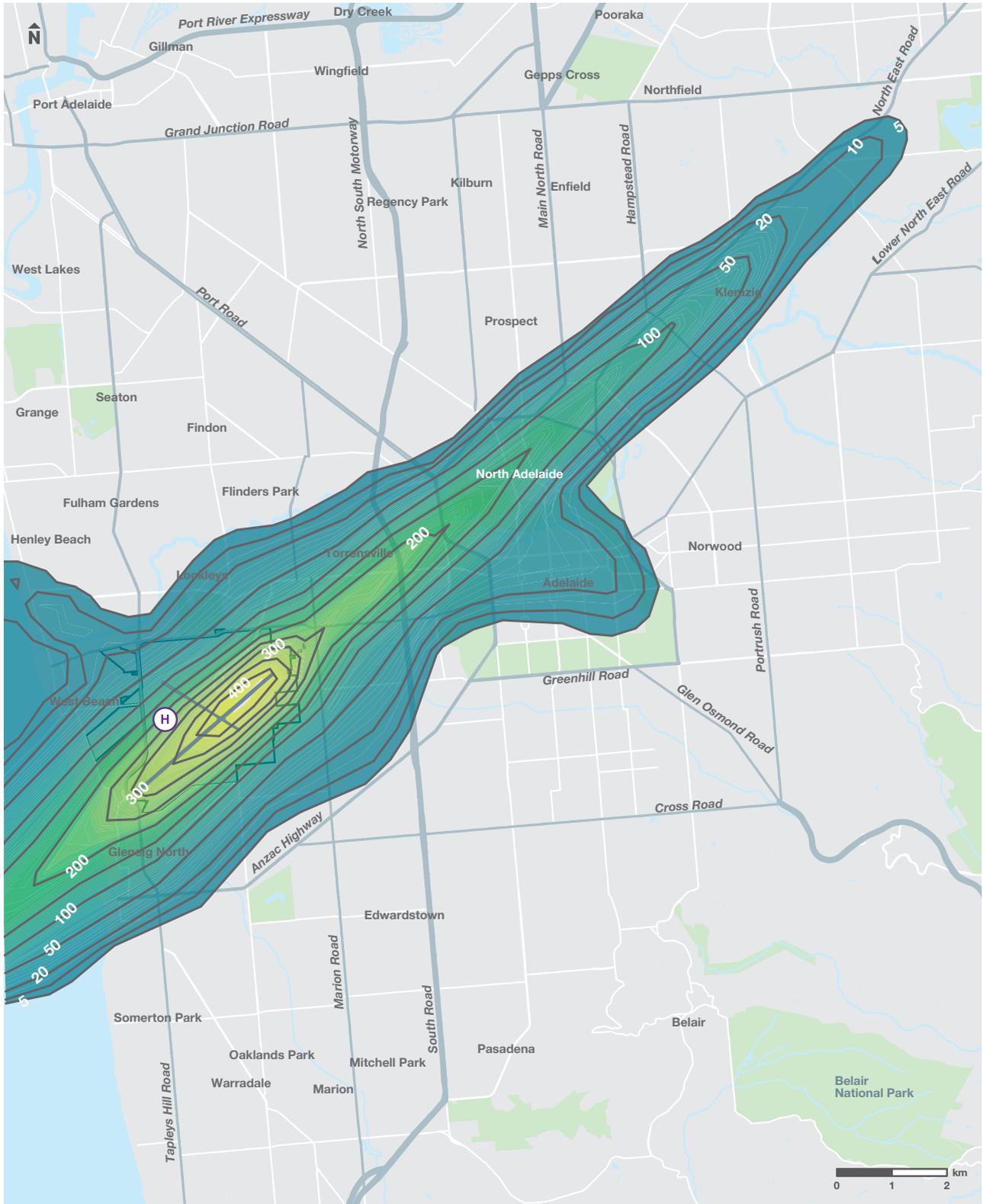
- | | | |
|------------------|------------------------|---------|
| Airport Boundary | Parks and Reserves | ANEF 40 |
| Freehold Land | Watercourses | ANEF 35 |
| Existing Runway | Major Transport Routes | ANEF 30 |
| Helipad West | Local Roads | ANEF 25 |
| | | ANEF 20 |

Figure 13-9: Adelaide Airport Australian Noise Exposure Forecast



LEGEND		N70 2018	
Airport Boundary	Parks and Reserves	5 - 50 events	
Freehold Land	Watercourses	50 - 100 events	
Runways	Major Transport Routes	100 - 150 events	
Helipad West	Local Roads	150 - 200 events	
N70 Contours		200+ events	

Figure 13-10: N70 Contours for 2018



LEGEND

- Airport Boundary
- Freehold Land
- Existing Runway
- H Helipad West
- Parks and Reserves
- Watercourses
- Major Transport Routes
- Local Roads

N70 Capacity of Existing System

- 5 - 50 events
- 250 - 300 events
- 50 - 100 events
- 300 - 350 events
- 100 - 150 events
- 350 - 400 events
- 150 - 200 events
- 400+ events
- 200 - 250 events

Figure 13-11: N70 Contours – Maximum Capacity of the Existing Runway System



14

Environment Strategy



14.1. Introduction

Adelaide Airport's vision and ongoing success is founded and maintained through strong governance, innovation and sustainable growth. Integrating current and future environmental and social risks and opportunities through the implementation of a robust environmental management framework is critical in ensuring that the airport business thrives and is managed to meet the needs of future generations. This will allow AAL to positively and innovatively adapt to today's local and global challenges.

AAL's philosophy is to operate and develop Adelaide Airport in accordance with the principles of sustainable development, recognising that the success of the airport can be enhanced by conducting business in a way that is environmentally, socially and economically responsible. AAL's Environment Statement forms the foundation for this Environment Strategy. AAL is committed to ensuring legislative compliance and driven forward by the desire to maintain a leadership position in environmental management.

The Environment Strategy covers ground-based environmental aspects associated with the operation of Adelaide Airport, including:

- Energy and climate change
- Water resources
- Stormwater and aquatic ecology
- Soil and groundwater
- Ground-based noise
- Local air quality
- Waste management
- Land and heritage management

14.2. Overview

- Central to AAL's Environmental Management is the Environmental Management System (EMS). The EMS conforms to the requirements of International Standard ISO 14001:2015 and provides a structure for planning, implementing, monitoring, reporting and reviewing environmental management at Adelaide Airport
- Sustainability is at the core of the way AAL does business and AAL is already realising cost savings through a range of efficiencies initiated through its sustainability focus. AAL's investors are actively tracking environment, social and governance factors through benchmarking standards and are correlating better financial performance with improved environment, social and governance performance
- AAL and its operators, tenants and contractors share responsibility for the environmental management of Adelaide Airport
- AAL is committed to the effective management of environmental impacts across the airport site. Environmental action plans are in place for energy and climate change, water resources, stormwater and aquatic ecology, soil and groundwater, ground-based noise, local air quality, waste management, and land and heritage management

14.3. Key Achievements

AAL has delivered a number of significant environmental achievements since the last Master Plan including:

- In 2017 and 2018, AAL achieved Asset Sector Leader status for Airports in the Global Real Estate Sustainability Benchmark (GRESB) Infrastructure Assessment. The GRESB Asset Sector Leaders Award recognises AAL's outstanding leadership across the environment, social and governance elements of its business
- In recognition of its waste-management program, AAL was awarded the Green Airports Platinum status by the Airports Council International Asia Pacific in 2018
- In December 2018, AAL signed a \$50 million seven-year Sustainability Performance Linked Loan with ANZ. This is the first loan in Australia that incentivises the borrower to further improve its performance against a set of environment, social and governance criteria
- In March 2016, a 1.17MW photovoltaics solar system was installed on the rooftop of AAL's multi-level car park
- Four electric-vehicle charging units were installed in the multi-level car park in 2017
- Over 95 per cent of the demolition and construction waste from the Terminal 1 demolition works in 2018 was recovered for recycling
- In 2018, AAL received an Australian Airports Wildlife Hazard Management Award in recognition of AAL's wildlife hazard-management program
- Since 2015, the airport was accredited with Level 3 (Optimisation) of Airport Carbon Accreditation by demonstrating measurable reductions in its carbon footprint as well as seeking to influence and guide its stakeholders to do the same

14.4. Sustainability

Sustainability is at the core of the way AAL does business. Through regular dialogue with stakeholders and routine reviews AAL constantly improves its ability to anticipate and react to economic, social, environmental, and regulatory changes as they arise. AAL is already realising cost savings from a range of efficiencies initiated through its sustainability focus. Its investors are actively tracking environment, social and governance factors through benchmarking standards; and are correlating better financial performance with improved environment, social and governance performance.

AAL strives for sustainability excellence as a global airports sector leader and AAL's people are committed to building sustainability into day-to-day business.

AAL remains on a journey of embedding a common and consistent language of sustainability and efficiency and continuously demonstrating its governance and performance credentials through benchmarking and reporting.

AAL has developed a Corporate Sustainability Strategy, which is underpinned by the Sustainability Policy and provides a framework for integrating sustainability throughout the business and aims to deliver value to all stakeholders.

The AAL Sustainability Policy outlines the following objectives:

- Seek to ensure the safety and security of airport users, employees, data and systems
- Engage the community through a partnership approach, creating community value and connectivity
- Act with integrity and ethics to build and maintain trust with all our stakeholders
- Operate in a fair and inclusive manner, expanding employee diversity and providing a flexible workplace



- Deliver responsible and sustainable growth, financial resilience and economic viability
- Be an employer of choice to attract and retain the right people and build high staff engagement
- Continuously improve our facilities, services and practices to be supportive of future passenger growth
- Understand and mitigate financial and physical climate risks through active management of our carbon emissions and maintenance of resilient assets and communities
- Embrace innovation as central to operational efficiency, customer service and value chain creation
- Integrate sustainability principles into planning, design, construction, procurement and technology deployment; thereby driving adoption through our supply chain
- Measure and manage energy use, seeking opportunities to source cleaner and cost-effective alternatives
- Conserve water, improve efficiency and maximise opportunities for reuse and recycling
- Minimise pollution and waste from our operations by finding opportunities to recover, reuse and recycle waste
- Support and educate a diverse, inclusive and responsible supply chain that ensures compliance with human-rights regulations, innovative solutions and sustainable sourcing practices

The Corporate Sustainability Strategy articulates the sustainability framework which is a consolidation of AAL's sustainability-related commitments, how it measures and benchmarks its performance and what aspects AAL considers important to report to its shareholders and community.

In 2018, AAL completed an inaugural materiality assessment, following guidance provided by the Global Reporting Initiative Standards introduced in 2016. The assessment is a process to determine the issues that internal and external stakeholders regard as most important for a company. It is used to help shape AAL's Sustainability Policy, guide the Corporate Sustainability Strategy, act as a critical reference for benchmarking (including GRESB) and underpin external reporting. The feedback is also used to identify potential risks and opportunities, particularly around emerging issues that could impact the airport's business success and stakeholder relationships in the future.

Although not a requirement of the Environment Strategy under the Airports Act, AAL is also committed to:

- Continuing to implement and adapt the Corporate Sustainability Strategy
- Continuing to monitor, improve and benchmark sustainability performance through participation in external benchmarking programs
- Continuing to monitor and improve sustainability performance linked to financing through the sustainability performance linked loan
- Publicly disclosing materiality, sustainability objectives and alignment with the United Nation's Sustainable Development Goals through website and/or annual report
- Incorporating sustainable design principles into Adelaide Airport's Design Guidelines where appropriate
- Developing a process for the collection, management and interrogation of non-financial data focusing on a single point of truth, alignment with Global Reporting Initiative Standards and data governance where practicable
- Developing policy and guidelines for sustainable infrastructure development incorporating target planning, design, construction and operational ratings
- Updating the materiality assessment with internal and wider external stakeholder engagement

Further information on AAL's approach to sustainability is available on the Adelaide Airport website at adelaideairport.com.au.



14.5. Environment Strategy Requirements

14.5.1. Legislative Requirements

AAL has developed the Environment Strategy in accordance with the *Airports Act 1996* (Airports Act) and the *Airports (Environmental Protection) Regulations 1997* (AEPR). The Airports Act establishes an environmental management regime that focuses on a cooperative approach, supporting and ensuring compliance with environmental standards at federally-leased airports. Section 71 of the Airports Act and regulations 5.02A and 5.02B of the Regulations specifically cover environmental management requirements.

The AEPR outline the major obligations with respect to environmental matters on the airport site. However, these regulations do not apply to pollution and noise generated by aircraft (except engine ground running noise), which are regulated through the *Air Navigation (Aircraft Engine Emissions) Regulations 1995* and the *Air Navigation (Aircraft Noise) Regulations 1994*.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to actions that have a significant impact on the environment where the actions affect, or are taken on, Commonwealth land. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are defined in the EPBC Act as matters of national environmental significance.

Various industry codes of practice, Australian Standards, Commonwealth and State environment protection measures, and other guidelines are applicable to operators at the airport.

This Environment Strategy includes the following:

- Environmental management objectives for the airport
- Identification of the current environmental status of the airport including areas of environmental significance
- Identification of sources of environmental impact associated with airport operations
- An outline of the proposed environmental studies, reviews and monitoring of current and future activities, and a timeframe for these studies to be conducted and reported on
- Proposed measures to prevent, control or reduce environmental impacts associated with airport operations and the anticipated timeframe for their completion
- Details and outcomes of consultation on the preparation of the strategy with stakeholders

In compliance with the AEPR, the Environment Strategy also covers:

- Sites identified to be of Indigenous significance
- Proposed environmental management for areas of the airport which are not used, or planned to be used, for airport operations, and
- Necessary training for environmental management by persons employed by AAL or other major airport employers, including detail on proposed training

In addition to meeting regulatory obligations, the Environment Strategy sets the strategic direction for environmental management of airport operations for the next eight years. This Environment Strategy also addresses sustainability where it relates to environmental aspects, including details of how AAL manages waste, energy, climate risk and water resources.

14.5.1.1. Environmentally Significant Areas

In consultation with Commonwealth and State conservation bodies, the Airports Act requires the Environment Strategy to identify areas on the airport site that are considered environmentally significant.

There are no threatened ecological communities or species listed under the EPBC Act that are present on the airport site.

There are no sites of Indigenous, historic and natural significance within Adelaide Airport that are listed on the National Heritage List or on the Commonwealth Heritage List.

14.6. Environment Management Framework

Environmental management at Adelaide Airport is guided by the AAL Environmental Management Framework, as shown in Figure 14-1. This Framework incorporates strategic policy and planning documents, as well as measures to comply with Commonwealth regulatory requirements.

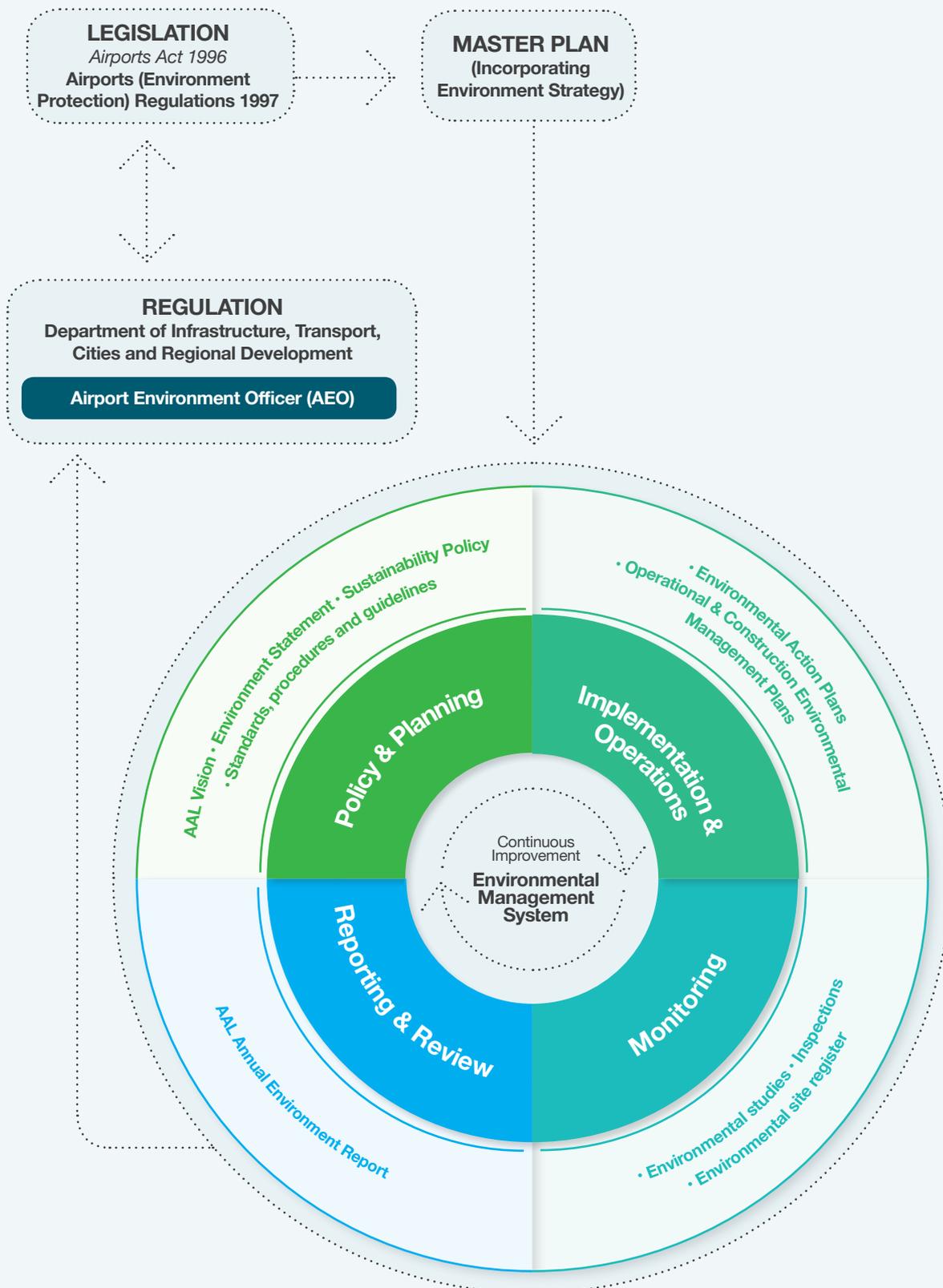


Figure 14-1: Adelaide Airport Environment Management Framework



14.6.1. Responsibilities

AAL and its operators, tenants and contractors share responsibility for the environmental management of Adelaide Airport. Table 14-1 identifies the key environmental management responsibilities for the airport site.

Training and communication processes and systems have been established to ensure AAL staff are aware of their environmental management roles and

responsibilities. Training requirements and frequencies are currently managed through the AAL training matrix. Environmental awareness training is currently completed by AAL staff every two years.

AAL's environment staff have relevant tertiary qualifications in science, environmental management and/or engineering and have received training in environmental management-system implementation and auditing.

AREA	RESPONSIBILITIES
AAL Board of Directors	<ul style="list-style-type: none"> • The environmental performance of AAL • Periodic review of the Environment Statement • Allocation of resources to manage environmental issues
AAL Executive	<ul style="list-style-type: none"> • Ensure that the roles/responsibilities for environmental management are defined and communicated • Incorporate and manage regulatory and other environmental conditions within leases, other property contracts and construction contracts • Ensure planned development aligns with the approved Master Plan
AAL Environment Staff	<ul style="list-style-type: none"> • Ensure compliance with regulatory requirements • Ensure the integration of environmental requirements into daily operations • Implement the Environmental Management System • Prepare the Annual Environment Report for DITCRD • Provide advice and specific training to staff, contractors and airport users • Report and investigate environmental hazards, incidents and stakeholder feedback
AAL Staff	<ul style="list-style-type: none"> • Comply with the AAL Environment Statement, management plans and procedures • Report environmental incidents and emergency events
Airport tenants, aviation operators and major airport contractors	<ul style="list-style-type: none"> • Comply with applicable environmental legislation and AAL plans, procedures and guidelines • Complete AAL induction • Report environmental hazards, incidents and feedback to AAL • Develop and implement Construction and/or Operational Environmental Management Plans when required
Department of Infrastructure, Transport, Cities and Regional Development (DITCRD)	<ul style="list-style-type: none"> • Appoint an Airport Environment Officer (AEO) to: <ul style="list-style-type: none"> – Ensure management of the airport environment is in accordance with the Airports Act and Regulations – Conduct site inspections, monitoring and reporting – Review and comment on development/building applications to ensure that the environment is appropriately managed

Table 14-1: Environmental Management Responsibilities





14.6.2. Sources of Environmental Impact

Adelaide Airport is a dynamic environment, supporting a range of aviation and non-aviation activities that have the potential to impact on the environment. Table 14-2 provides an overview of activities at Adelaide Airport with potential for environmental impact.

AREA	ACTIVITIES	AREA	ACTIVITIES
Aviation activities	Fuel storage and supply	Airport management activities	Passenger facilitation
	Aircraft operation		Terminal operation and maintenance
	Aircraft maintenance		Car park operation and maintenance
	Aircraft painting		Office operation and maintenance
	Aircraft washing		Road maintenance
	Aircraft decommissioning		Runway, taxiway and apron maintenance
	Baggage handling		Vehicle operation, maintenance and refuelling
	Engine ground running		Vehicle washing
	Air traffic control services		Landscaping
	Customs and border control services		Sewer network maintenance
	Airline catering		Electricity network maintenance
	Medical retrieval services		Water supply network maintenance
	Construction and fit out		Wildlife control
	Non-aviation commercial activities		Fuel storage and supply
Commercial retailing		Landfills	
Warehousing and logistics operations		Fuel storage and supply	
Steel fabrication		Aircraft maintenance	
Recreational facilities		Herbicide / pesticide application	
Medical services		Fill importation	
Office facilities		Fire training	
Rental car facilities			
Vehicle wash facilities			
Petrol filling stations			
Construction and fit out			

Table 14-2: Activities with potential for environmental impact at Adelaide Airport





14.6.3. Environmental Management System

Central to the AAL Environmental Management Framework is the Environmental Management System (EMS). The EMS conforms to the requirements of *International Standard ISO 14001:2015* and provides a structure for planning, implementing, monitoring, reporting and reviewing environmental management at Adelaide Airport.

The EMS comprises four key areas which ensure a continuous improvement approach to environmental performance:

- Policy and planning
- Implementation and operation
- Monitoring
- Reporting and review

14.6.3.1. Policy and Planning

AAL's commitment and approach to environment and sustainability are described in the Environment Statement.

AAL's Environment Statement was endorsed by the Managing Director in 2018 and identifies the key commitments for the protection and improvement of the environment. The commitments include:

- Ensuring compliance with relevant regulatory and other requirements as well as the Environment Strategy
- Implementing and maintaining an EMS to minimise environmental impacts
- Employing a continuous improvement approach to environmental management and sustainability.

The Statement is updated regularly to ensure relevancy to AAL.

14.6.3.2. Implementation and Operation

The implementation and operation of the EMS is achieved through a range of systems, procedures and guidelines. These include business and strategic plans, building approval processes, risk assessments and training processes. The relevant documents, which are reviewed and updated regularly, are outlined in Table 14-3.

To inform tenants and aviation operators of requirements for activities such as construction dewatering, spill response, landscaping and fuel management, guidelines have been developed by AAL and published on the Adelaide Airport website at adelaideairport.com.au.

Adelaide Airport staff and users of the airport must take all reasonable steps to implement and comply with the Environment Strategy. The airport's environment team maintains the EMS, drafts the plans and provides the necessary advice and guidance required for others at the airport to implement measures for controlling or minimising significant environmental risks. Key outputs include standard operating procedures, safe-work instructions, environmental guidelines and training.





AREA	PRINCIPAL DOCUMENTS	SECONDARY DOCUMENTS
Ground-based noise	Noise Management Plan Stakeholder Engagement Strategy and Action Plan	Noise Enquiry and Complaints Handling Procedure Guidelines for Noise Management at Adelaide and Parafield Airports Boundary Noise Monitoring Procedure Policy for the Ground Running of Aircraft Engines at Adelaide Airport
Local air quality	Local Air Quality Management Plan Local Air Quality Monitoring and Action Plan	Tenant Environmental Management Plan Construction Environmental Management Guideline Tenant and Construction Environmental Inspection Procedure Spray Painting Guideline Ozone Depleting Substances Guideline Stakeholder Engagement Strategy and Action Plan
Stormwater	Stormwater Quality Management and Improvement Plan Stormwater Quality Management and Improvement Action Plan Patawalonga Creek Management Plan	Airport Drain Maintenance Guideline Aircraft and Vehicle Washing Guideline Airport Emergency Plan Dangerous Goods and Hazardous Substances Guideline Spill Response Guideline Spray Painting Guideline
Soil and groundwater	Contaminated Site Management Plan Contaminated Site Risk Register Groundwater Monitoring Strategy Irrigation Management Plan PFAS Site Management Plan (Airservices)	Tenant Environmental Management Plan Tenant and Construction Environmental Inspection Procedure Waste Fill Importation and Soil Management Guideline Construction Environmental Management Guideline Environmental Site Assessment Guideline Acid Sulfate Soil Guideline Landscaping Guideline Airport Emergency Plan Trade Waste Management Guideline Hazardous Chemicals and Dangerous Good Guideline Spill Response Guideline Fuel Management Guideline





AREA	PRINCIPAL DOCUMENTS	SECONDARY DOCUMENTS
Energy and climate change	Energy Strategy Carbon Management Plan Climate Change Adaptation Plan Low-Carbon Statement	Energy Conservation Guidelines Integration of Climate-related Risks and Opportunities Report
Water resources	Water Resource Plan	Landscaping Guideline Water Conservation Guideline
Waste	Waste Management Strategy Sustainable Procurement Plan	Terminal 1 Operational Waste Management Plan AAL Operations Waste Management Plan Tenant and Construction Waste Management Guideline Terminal 1 Tenancy Operational Waste Management Plans Dangerous Goods and Hazardous Chemicals Guideline Construction Environmental Management Guideline
Land and Heritage	Wildlife Hazard Management Strategy Heritage Strategy Patawalonga Creek Management Plan	Vickers Vimy Conservation Plan Land Management Plan Wildlife Hazard Management Plan Landscaping Guideline
Tenant and construction management	Tenant Management Plan	Tenant and Construction Environmental Inspection Procedure Tenant Risk Ranking Procedure

Table 14-3: Waste Management 8-Year Supporting documentation





14.6.3.3. Monitoring

A risk-based approach has been adopted for tenant monitoring and inspections. Tenant environmental risk ranking is based on the potential of the tenant's business activities to cause environmental harm, the tenant's previous environmental performance and the quality of risk management controls. Online tenant environmental self-assessments have been introduced to better align the frequency of environmental tenant inspections with the potential risks. The current inspection and self-assessment frequencies are presented in Table 14-6. Any changes to the frequency of inspection and self-assessment are captured in the relevant AAL procedural documents.

An Environmental Site Register is maintained for the airport. The register identifies the locations on-airport that have been a source of environmental impact and/or subject to environmental monitoring, assessment, inspection, incident investigation and/or environmental significance status. The features of each site, including its contamination status, are detailed in the register and the site location identified.

AREA	MONITORING ACTIVITY	FREQUENCY
Ground-based noise	Boundary noise	As required (see Ground Noise EAP)
	Construction noise	As required
Local air quality	Air quality	As required
	National Pollutant Inventory	Annually
	Ozone depleting substances	Annually
	Stack monitoring	Annually
Stormwater	Stormwater quality (Tier 1)	Bi-monthly and as required
	Stormwater quality (Tier 2)	As required
Soil and groundwater	Soil and groundwater contamination (existing sites)	Annually and as required
	Soil and groundwater contamination (new sites)	As required
	Background groundwater quality	Annually
Carbon Emissions	Carbon footprint (Scope 1 and 2)	Annually
Energy	Energy consumption (AAL buildings)	Quarterly
Water resources	Water consumption (AAL buildings)	Annually
Waste	Waste volumes (AAL buildings)	Quarterly
Land and heritage	Flora/fauna surveys	As required
	Indigenous artefact surveys	As required
	Built heritage surveys	As required
Inspections	AAL environmental inspection	As per AAL procedures
	Tenant self-assessment	As per AAL procedures

Table 14-4: Summary of Key Monitoring Activities





Auditing

A robust EMS requires regular review and update. AAL achieves this through regular internal auditing of select system components in accordance with the Internal Environmental Management System Audit Procedure. A detailed external audit by an accredited ISO 14001 auditor of the full EMS is scheduled every three years. Audit results, which are reported to the DITCRD, provide assurance as to the quality and rigour of AAL's environment program.

14.6.3.4. Reporting and Review

Reporting against all goals and management actions in the Environment Strategy is provided regularly to AAL's Executive Committee. Management review of the EMS is a requirement of ISO14001 and is undertaken in accordance with Adelaide Airport's Management System Review Procedure.

AAL reports pollution incidents, environment-related complaints, any exceedances of regulatory criteria, and management of contaminated sites to the DITCRD Airport Environment Officer through monthly meetings and as required under legislation.

A comprehensive report demonstrating the airport's progress against all Environment Strategy goals, management actions and monitoring activities is also provided annually to DITCRD.

AAL continues to engage and communicate environmental information with the City of West Torrens and surrounding community and key stakeholders through various forums. These include the Adelaide Airport Consultative Committee, tenant forums, publications and website.



14.7. Environmental Action Plans

The Environment Strategy covers ground-based environmental aspects associated with the operation of Adelaide Airport, including:

- Energy and climate change
- Water resources
- Stormwater and aquatic ecology
- Soil and groundwater
- Ground-based noise
- Local air quality
- Waste management
- Land and heritage management

The management of these specific environmental aspects are outlined in Environmental Action Plans (EAPs) and each EAP is supported by AAL management plans and guidelines.

Current management practices will evolve or change over time in response to:

- Changes in the relevant legislation
- Best practice – especially improvements in technology and knowledge
- Understanding of the airport and surrounding environment

Given the current eight-year cycle for Master Plan and strategy reviews, current management practices documented in AAL strategy and management documents will inevitably change prior to the next Environment Strategy review. In recognising this, AAL acknowledges that the content presented under 'Current Management Practices' is indicative of current practice only and represents the baseline from which improvements will be continuously made.

The AAL strategy and management documents form the foundation of the environmental management and sustainability programs at AAL. They are referenced under the EAPs in this Environment Strategy to provide a link between the evolving management practices at AAL and the Environment Strategy. This applies equally to both the monitoring and assessment process and frequencies.

As the objectives and management actions/initiatives presented within this strategy are based on the AAL strategy and management documents, they are likely to continuously evolve. To facilitate these improvements, AAL regularly updates the Environment Strategy in collaboration with the AEO via Annual Environment Reporting and annual strategy reviews. All improvements to objectives and management actions/initiatives are documented and agreed to by the AAL and the AEO.

Table 14-5 and Table 14-6 provide an outline of the structure and content for each of the EAPs and clarity on the timeframes for achieving the management actions identified.

Date ranges rather than rigid dates have been used in acknowledgement of variations in available resources and changes in the demands on these resources.



FRAMEWORK	DESCRIPTION
Objectives	Objectives for the long-term operation and development of the airport which align with the overarching vision in AAL's Environment Statement. The objectives set the strategic direction for the environmental management and performance of the airport
Background	Overview of the relevant EAP aspect, how it applies to the airport, and a summary of general background information and existing sources of impact. Recent achievements are also outlined
Current management	This section describes the management practices currently implemented to address identified sources of environmental impact
8-year action plan (2019-2027)	<p>Specific strategic-level management actions and initiatives that AAL intends to carry out to achieve the relevant key objectives during the 8-year period</p> <p>These measures and actions aim to build on the achievements made under the previous Environment Strategies, thereby striving towards continual improvement of the airport's environmental performance. Actions proposed within this strategy include:</p> <ul style="list-style-type: none"> • New actions developed due to recent studies and plans • New actions required to address potential environmental issues associated with implementation of the Master Plan • Ongoing actions that remain relevant <p>Each action has a defined timeframe for implementation, established having regard to its risk, status of current management and the variability of resources</p>

Table 14-5: Environmental Action Plan Framework

DESCRIPTION	TIMEFRAME
Short-term	1 – 3 years
Medium-term	3 – 5 years
Long-term	5 – 8 years
Ongoing	Determined through regular review
As required	Determined on an as-needs basis

Table 14-6: Timeframe for Management Actions



14.8. Energy and Climate Change

Energy and Climate Change Objectives:

- Achieve emissions reductions in line with AAL's emission reduction targets
- Measure and manage energy use, seeking opportunities to source cleaner and cost-effective, resilient alternatives
- Understand and mitigate physical and transitional climate risks, through active management of the airport's carbon emissions and maintenance of resilient assets and communities

14.8.1. Background

AAL seeks to provide energy that is affordable, reliable and environmentally sustainable. Given that energy accounts for over 90 per cent of the airport's carbon footprint, energy will play a key role in future-proofing growth.

AAL recognises that climate change and carbon-risk management are an essential aspect of operating a sustainable business over the long term. AAL is committed to employing the principles of resource efficiency in its operations, planning and ongoing infrastructure development, and in the procurement of goods and services.

According to CSIRO, the climate in South Australia is predicted to be warmer and drier with changes to seasonal rainfall patterns and greater frequency of drought. The potential operational and economic impacts from climate change include decreased water supply, increased utility prices, infrastructure deterioration and habitat stress.

Recent Achievements

- AAL installed a 1.17MW solar PV system on the multi-level car park roof in 2016. This is the largest airport solar PV installation in Australia and reduces the airport's carbon footprint by approximately 8.5 per cent
- AAL achieved Level 3 (Optimisation) Airport Carbon Accreditation in 2015 by demonstrating measurable reductions in carbon footprint as well as seeking to influence and guide stakeholders to do the same
- As part of the Green Vehicle Program, AAL has purchased four full-electric plug-in Nissan Leaf vehicles as well as investing in more fuel efficient diesel-powered commercial vehicles
- Four electric vehicle charging units were installed in the multi-level car park in 2017
- AAL participated in the Qantas Future Planet Program to purchase verified carbon offsets for three years
- Energy Efficiency Guidelines were developed to provide guidance to tenants on techniques

for measuring emissions and reducing energy consumption, including installation of solar PV and LED lighting

- Guidelines for Green Purchasing were developed in 2015 and distributed to AAL staff, tenants and contractors
- Alternative forms of transport have been introduced, including the J1X public bus service in 2016 that operates between the airport and city, and electric vehicle chauffeur service commenced in 2017
- A Climate Adaptation Plan for Adelaide Airport has been developed to improve AAL's preparedness against the likely impacts of climate change on infrastructure and operations

14.8.2. Current Management

14.8.2.1. Energy

The airport has complex energy requirements including the management of an inset (embedded) network across the site, comprising eight main meters and over 300 sub-meters. Total usage for the airport is approximately 43.5 million kWh with 28 million kWh (~64 per cent) used by tenants.

AAL has undertaken a range of energy generation and optimisation projects to date including the installation of two solar photovoltaics systems that generate a total of 1.28MW on-site electricity and the implementation of a SMART building analytics program to optimise HVAC operations.

AAL has also developed an Energy Strategy to provide high-level strategic direction to its energy management activities. An Energy Strategy Committee has been developed to identify, assess and implement energy-related opportunities including, procurement, generation, sustainability initiatives, storage, efficiency and optimisation projects in line with the Energy Strategy.



14.8.2.2. Climate Change

AAL has undertaken a climate-risk review and has an understanding of both the physical and transition risks of a changing climate as well as the shift to a low-carbon economy. AAL is responding to climate change as a business risk through:

- Mitigation: lessening the impact through low-carbon policies and carbon-reduction activities
- Adaptation: planning and action in response to projected changes in climatic conditions and weather events resulting from climate change (i.e. making modifications to adjust to a changing situation)

Mitigation, in the form of carbon reduction, has been ongoing since 2015 when the airport was accredited to Level 3 (Optimisation) of the Airport Carbon Accreditation scheme by demonstrating measurable reductions in its carbon footprint as well as seeking to influence and guide its stakeholders in doing the same.

AAL maintains a Climate Change Adaptation Plan (approved by the AAL Board of Directors) which considers the risks and opportunities associated with future modelled seasonal temperatures, flooding, storms and drought. The Plan identifies appropriate adaptation pathways for airport infrastructure, buildings, services and other key components of airport operations.

Climate modelling for Adelaide Airport is regularly reviewed and the Climate Change Adaptation Plan updated in response to these and other internal and external factors.

14.8.3. 8-Year Action Plan

The Energy and Climate Change 8-Year Action Plan is detailed in Table 14-7.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Continue to implement and review the Energy Strategy	Ongoing
Implement the carbon management plan	Ongoing
Implement Climate Change Adaptation Plan	Ongoing
Continue annual measurement of AAL's carbon footprint	Ongoing
Continue to investigate mitigating impacts of extreme heat on aircraft performance and airport operations through the smart use of irrigation	Short-term
Assess and consider achieving carbon neutrality	Medium-term

Table 14-7: Energy and Climate Change 8-Year Action Plan



14.9. Water Resources

Water Resources Objective:

- Smart use of water, improve efficiency and maximise opportunities for use of non-potable water

14.9.1. Background

Adelaide Airport's operation and future growth are dependent upon the ongoing security of water supply. The key risks relate to water availability, access and cost. There is an opportunity to employ the smart use of water, including recycled water, through Water Sensitive Urban Design (WSUD) and urban greening to both mitigate and adapt to climate change.

AAL is committed, where feasible, to expanding the use of available non-potable water supplies for new and existing developments. There are several options being assessed. However, the highest priorities are tapping into the Adelaide Airport Stormwater Scheme (AASS) and expanding the existing Glenelg Wastewater Treatment Plant (GWTP) recycled-water network.

Developments with a large roof area (such as warehouses and hangars) provide opportunities for rainwater capture and reuse to supplement recycled water supplies from existing networks.

Recent Achievements

- A Water Resources Plan has been developed for Adelaide Airport
- The Airport Stormwater Harvesting Scheme has supplied water for a four hectare irrigated airside vegetation trial that was established in 2015, and in 2018 pipework was completed for the Scheme to supply the Terminal 1 cooling towers
- Public toilets in Terminal 1 have been upgraded with water efficient features
- Smart water meters have been installed for Terminal 1 mains and retail tenants
- Water Conservation Guidelines have been developed for tenants and developers to promote the implementation of water efficiency measures across the airport site. The University of Adelaide turf sports grounds (on the airport site) was connected to the recycled water network in 2017

14.9.2. Current Management

AAL continues to shift from water conservation to smart water use.

Recycled water from the nearby Glenelg Wastewater Treatment Plant has been used to irrigate areas of Adelaide Airport for more than 20 years. As the airport has expanded, so too has the recycled water network. Recycled water is used for toilet flushing in Terminal 1 and for most irrigation across the airport.

AAL harvests and stores up to 570 kilolitres of stormwater from the multi-level car park roof, which is then piped to Terminal 1 for use in the air conditioning system.

The Australian Federal Police building and the Terminal 1 plaza water feature are connected to the recycled water network, thereby reducing the reliance on potable water. Recycled water is also used to manually irrigate the grassed runway strips.

Large areas around the multi-level car park and the Terminals & Business Precinct have been planted with local, drought-tolerant species in accordance with AAL's Landscaping Guidelines.

A managed aquifer-recharge scheme (the Adelaide Airport Stormwater Scheme, AASS, constructed by SA Water and facilitated by AAL) has enabled the opportunity to capture, store and distribute up to 270 million litres of treated stormwater each year from Brown Hill / Keswick Creek for use on and around the airport.

The Torrens Precinct has been reinvigorated by the University of Adelaide's use of the recycled-water network and to irrigate its sports grounds.



AAL has partnered with SA Water to conduct a ground-breaking airside irrigation trial, which has demonstrated the ability to cool the local environment through irrigation with recycled water provided from the AASS. The trial is ongoing, with the second phase aimed at assessing the potential for mitigating the impacts of extreme heat on aircraft performance, reducing energy requirements for cooling within Terminal 1 and improving thermal comfort of airport workers.

AAL intends to undertake a review of all water related activities and develop an Integrated Water Management Strategy. WSUD principles and mitigation of the urban heat-island effect will be incorporated into Design Guidelines.

14.9.3. 8-Year Action Plan

The Water Resource Management 8-Year Action Plan is detailed in Table 14-8.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Seek opportunities for implementing Water-Sensitive Urban Design (WSUD) principles	Ongoing
Update the water-meter network to improve data accuracy, where required	Ongoing
Continue to investigate the benefits and feasibility of irrigating runway strips and the wider airfield	Short-term
Undertake a water infrastructure and use risk and opportunity study	Medium-term
Develop an Integrated Water Management Strategy	Medium-term
Investigate expanding the use of recycled water for irrigation across the airport to facilitate urban greening and urban heat-island mitigation	Medium-term

Table 14-8: Water Resources 8-Year Action Plan



14.10. Stormwater and Aquatic Ecology

Stormwater and Aquatic Ecology Objective:

- Maintain and, where feasible, improve stormwater quality and aquatic ecosystems

14.10.1. Background

Adelaide Airport is bound to the north by the Cowandilla-Mile End Drain, to the west by the Airport Drain, and to the east and south by Brown Hill-Keswick Creek as outlined in Chapter 11. The Cowandilla-Mile End and Brown Hill-Keswick catchments are highly urbanised and drain into the Patawalonga Lake before entering the Gulf St Vincent. An internal drainage network is present and directs the majority of stormwater into the airport drain, which similarly discharges to the Patawalonga Lake.

Sources of stormwater pollution at Adelaide Airport are similar to those in urban catchments, namely vehicles, roads, debris from vegetation, sediment, general commercial activities and hazardous substances storage.

Recent Achievements

- The Australian Water Quality Centre was engaged in 2017 to update the Stormwater Quality Management and Improvement Plan, including a review of water quality data and land use changes
- AAL and the South Australian EPA undertook an extensive drain ecology assessment across the airport site in 2017

14.10.2. Current Management

AAL is committed to improving stormwater quality and consequently the ecological health of the airport's waterways by supporting aquatic ecosystems, as detailed in the Stormwater Quality Management and Improvement Plan. Implementation of this plan, which includes monitoring and assessment of the ecological health of the open drain network, aims to minimise pollutant loads from on-airport activities.

Stormwater sampling principally involves the collection of bi-monthly composite samples via automated samplers at the airport's primary stormwater discharge points. Results are currently compared against Commonwealth and State water-quality criteria.

Potential stormwater pollution risks associated with construction activities are managed via the Building Activity Application process, principally through reviews of Construction Environmental Management Plans (CEMPs). Following the commencement of site works, AAL undertakes construction environmental inspections to ensure potential risks are being managed in the manner described in CEMPs.

AAL is working to establish site-specific water quality trigger levels to assess potential impacts to the aquatic environment. The development of site-specific trigger levels will also provide a baseline to measure the effectiveness of pollution control and stormwater management measures. The South Australian EPA Environment Protection (Water Quality) Policy 2015 references the 'Australian and New Zealand guidelines for fresh and marine water quality' (ANZECC 2000), which provides scope for the development of site-specific water quality trigger levels.

AAL is working with the South Australian EPA to undertake bioassessment work to establish appropriate trigger levels. The first phase to assess drain ecology has been completed, the second phase will involve undertaking ecotoxicology to determine potential impacts to aquatic biota.

Interceptors are specified for installation at the discharge point for all new developments. High-risk tenants are also regularly inspected to check the suitability of hazardous substance stores and management of other potentially polluting activities. Spill response and clean-up in accordance with the Airport Emergency Plan is intended to minimise environmental impacts from fuel incidents. Aviation operations are inspected for conformance to the Aircraft and Vehicle Washing Guidelines.

The land surrounding Adelaide Airport is low-lying and has potential for flooding, with the possible frequency and intensity projected to increase through climate change. In response to this issue, a flood-modelling assessment was undertaken at Adelaide Airport in 2013 to assess flood risk to airport operations and identify key mitigation measures to manage flood events. AAL has pursued improvements in flood mitigation for the local community through collaboration with Government agencies and the licensing of land for the City of West Torrens Stormwater Detention Basin Project at West Beach in 2013. In recent years, continual maintenance works have been undertaken by AAL and other State based entities to increase the capacity of existing infrastructure.

14.10.3. 8-Year Action Plan

The Stormwater and Aquatic Ecology 8-Year Action Plan is detailed in Table 14-9.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Investigate potential sources of pollution based on stormwater quality data reviews	As required
Continue to regularly monitor stormwater quality	Ongoing
Continue to identify sources of pollution as per the Stormwater Quality Management and Improvement Plan and mitigate sources of pollution where identified	Ongoing
Provide guidance to stakeholders on stormwater quality-improvement strategies	Ongoing
Complete risk assessment regarding pollutant potential to receiving waters and develop mitigation measures	Short-term
Incorporate stormwater quality and Water Sensitive Urban Design (WSUD) principles into Adelaide Airport's Design Guidelines where appropriate	Short-term
Assess capacity of current infrastructure to respond to major stormwater pollution events.	Medium-term
Complete bioassessment of airport drains and develop an Aquatic Ecology Management Plan	Medium-term
Develop site-specific water quality criteria in accordance with ANZECC water quality guidelines	Long-term

Table 14-9: Stormwater and Aquatic Ecology 8-Year Action Plan

14.11. Soil and Groundwater

Soil and Groundwater Objective:

- Maintain and, where feasible, improve soil and groundwater quality

14.11.1. Background

Soils across the airport site vary from predominantly heavy clay on the eastern side to deep sand layers, over clay base, on the western side. Upper fill varies significantly, having been deposited over various portions of the site over several decades, from various sources and for various purposes. Groundwater in the surface (superficial) aquifer beneath the airport ranges in depth from four metres below ground level in the east, to less than one metre in the most westerly section of the airport. Groundwater is typically saline and non-potable. Groundwater bulk flow across the airport site is to the west and north-west but localised flow direction may vary. The groundwater gradient is very flat, possibly less than one meter per kilometre.

Most operations at the airport occur on impervious, paved surfaces and involve vessels that greatly reduce the likelihood of contamination (e.g. double-walled fuel tanks).

Recent Achievements

- Contaminant trigger criteria has been incorporated into the Groundwater Monitoring Strategy, which is an integral component of the Contaminated Site Management Plan, and provides for management of a number of high risk sites on the AAL Contaminated Site Risk Register
- New guidelines for Per- and Poly-Fluorinated Alkyl Substances (PFAS) and Acid Sulfate Soils have been developed to provide guidance for AAL and third-party development

14.11.2. Current Management

The AAL Contaminated Site Management Plan (CSMP) and Contaminated Site Risk Register (CSRR) have been developed in line with the National Environment Protection (Assessment of Site Contamination) Measure 1999 and are used to assess and prioritise potential risks associated with contaminated sites and sites where a high risk of contamination exists. Management strategies are assigned in the CSRR based on the level and type of contamination risk.

Regular groundwater monitoring is one of the strategies used to manage contamination risks. The AAL Groundwater Monitoring Strategy establishes the requirements for regular groundwater monitoring activities, with contaminant trigger levels based on AEPR acceptance limits, background concentrations and the purpose of monitoring (e.g. leak detection).

Preventing contamination is an ongoing priority, and all practicable measures are undertaken to minimise the risks of contamination occurring.

Potential contamination risks associated with construction activities are managed via the Building Activity Application process, principally through reviews of CEMPs. Following the commencement of site works, AAL undertakes construction environmental inspections to ensure potential risks are being managed in the manner described in CEMPs.

Operational activities undertaken by AAL and its contractors are managed in accordance with relevant procedures and plans, which include controls to minimise the risk of contamination. Where high-risk site activities (e.g. underground fuel storage) exist, the potential contamination risks are managed in accordance with the CSMP and CSRR.

Hazardous chemicals and wastes stored and used by AAL are included in the hazardous substances register (ChemAlert) and Polychlorinated Biphenyls register and managed in accordance with AAL workplace health and safety policies and procedures. These procedures include regular audits of chemical/waste storage and spill response equipment. Consistent with the Tenant Environmental Management Plan, AAL ensures appropriate management of the hazardous chemicals and wastes stored and used by tenants via regular tenant inspections. AAL also provides a range of guidelines to tenants that provide advice on the appropriate storage and use of hazardous chemicals and waste.

Where contamination does occur or where historical contamination exists, the potential ecological and human health risks are managed in accordance with the CSMP and CSRR. The overall process is shown in Figure 14-2.

In addition to consideration of human health and ecological risks, the CSMP and CSRR consider Master Plan priorities and practicability in assigning risk rankings.

AAL uses recycled water from the nearby Glenelg Wastewater Treatment Plant to irrigate lawn and garden areas within the airport. To prevent potential soil and groundwater contamination arising from the application of recycled water, AAL undertakes soil and groundwater monitoring in irrigated areas.

The interaction between the various principal strategy and management documents is illustrated in Figure 14-3.

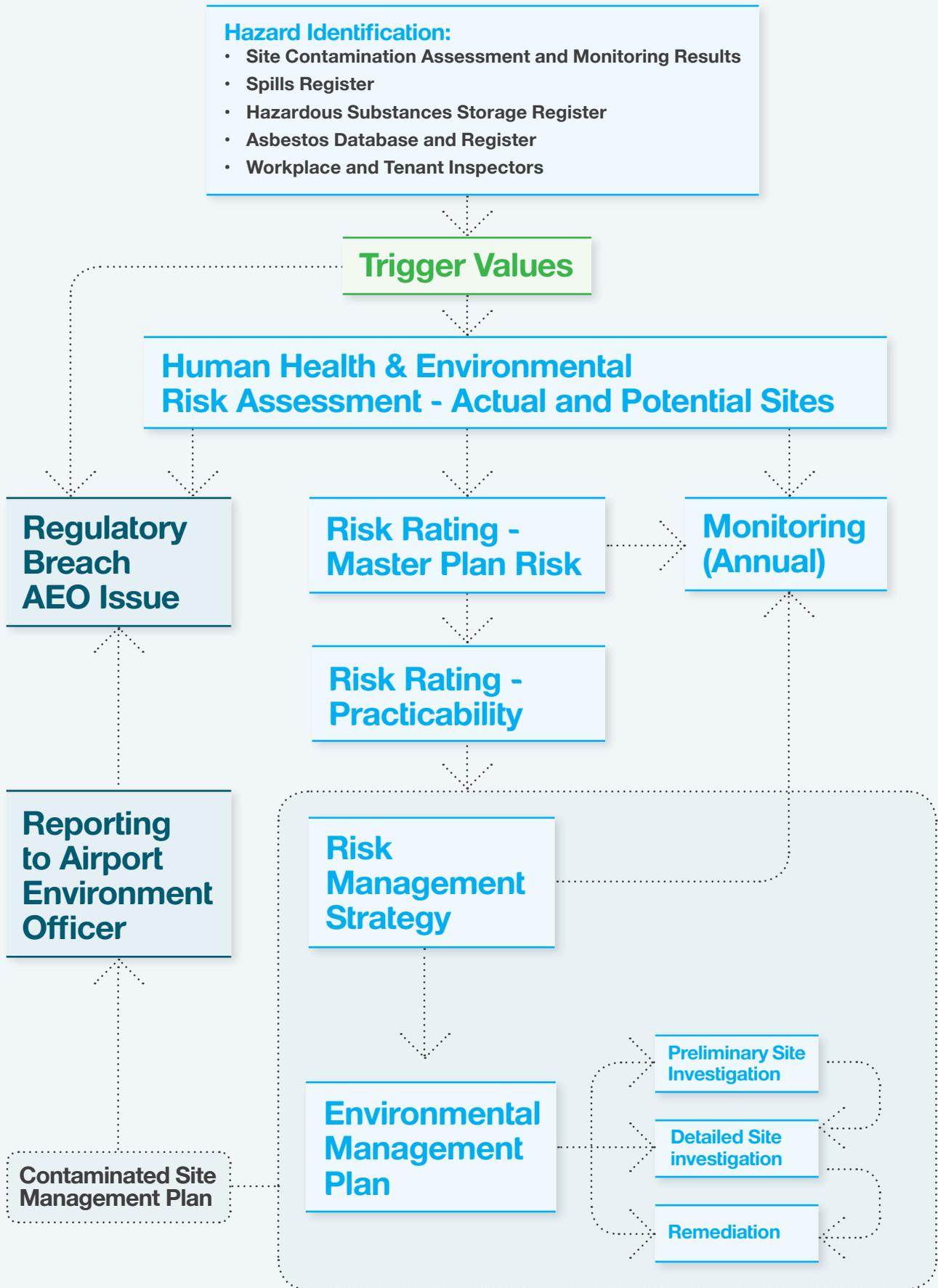


Figure 14-2: Contamination and Spill Management Process



Figure 14-3: Contaminated Sites Environmental Management System Process



14.11.2.1. Per- and Poly-Fluorinated Alkyl Substances (PFAS)

The assessment and management of Per- and Poly-Fluorinated Alkyl Substances (PFAS) contamination on the airport site is undertaken in accordance with the Guideline for Environmental Management issued by DITCRD. This directs airport lessee companies to use the published PFAS National Environmental Management Plan (PFAS NEMP) to meet their ‘General duty to avoid pollution’ under 4.02 of the Airport (Environment Protection) Regulations.

PFAS is not directly regulated under the Airport (Environment Protection) Regulations.

AAL manages PFAS contamination, and directs its tenants to manage PFAS contamination, in a manner consistent with the PFAS NEMP, with the following qualifications:

- PFAS contaminated material reuse and landfill disposal will be based on guidance and regulation provided by the South Australian EPA
- Precursor analysis will only be used as required to provide additional data for the purpose of assessing potential risks
- Any changes in the PFAS NEMP, guidance and regulation from DITCRD and the South Australian EPA will be captured in the Airservices PFAS Site Management Plan for Adelaide Airport

All known PFAS contaminated sites within the airport, including the Aviation Rescue and Fire Fighting (ARFF) Station and current and former training grounds are being managed by Airservices in accordance with the Airservices PFAS Site Management Plan for Adelaide Airport. Airservices is responsible for remediating these sites as part of a national program.

A Project Control Group has been established by AAL to review and provide input to the management of PFAS at Adelaide Airport, and includes representatives from AAL, Airservices, DITCRD, SA EPA, SA Health and SA Water.

AAL is also working closely with other relevant stakeholders including airport tenants, the City of West Torrens and the community.

14.11.3. 8-Year Action Plan

The Soil and Groundwater 8-Year Action Plan is detailed in Table 14-10.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Continue to review trigger criteria in the Groundwater Monitoring Strategy	Ongoing
Continue to conduct regular groundwater monitoring in accordance with the Groundwater Monitoring Strategy	Ongoing
Continue to implement priority actions on the Contaminated Site Risk Register, in accordance with the Contaminated Site Management Plan	Ongoing
Continue to guide tenants to close out contaminated sites on a risk basis where practicable	Ongoing
Continue to conduct relevant environmental site assessments for new developments and lease terminations in accordance with the Environmental Site Assessment Guideline	Ongoing
Continue to provide guidance to stakeholders on contamination prevention and remediation strategies	Ongoing
Collaborate with Airservices in assessing and managing PFAS in accordance with the Airservices PFAS Site Management Plan	Short-term
Develop a PFAS Management Plan for Adelaide Airport	Short-term
Upload historical and future contamination data to a Geographic Information System platform	Short-term
Restructure the site contamination consultancy panel to improve environmental outcomes	Short-term

Table 14-10: Soil and Groundwater 8-Year Action Plan



14.12. Ground-based Noise

Ground-based Noise Objectives:

- Ensure developments and airport activities comply with relevant ground-based noise regulations
- Proactively assess and manage potential ground-based noise exposure on the local community

14.12.1. Background

The airport is surrounded by high-density urban development, recreational facilities and industrial and commercial development, all of which are potential receptors to ground-based noise generated by airport activities. The major contributors of ground-based noise at the airport include:

- Aircraft engine ground running (i.e. engine testing)
- Parked aircraft with operating engines
- Operation of an auxiliary power unit of an aircraft
- Ground vehicles (i.e. roads, car parks, truck delivery and loading operations)
- Plant and equipment (e.g. mobile diesel generators)
- Construction activities

Recent Achievements

- The Aircraft Ground Running Policy was updated in 2016
- The Ground-based Noise Monitoring Program was extended in 2018 to improve the quality of baseline data

14.12.2. Current Management

Ground running (engine testing) activities undertaken by aircraft operators are strictly controlled through monitoring and enforcement of the Policy for the Ground running of Aircraft Engines at Adelaide Airport. This policy has been ratified by the Adelaide Airport Environment Officer and is subject to periodic review.

The policy directs aircraft owners and maintenance operators as to when and where they may test-run engines, the periods of time and power settings. AAL monitors these events.

Operational and construction activities are controlled through lease agreements and tenant or CEMPs, where applicable and monitored through a program of regular site inspections.

AAL is committed to engaging with the community on potential ground-based noise issues. A proactive engagement and consultation approach is undertaken in conjunction with development programmes which address actual and potential ground-based noise.

AAL undertakes regular boundary noise monitoring at locations of ground-based noise exposure. The results of the boundary noise monitoring undertaken over the last decade suggest that aircraft (in-flight) noise and other off-airport noise sources are greater contributors than ground-based noise in respect to exposure to sensitive noise receptors.

Further development is intended in the Airport East Precinct (adjacent to the eastern airport boundary) which comprises aviation, freight, warehousing and industrial activities. Acoustic modelling and validation may be undertaken as part of an environmental assessment process when planning for future development within the precinct. If required, attenuation measures could be incorporated at the design phase of each development project.

14.12.3. 8-Year Action Plan

The Ground-based Noise 8-Year Action Plan is detailed in Table 14-11.

MANAGE ACTION/ INITIATIVE	TIMEFRAME
Undertake a study to understand relative contributions of on and off-airport noise sources	Short-term
Monitor ground-based noise complaints to inform noise investigations	Short-term
Continue to conduct regular ground-based noise monitoring	Medium-term
Continue assessment of new developments, (e.g. within the Airport East Precinct) and implement noise-attenuation measures if required	As required

Table 14-11: Ground-based Noise 8-Year Action Plan

14.13. Local Air Quality

Local Air Quality Objectives:

- Ensure developments and airport activities comply with the relevant air quality regulations
- Proactively assess and manage potential airport related air quality impacts on the local community

14.13.1. Background

Under the Airport (Environment Protection) Regulations 1997, AAL is responsible for managing air emissions generated by ground-based activities within the airport boundary. Air quality outside the boundary is subject to the provisions of the *South Australian Environment Protection Act 1993*. Air emissions generated by aircraft are regulated under separate legislation and are the responsibility of Airservices.

Adelaide Airport is located within a highly urbanised area surrounded by residential, recreational, industrial and commercial development. Air quality in the western Adelaide airshed has been monitored at a site in Netley by the South Australian EPA for more than 15 years. Monitoring has considered the ambient levels of key pollutants; namely nitrogen dioxide (NO₂), nitrogen oxide (NO), total nitrogen oxide (NO_x), ozone (O₃), and particles less than 10 micrometres in diameter (PM₁₀) and less than 2.5 micrometres (PM_{2.5}). Data published by the South Australian EPA shows air quality in the airshed that encompasses Adelaide Airport meets the relevant *Environment Protection Act 1993* and National Environment Protection (Ambient Air Quality) Measure 2003 criteria.

Recent Achievements

- The University of Adelaide completed the first phase of an extensive air quality literature review and assessment of Adelaide Airport's air quality data
- Ozone Depleting Substances Guidelines developed in 2017 to guide AAL, tenants and contractors

14.13.2. Current Management

The management of air emissions from ground-based activities covers items such as refuelling, painting, cleaning, machining, mechanical maintenance, generator use, commercial cooking and construction.

AAL has engaged the University of Adelaide to undertake a multi-phased investigation to inform an Air Quality Management Plan and Air Quality Monitoring and Action Plan. The principal components of the air quality investigation are:

- Review of literature regarding airport emissions, their potential impacts on human health, and regulation in Australia and overseas jurisdictions

- Review of historic Adelaide Airport air-quality investigations and data, including gap analysis
- Establish the air-quality concerns of on and off-airport stakeholders through review of the feedback and complaints system and stakeholder consultation
- Air quality assessments based on public health outcomes derived from the process described above
- Human health-risk assessment and investigation of potential mitigation measures where required

Potential construction related air quality issues are managed via:

- The Building Activity Application review process
- AAL's review of required contractor CEMPs
- The Construction Environmental Management Guideline and related Adelaide Airport guidelines
- Construction environmental inspections conducted in accordance with the Tenant and Construction Environmental Inspection Procedure

Potential air-quality issues related to the airport and tenant operational activities are managed through:

- The Building Activity Application review process
- Ozone Depleting Substances Register
- Ozone Depleting Substances Guidelines
- Regular tenant inspections undertaken by AAL in accordance with the Tenant and Environmental Inspection Procedure
- Implementation of the Local Air Quality Management Plan and Local Air Quality Monitoring and Action Plan
- Spray-Painting Guideline

14.13.3. 8-Year Action Plan

The Local Air Quality 8-Year Action Plan is detailed in Table 14-12.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Continue to conduct regular tenant inspections (in accordance with frequencies and processes set out in the Tenant and Construction Environmental Inspection Procedure)	As required
Continue to conduct air-quality monitoring as required (in accordance with Local Air Quality Management Plan)	As required
Continue to collect air-emissions data from point sources as required	As required
Continue to maintain a register of ozone-depleting substances and phase out where feasible	Ongoing
Monitor community air-quality complaints to inform Local Air Quality Management Plan	Short-term
Develop and implement a Local Air Quality Management Plan based on the results of the multi-phase air-quality investigation	Medium-term

Table 14-12: Local Air Quality 8-Year Action Plan

14.14. Waste Management

Waste Management Objectives:

- Reduce waste generation
- Increase reuse and recycling of products and materials
- Increase diversion of airport waste from landfill

14.14.1. Background

Adelaide Airport manages waste and recycling material associated with the operation of the airport except for certain leased areas and waste from aircraft.

AAL provides services for five major waste and recycling streams across Terminal 1, the general-aviation terminal and AAL offices including general waste, cardboard and paper, comingled and organics recycling. Other waste streams generated at the airport include metal, plastics, concrete and masonry, wood, asbestos, oil, tyres, e-waste, batteries (various types) and hard waste - most of which is recycled.

Waste management at Adelaide Airport is driven by the hierarchy of waste management: reduction, reuse, recycle, recovery, treatment and disposal and is underpinned by Adelaide Airport's Waste Management Strategy.

The waste-management hierarchy is a nationally and internationally accepted guide for prioritising waste management practices with the objective of achieving optimal economic, social and environmental outcomes and has been adopted by AAL (Figure 14-4).

Recent Achievements

- AAL was awarded Platinum Green Airport status by ACI Asia Pacific in 2018 for its waste program. Initiatives undertaken as part of AAL's updated Waste Management Strategy and Terminal 1 Waste Management Plan included compostable coffee cup trials in Terminal 1, organics recycling by a number of food and beverage outlets, the introduction of compostable crockery and cutlery in all AAL offices and by some tenants
- Guidelines for Green Purchasing were developed in 2015 and distributed to AAL staff, tenants and contractors
- AAL procurement includes a more prominent weighting of sustainability factors, such as the Terminal 1 cleaning services tender which was developed to align with the Waste Management Plan
- Recycling of demolition and construction waste is being achieved through AAL construction contracts and CEMPs. Over 95 per cent of the demolition and construction waste from the Terminal 1 demolition works in 2018 was recovered for recycling

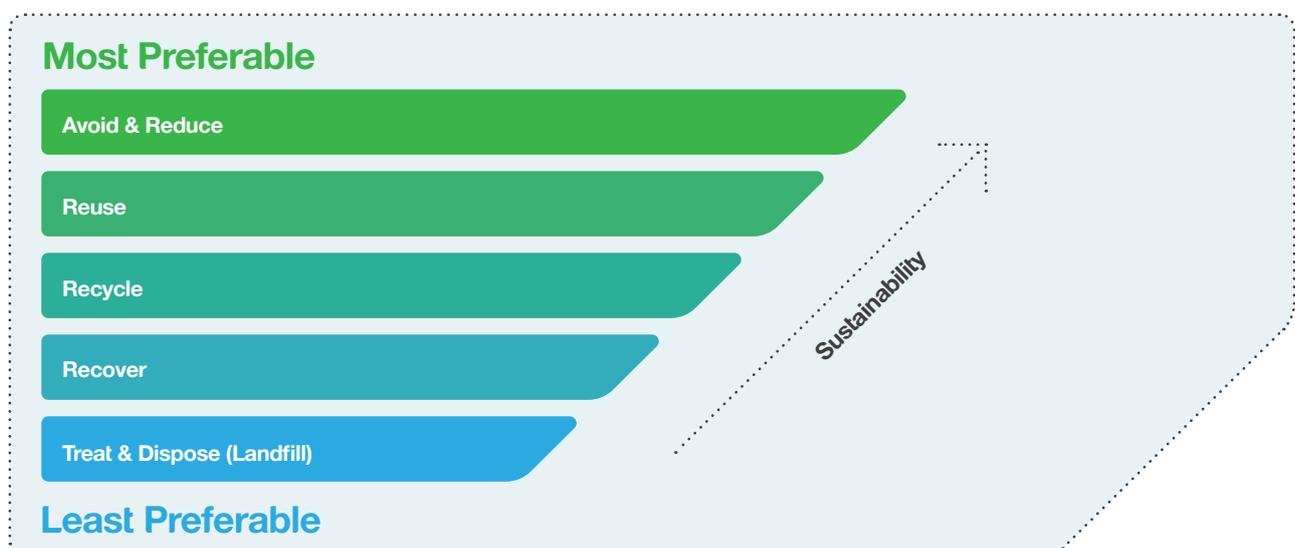


Figure 14-4: Waste-Management Hierarchy

14.14.2. Current Management Practices

AAL recognises the importance of reducing waste generation, maximising reuse and recycling and maximising the diversion of waste from landfill; and is committed to implementing a comprehensive waste-management program.

Adelaide Airport has a mature waste-management program driven by its high-level waste strategy and underpinned by specific operational waste-management plans such as the Terminal Waste Management Plan.

In 2016, AAL undertook a comprehensive waste audit to better understand its waste composition and identify opportunities for diversion of waste from landfill. Following the waste audit, which found 62 per cent of total waste from the Terminal (AAL's primary waste-generating site) was organic material such as food scraps, coffee grinds and uneaten food and drink, AAL has developed a Waste Management Strategy which includes a targeted program aimed at diverting organic material from the general waste stream. There is a tenancy kitchen organic-waste diversion program with a longer term aim to become a fully-compostable food and beverage packaging site.

AAL has undertaken a number of compostable coffee-cup trials to engage with tenants and passengers, and to assess operational implications implementing a wider compostable foodservice-ware program. In 2018, AAL developed a cost analysis tool for tenants to understand the impact of transitioning to compostable foodservice ware and has engaged with Terminal 1 tenants to commence this process.

In 2019, AAL undertook a detailed review of all waste-management practices and revised its Waste Management Strategy. AAL now seeks to move towards maximising waste direct to landfill where practicable.

AAL also manages a range of maintenance and e-waste waste streams (including metals, green waste, plastics, globes, computers and screens). Recycling of these streams is well developed and AAL continues to formalise these processes through an Operational Waste Management Plan.

AAL manages construction waste via the building approval process. This requires contractors to produce CEMPs which include activities related to waste management and recycling. Contractor performance against their CEMP is regularly audited by AAL.

14.14.3. The Waste Management 8-Year Action Plan

The Waste Management 8-Year Action Plan is detailed in Table 14-13.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Continue to implement the Waste Management Strategy	Ongoing
Continue to implement the Terminal Waste Management Plan	Ongoing
Support airport tenants to investigate and where feasible expand their waste avoidance, reuse and recycling programs	Ongoing
Develop and implement an AAL Operational Waste Management Plan	Short-term
Develop guidelines on recycling of maintenance and construction materials, and the collection and reporting of waste and recycling data	Short-term
Scope and develop a feasibility study for a landside waste station	Medium-term
Support airline programs aimed at recycling on-aircraft waste	Medium-term
Scope and develop a monitoring program for waste management	Medium-term
Investigate upstream waste elimination opportunities in partnership with Terminal 1 tenants, including use of compostable products	Long-term

Table 14-13: Waste Management 8-Year Action Plan

14.15. Land and Heritage Management

Land and Heritage Management Objectives:

- Work with the community to manage the Patawalonga Creek Management Zone
- Preserve and display the Vickers Vimy for the community
- Minimising the risks presented by wildlife to aviation safety
- Promote communication and engagement with traditional custodians

14.15.1. Background

14.15.1.1. Biodiversity and Conservation

There are no threatened ecological community or species listed under the EPBC Act present on the airport site.

AAL manages biodiversity at Adelaide Airport including the Patawalonga Creek Management Zone (PCMZ). The PCMZ is located within the West Beach Precinct and the area reserved for a third runway. The creek is recognised for the remnant Swamp Paperbarks (*Melaleuca halmaturorum*) fringing Patawalonga Creek and supports a number of other flora and fauna species.

The broader airport environs provide a limited habitat for birds. There are no birds recorded at Adelaide Airport listed under the EPBC Act. Of those species listed in the State *National Parks and Wildlife Act 1972*, the Little Egret, Peregrine Falcon and Letter Winged Kite have been identified at the airport.

14.15.1.2. Indigenous Cultural Heritage

Ethnographic records indicate that parts of the airport site were once favoured camping places for Kurna Meyunna, the Aboriginal people of the Adelaide Region. The Kurna people frequented the Patawalonga, giving it the name that means “boggy and bushy stretch with fish”. The creek and surrounding system of interconnected rivers and wetlands are integral to Kurna culture.

Reports from early settlers indicated that the local Aboriginal people had camps on the creek’s eastern bank and made rush baskets, bags and mats that were sold to local European settlers.

Large areas of the airport have been surveyed in previous years and to date no Indigenous artefact sites have been recorded, with no sites of heritage significance listed on the Commonwealth, State or Local Indigenous heritage registers.

14.15.1.3. Built Heritage

There are no sites of heritage significance within Adelaide Airport listed on the National Heritage List or on the Commonwealth Heritage List.

Adelaide Airport has had a short yet vibrant history as South Australian’s domestic and international gateway since the 1950s. In that time, the airport has substantially expanded and the infrastructure evolved to service the expanding aviation industry. Adelaide Airport’s buildings tend to be temporary, simple or with a built-in redundancy. There are no buildings considered valued by the community or a cultural group. The current airport buildings and infrastructure are not recognised as having significant heritage value and are not listed on the National Heritage List or the Commonwealth Heritage List.

The Vickers Vimy aircraft, flown by brothers Keith and Ross Smith in the famous London-to-Australia air race of 1919-20, is housed in a purpose-built, climate controlled facility on airport. The Vickers Vimy arrived at Adelaide Airport in 1958 by truck but was damaged in transit and underwent a lengthy reconstruction at that time.

Recent Achievements

- The Patawalonga Creek Management Plan was updated in 2016 to align with works undertaken along the Cowandilla-Mile End drainage network by the City of West Torrens and to incorporate biodiversity, aquatic ecology, weed control, seed collection, native establishment, and monitoring and community engagement
- Volunteers and school children participated in the planting of 2,000 tubestock along Patawalonga Creek in 2016
- The Stormwater Quality Monitoring and Improvement Plan was revised in 2016 in consideration of upgrading the stormwater network with sustainable vegetated filtration systems
- The Adelaide Airport Heritage Management Strategy was developed in 2015 to protect significant heritage values and archaeological artefacts
- AAL received the Australian Airports Wildlife Hazard Management Award at the 2018 Australian Airport's Wildlife Hazard Management Forum in recognition of the transformational change in the AAL Wildlife Hazard Management Program, including implementation of a mobile app-based wildlife hazard reporting system
- AAL completed a detailed vegetation and invertebrate study to inform development of a Land Management Plan, which is now being successfully implemented to reduce potential wildlife risks





14.15.2. Current Management

14.15.2.1. Biodiversity and Conservation

Maintenance and operation activities, development and construction, and inappropriate management of stormwater, waste and pest species have the potential to impact upon biodiversity at Adelaide Airport through the loss, degradation or injury to native flora and fauna.

AAL has dedicated many resources to the Patawalonga Creek, including development and implementation of the Patawalonga Creek Management Plan, provenance guidelines and monitoring surveys. A volunteer organisation oversees the ongoing site maintenance and rehabilitation program.

The Patawalonga Creek is located on land reserved for the future development of a third runway. When the third runway is developed, AAL will consider focusing on offsite rehabilitation projects such as the Landcare rehabilitation project at Brown Hill Creek, and the surrounding area.

The removal of vegetation on airport land is subject to the provisions of S98 (1) (f) of the Airports Act, which defines 'land clearing' (i.e. vegetation clearance) as a Building Activity and thus renders it subject to the provisions of the Airport (Building Control) Regulations.

AAL has documented the processes and guidance in the AAL Landscaping Guideline and/or the AAL Land Management Plan to streamline the approval of Building Activity for land clearing and provide greater certainty and flexibility. These two documents provide details on:

- pest or native species that have been identified as presenting potential wildlife-hazard risks
- the decision-making framework for the retention or offsetting of native species
- land-clearing activities that are considered exempt under the Airport (Building Control) Regulations

Due to the degraded nature of the previous Tapleys South Conservation Zone (TCZ) and the difficulty of maintaining this isolated pocket of native vegetation, an area equal to that currently occupied by the TCZ will be added to the existing Patawalonga Creek Management Zone and managed in accordance with the Patawalonga Creek Management Plan. Seed collection from the native species within the TCZ will be considered for propagation and planting within the Patawalonga Creek.

14.15.2.2. Wildlife Risk Management

AAL runs a comprehensive wildlife management program, balancing the dual interests of aviation safety and wildlife conservation. In 2018, AAL completed a review of its Wildlife Hazard-Management Program. Key initiatives included a detailed vegetation and soil survey providing a high-level understanding of invertebrates (insects), vegetation and soil condition across the airfield; and subsequent wildlife hazard mapping to compare invertebrates, vegetation and soil data with wildlife strike, abundance and location data to identify potentially problematic vegetation/soil conditions. This has resulted in the development of an integrated Land Management Plan based on the detailed vegetation and soil survey and wildlife-hazard mapping results to target removal of problem weed species and promote a more desired ground cover.

Additional innovative projects and program improvements undertaken include:

- Configuration and implementation of a mobile app-based wildlife hazard reporting system
- Development of a Wildlife Hazard Management Strategy focused on reducing interaction between wildlife and aircraft through habitat modification
- Development of a live dashboard enabling transparent and prompt data analysis
- Establishment of an internal cross-functional Wildlife Hazard Management Group that meets regularly to discuss Wildlife Hazard Management Strategy progress
- Automated reporting of wildlife strikes to the Australian Transport Safety Bureau
- Facilitation of the Adelaide Airport External Land Managers Committee, which meets on an annual basis to discuss wildlife hazard and management initiatives

AAL continues to collaborate with all levels of Government, the Commonwealth Department of Defence and aviation stakeholders to identify high-risk activities across metropolitan Adelaide in three Wildlife Hazard Management Zones (within three-kilometre, eight-kilometre and 13-kilometre radiuses of the Airport) in accordance with the National Airports Safeguarding Framework Guideline on Managing the Risk of Wildlife Strikes near Airport (NASF Guideline C). Further information is provided in Chapter 12.

The location of a commercial waste-transfer station adjacent to the southern airport boundary presents a high risk to aviation safety from wildlife attraction. AAL actively engages with the site operator and the City of West Torrens as owner on management strategies to minimise the risk.



14.15.2.3. Indigenous Cultural Heritage

Previous recordings of Aboriginal artefacts have been focused on the sand dunes, which were once prolific across this area prior to European occupation and used in the original construction of the airport. In collaboration with Kaurna representatives, AAL has surveyed areas of the airport and identified archaeological sites in the Environmental Site Register (Archaeological sites are not recognised as culturally significant and thereby not listed on the National or Commonwealth Heritage Lists).

While the landscape has been dramatically altered, there is the potential for further Aboriginal cultural material to be unearthed during future developments. These will be updated in the Environmental Site Register if discovered. There are procedures in place to ensure that known archaeological sites are appropriately and sensitively managed.

14.15.2.4. Built Heritage

A Heritage Management and Strategy was developed in 2016 which included an overarching framework for treatment decisions to manage the Vickers Vimy.

AAL will continue to ensure the Vickers Vimy is routinely monitored, maintained and restored in accordance with Commonwealth requirements to protect its heritage values.

Adelaide Airport has welcomed both the Commonwealth and State Governments commitment to provide funding to relocate the Vickers Vimy. AAL is working to relocate the Vickers Vimy as part of the Terminal Expansion Project (TE_x). The relocation of the Vickers Vimy aircraft will require a suitable environmentally controlled facility to control light, humidity and temperature as a pre-requisite and be undertaken in accordance with specialist engineering advice.

14.15.3. 8-Year Action Plan

The Land and Heritage 8-Year Action Plan is detailed in Table 14-14.

MANAGEMENT ACTION/ INITIATIVE	TIMEFRAME
Implement the Patawalonga Creek Management Plan	Ongoing
Research and develop a long-term strategy to assess and mitigate development and operational impacts on native habitats in accordance with regulation 4.02 of the AEPR	Ongoing
Continue to implement the Land Management Plan	Ongoing
Continue to implement Wildlife Hazard Management Strategy and Management Plan	Ongoing
Continue to implement the Heritage Strategy and Management Plan	Ongoing
Implement procedures for identifying and protecting archaeological artefacts	Ongoing
Develop and implement a strategy for communications and engagement with traditional custodians	Short-term
Work with Commonwealth and State Governments to relocate the Vickers Vimy subject to funding	Short-term
Identify alternative options to mitigate the impact of future clearing of Patawalonga Creek associated with future aviation developments	Long-term

Table 14-14: Land and Heritage 8-Year Action Plan



C14



D

Implementing
the Plan





S14





D

Implementing the Plan

15



Development Program

Provides details of future key developments covered by this Master Plan, based on the vision, strategic objectives, anticipated aviation growth forecasts, commercial development opportunities, transport and access requirements and environmental commitments.



15

Development
Program

15.1. Introduction

The Development Concept Plan contains a summary of potential developments as outlined in the Master Plan 2019 to accommodate growth at Adelaide Airport in accordance with the Vision and Objectives.

The Development Concept Plan outlines proposed developments for improvements to Terminal 1, the airfield, aviation facilities and infrastructure requirements to support the forecast increase in passenger and aircraft movements to 2039. The Development Concept Plan also outlines potential commercial property opportunities across the airport that are complementary to aviation operations and provide economic growth for the State and local economies.

Details are also provided of the improvements to the ground transport network to accommodate the increased passenger, visitor, staff, commercial and freight traffic requirements to 2039.

The Adelaide Airport Master Plan 2019 is underpinned by a detailed Environment Strategy, recognising AAL's responsibilities to meet legislative requirements and strive for environmentally sustainable outcomes for the ongoing operations of Adelaide Airport.

No major runway developments are foreseen in the 20-year planning period for this Master Plan. AAL continues to preserve and maintain land for a future third runway.

15.2. 8-Year Development Concept Plan

The 8-Year Development Concept Plan for Adelaide Airport is based on capacity needs as determined by the current growth forecasts. AAL will continue to monitor the expected growth, as well as aviation trends and customer needs, and respond to any changes as necessary. Therefore the actual timing of developments may vary and will be subject to extensive engagement.

During the next eight years, AAL will continue to focus on delivering a great customer experience; striving for innovative solutions; and achieving sustainable outcomes.

The most significant development over the next eight years will be the completion of the Terminal Expansion Project (TEEx).

TEEx is scheduled for completion in 2021. The expansion aims to upgrade and expand the main terminal at Adelaide Airport to support the continued increase of international passengers including:

- A second, longer baggage belt for arrivals
- More space for emigration and immigration processing
- Expanded international security screening
- A larger duty free precinct for arrivals and departures
- Expanded dining and retail options
- A new common user premium international lounge
- New VIP facilities for international arrivals and departures
- Expanded office space for terminal tenants, including airlines and regulatory agencies

The terminal will continue to be developed to meet passenger and airline needs with focus on meeting new security requirements and increasing check-in capacity.

Aviation developments will focus on the need for additional apron parking, taxiway modifications and ensuring reliable access to aviation fuel.

To ensure effective flow of vehicles the main access point to the airport will transition to a primarily one way road system. The internal road network will also be modified to support the change of traffic flow. Improved public transport will continue to be a focus area.

The continued consolidation of freight providers to the Airport East Precinct will provide for a major freight and logistics hub connected to the wider State and National freight supply chain.

Commercial development will continue across the airport to support businesses and provide economic stimulus to the State and region. It's anticipated that the first stage of the Airport Business Park will be developed, further developments within Burbridge Business Park will be undertaken while the area previously referred to as Export Park will continue its transition from industrial/warehouse uses to offices.

Key development projects for Adelaide Airport, as outlined in the 8-Year Development Concept Plan, are highlighted in Table 15-1.



AREA	POTENTIAL DEVELOPMENT
Terminal Development	Completion of the Terminal Expansion Project (TEEx) to the north-eastern end of Terminal 1, improving international and domestic passenger facilities
	Extension to Terminal 1 (north-eastern pier expansion) to accommodate additional aircraft stands
	Improvements and expansion of arrivals and departures facilities including: <ul style="list-style-type: none"> • Upgrading of security to Terminal 1 • Increasing check-in capacity • Reconfiguration of baggage handling system • Expansion of baggage make-up area
Aviation Development	Enhancement of the apron and taxiway system through the following minor improvements: <ul style="list-style-type: none"> • New apron aircraft-parking area and taxiway improvements to the north-east end of Terminal 1, including additional aircraft stands and remote aircraft-parking bays • New apron for remote aircraft parking bays and taxiway improvements to the south-western end of Terminal 1 • New taxiway link connecting the Main Runway (Runway 05/23) to Taxiway Alpha 6 • Extension of Taxiway Tango 4
	Expansion of the existing aviation fuel storage facility – additional storage tank and further investigations to a pipeline connection to the Birkenhead fuel facility
	Development of the Airport East Precinct to allow for consolidation and expansion of existing airport freight and aviation-support facilities (hangars, catering, ground handling, GSE maintenance)
	Continued development of the Tapleys Precinct for fixed wing and rotary aircraft operations
Commercial Development	Terminals & Business Precinct <ul style="list-style-type: none"> • First stages of the Airport Business District Office Park will be developed, comprising up to 18,000 square metres of office floor area • New commercial development will continue within the Burbridge Business Park • Export Park will transition from industrial/warehouse uses to offices
	Airport East Precinct <ul style="list-style-type: none"> • Development of freight, logistics and warehouse facilities, supporting aviation-related activities
Ground Transport	External Roads Working with the South Australian Government on capacity improvements and modifications at key locations along Sir Donald Bradman Drive, including: <ul style="list-style-type: none"> • Moving toward a one-way road system into and out of the Terminals & Business Precinct • New signalised intersection between Fred Custance and May Terrace • New signalised intersection at Vimy Avenue • Modifications to the Fred Custance Street intersection arrangement • Modifications to Sir Reginald Ansett Drive intersection (north) • Modifications to Sir Reginald Ansett Drive intersection (south) to include signals Transport Avenue gazetted for use by B-double heavy vehicles
	Internal Roads <ul style="list-style-type: none"> • Improved internal road layout within the Terminals & Business Precinct, including connection to the new signalised intersection with Sir Donald Bradman Drive to create new primarily one-way route • New internal landside road between Tapleys Precinct and Burbridge Business Park • New internal airside and landside road network at Airport East aligned with proposed development • New road link between Airport East Precinct and Terminals & Business Precinct with connection to Richmond Road • New road link between Airport East Precinct and Morphett Precinct
	Car Park <ul style="list-style-type: none"> • New/expanded multi-level car park • New car parking areas
	Public Transport <ul style="list-style-type: none"> • Preserve the opportunity for a high capacity public transport system servicing the airport • Continue to support the South Australian Government to increase public transport usage to the airport
	Cycling <ul style="list-style-type: none"> • Improvements to be incorporated into road infrastructure development projects as required
	Responding to future technology – build in flexibility and responding to disruptive technology (ride share, air taxis, autonomous vehicles, etc)

Table 15-1: 8-Year Development Concept Plan



15.3. 20-Year Development Concept Plan

The 20-Year Development Concept Plan (20-Year Plan) for Adelaide Airport is also based on capacity needs, as determined by the current growth forecasts.

Key development projects for Adelaide Airport, as outlined in the 20-Year Development Concept Plan, are highlighted in Table 15-2.





AREA	POTENTIAL DEVELOPMENT
Terminal Development	New pier expansion to the south-west end of Terminal 1
	New spur pier development to the south-west of Terminal 1
	Improvements and expansion of arrivals and departures facilities, including: <ul style="list-style-type: none"> • International Arrivals Hall expansion • Departures processor expansion • Increased check-in facilities • Potential remote bag drop facilities • Expanded baggage reclaim facilities • Expanded security facilities
Aviation Development	Further enhancement of the taxiway system
	Staged developments of increased aircraft-parking layouts, including passenger terminal and apron expansion. As Terminal 1 is further expanded, there will be incremental displacement of General Aviation facilities
	Aviation fuel – further expansion of existing aviation fuel storage facility
	Development of aviation maintenance/engineering/ Fixed Base Operator facilities (including relocation of some of the existing facilities from the Terminals & Business Precinct) in Morphett Precinct, Airport East Precinct and Tapleys Precinct (long term)
Ground Transport	External Roads Working with the South Australian Government to determine the need for further capacity improvements as required, beyond those identified for the 8-Year Development Concept Plan
	Internal Roads <ul style="list-style-type: none"> • Duplication of drop-off/ pick-up area below the multi-level car park and associated modified road connections to Western Link Road • New road connection from drop-off/ pick-up area to the signalised intersection at Sir Donald Bradman Drive • Relocation of taxi/ rideshare pick-up to Atura Circuit
	Car Park <ul style="list-style-type: none"> • Further additional new car parking areas
	Public Transport <ul style="list-style-type: none"> • Preserve the opportunity for a high capacity public transport system servicing the airport • Continue to support the South Australian Government to increase public transport usage to the airport
	Cycling <ul style="list-style-type: none"> • Improvements to be incorporated into road infrastructure development projects as required
	Responding to future technology – build in flexibility and responding to disruptive technology (ride share, air taxis, autonomous vehicles, etc.)

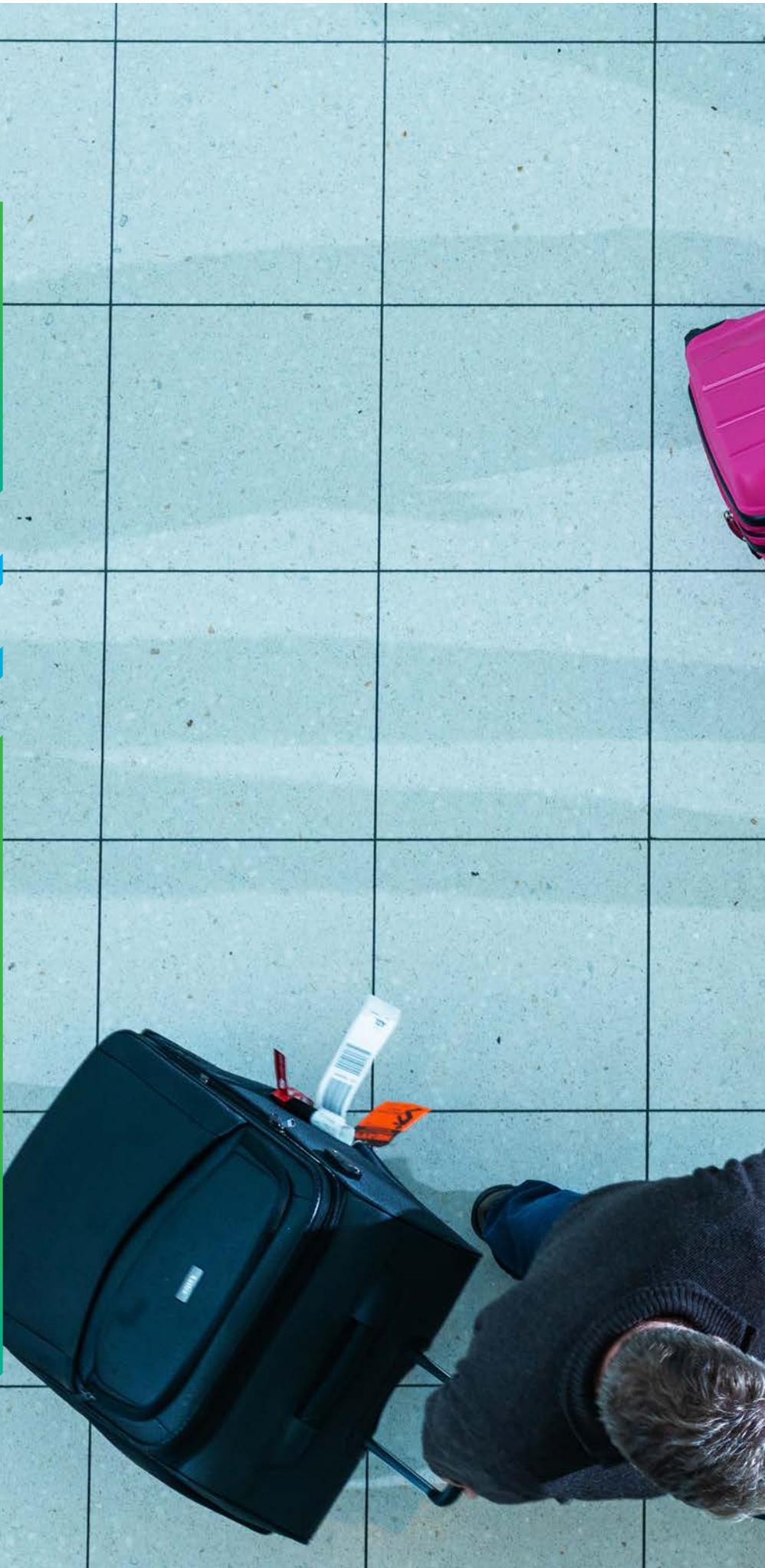
Table 15-2: 20-Year Development Concept Plan





E

Supporting
Material









Appendix

A

**Compliance
with the
*Airports
Act 1996***



The Adelaide Airport Master Plan must be prepared in accordance with the requirements of the Airports Act and associated Regulations.

The legislation specifies elements that are to be addressed within a Master Plan. The tables below should be used to reference how each element of the legislation is addressed within the Master Plan 2019.

REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 70(2) FINAL MASTER PLANS	CHAPTER RESPONSE
THE PURPOSES OF A FINAL MASTER PLAN FOR AN AIRPORT ARE:	
a. to establish the strategic direction for efficient and economic development at the airport over the planning period of the plan	Chapters 3 and 5
b. to provide for the development of additional uses of the airport site	Chapters 7 and 9
c. to indicate to the public the intended uses of the airport site	Chapter 7
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	Chapters 5 and 7
e. to ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards	Chapter 14
f. to establish a framework for assessing compliance at the airport with relevant environmental legislation and standards	Chapter 14
g. to promote the continual improvement of environmental management at the airport	Chapter 14
REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 71(2) CONTENTS OF DRAFT OR FINAL MASTER PLAN	
a. the airport-lessee company's development objectives for the airport	Chapter 5
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	Chapters 4, 5, 6, 7, 8, 9, 10 and 11
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 7
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 13 and Appendix C
da. flight paths (in accordance with regulations, if any, made for the purpose of this paragraph) at the airport	Chapter 13
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 13 and Appendix C
f. the airport-lessee company's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the plan	Chapter 14
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)	Chapter 14





REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 71(2) CONTENTS OF DRAFT OR FINAL MASTER PLAN	CHAPTER RESPONSE
<p>ga. in relation to the first 8 years of the master plan – a plan for a ground transport system on the landside of the airport that details:</p> <ul style="list-style-type: none">i. a road network planii. the facilities for moving people (employees, passengers and other airport users) and freight at the airportiii. 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 airportiv. the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport systemv. the capacity of the ground transport system at the airport to support operations and other activities at the airportvi. the likely effect of the proposed developments in the master plan on the ground transport system and traffic flows at, and surrounding, the airport	Chapter 10
<p>gb. in relation to the first 8 years of the master plan - detailed information on the proposed developments in the master plan that are to be used for:</p> <ul style="list-style-type: none">i. commercial, community, office or retail purposesii. for any other purpose that is not related to airport services	Chapter 9
<p>gc. in relation to the first 8 years of the master plan - the likely effect of the proposed developments in the master plan on:</p> <ul style="list-style-type: none">i. employment levels at the airportii. 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	Chapter 3
<p>h. an environment strategy that details:</p> <ul style="list-style-type: none">i. the airport-lessee company's objectives for the environmental management of the airportii. the areas (if any) within the airport site which the airportlessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significantiii. the sources of environmental impact associated with airport operationsiv. the studies, reviews and monitoring to be carried out by the airportlessee company in connection with the environmental impact associated with airport operationsv. the time frames for completion of those studies and reviews and for reporting on that monitoringvi. the specific measures to be carried out by the airportlessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operationsvii. the time frames for completion of those specific measuresviii. details of the consultations undertaken in preparing the strategy (including the outcome of the consultations)ix. any other matters that are prescribed in the regulations	Chapter 14
<p>i. such other matters (if any) as are specified in the regulations</p>	





REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 71A DRAFT OR FINAL MASTER PLAN MUST IDENTIFY PROPOSED SENSITIVE DEVELOPMENTS	CHAPTER RESPONSE
1. A draft or final master plan must identify any proposed sensitive development in the plan.	Chapter 7
2. A sensitive development is the development of, or a redevelopment that increases the capacity of, any of the following: a. a residential dwelling b. a community care facility c. a pre-school d. a primary, secondary, tertiary or other educational institution e. a hospital	Chapter 7
(2A) A sensitive development does not include the following: a. an aviation educational facility b. accommodation for students studying at an aviation educational facility at the airport c. a facility with the primary purpose of providing emergency medical treatment and which does not have inpatient facilities d. a facility with the primary purpose of providing in-house training to staff of an organisation conducting operations at the airport	Noted

REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 79 PUBLIC COMMENT OR ADVICE TO STATE ETC.	CHAPTER RESPONSE
ADVICE TO STATE ETC.	
(1A) Before giving the Minister a draft master plan for an airport under section 75, 76 or 78, the airport-lessee company for the airport must advise, in writing, the following persons of its intention to give the Minister the draft master plan: a. the Minister, of the State in which the airport is situated, with responsibility for town planning or use of land; b. the authority of that State with responsibility for town planning or use of land; c. each local government body with responsibility for an area surrounding the airport	Noted





REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 79 PUBLIC COMMENT OR ADVICE TO STATE ETC.	CHAPTER RESPONSE
<p>(1B) The draft plan submitted to the Minister must be accompanied by:</p> <ul style="list-style-type: none">a. a copy of the advice given under subsection (1A); andb. a written certificate signed on behalf of the company listing the names of those to whom the advice was given	Noted
PUBLIC COMMENT	
<p>(1) After giving the advice under subsection (1A), but before giving the Minister the draft master plan, the company must also:</p> <ul style="list-style-type: none">a. cause to be published in a newspaper circulating generally in the State in which the airport is situated, and on the airport’s website, a notice:<ul style="list-style-type: none">i. stating that the company has prepared a preliminary version of the draft plan; andii. stating that copies of the preliminary version will be available for inspection and purchase by members of the public during normal office hours throughout the period of 60 business days after the publication of the notice; andiii. specifying the place or places where the copies will be available for inspection and purchase; and<ul style="list-style-type: none">iiia. in the case of a notice published in a newspaper—stating that copies of the preliminary version will be available free of charge to members of the public on the airport’s website throughout the period of 60 business days after the publication of the notice; andiiib. in the case of a notice published in a newspaper—specifying the address of the airport’s website; andiv. in any case—inviting members of the public to give written comments about the preliminary version to the company within 60 business days after the publication of the notice; andb. make copies of the preliminary version available for inspection and purchase by members of the public in accordance with the notice; andc. make copies of the preliminary version available free of charge to members of the public on the airport’s website:<ul style="list-style-type: none">i. in a readily accessible format that is acceptable to the Minister; andii. in accordance with the notice.	Noted
<p>(2) If members of the public (including persons covered by subsection (1A)) have given written comments about the preliminary version in accordance with the notice, the draft plan submitted to the Minister must be accompanied by:</p> <ul style="list-style-type: none">a. copies of those comments; andb. a written certificate signed on behalf of the company:<ul style="list-style-type: none">i. listing the names of those members of the public; andii. summarising those comments; andiii. demonstrating that the company has had due regard to those comments in preparing the draft plan; andiv. setting out such other information (if any) about those comments as is specified in the regulations.	Upcoming action
<p>(3) Subsection (2) does not, by implication, limit the matters to which the company may have regard.</p>	Noted





REQUIREMENTS UNDER PART 5, DIVISION 3, SECTION 80 CONSULTATIONS	CHAPTER RESPONSE
(1) This section applies if: a. an airport-lessee company gives the Minister a draft master plan under section 75, 76 or 78; and b. before the publication under section 79 of a notice about the plan, the company consulted (other than by giving an advice under subsection 79(1A)) a person covered by any of the following subparagraphs: i. a State government; ii. an authority of a State; iii. a local government body; iv. an airline or other user of the airport concerned; v. any other person.	Noted
(2) The draft plan submitted to the Minister must be accompanied by a written statement signed on behalf of the company: a. listing the names of the persons consulted; and b. summarising the views expressed by the persons consulted.	Upcoming action

REQUIREMENTS UNDER REGULATION 5.02: CONTENTS OF DRAFT OR FINAL MASTER PLAN - GENERAL	CHAPTER RESPONSE
1. For paragraphs 71(2)(j) and (3)(j) of the Act, the following matters are specified:	
a. any change to the OLS or PANSOPS surfaces for the airport concerned that is likely to result if development proceeds in accordance with the master plan	Chapter 12
b. for an area of an airport where a change of use of a kind described in subregulation 6.07(2) of the <i>Airports (Environment Protection) Regulations 1997</i> is proposed: i. the contents of the report of any examination of the area carried out under regulation 6.09 of those Regulations ii. the airport-lessee company's plans for dealing with any soil pollution referred to in the report.	Chapter 7
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 7
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 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.	Chapter 7





REQUIREMENTS UNDER REGULATION 5.02A: CONTENTS OF DRAFT OR FINAL MASTER PLAN - TO BE SPECIFIED IN ENVIRONMENT STRATEGY	CHAPTER RESPONSE
<ol style="list-style-type: none">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.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:<ol style="list-style-type: none">a. any relevant indigenous communities and organisations; andb. any relevant Commonwealth or State body3. 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 14
<ol style="list-style-type: none">4. The environment strategy must specify:<ol style="list-style-type: none">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; andb. 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 14





REQUIREMENTS UNDER REGULATION 5.02B: CONTENTS OF DRAFT OR FINAL MASTER PLAN - TO BE ADDRESSED IN ENVIRONMENT STRATEGY	CHAPTER RESPONSE
1. For subsection 71(5) of the Act, a draft or final master plan must address the content in this regulation.	Chapter 14
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: a. continuous improvement in the environmental consequences of activities at the airport b. progressive reduction in extant pollution at the airport c. development and adoption of a comprehensive environmental management system for the airport that maintains consistency with relevant Australian and international standards 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 e. involvement of the local community and airport users in development of any future strategy f. dissemination of the strategy to sub-lessees, licensees, other airport users and the local community.	Chapter 14
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: a. any relevant recommendation of the Australian Heritage Council b. any relevant recommendation of the Department of Environment regarding biota, habitat, heritage or similar matters 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 14
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: 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 b. water quality, including potentially affected groundwater, estuarine waters and marine waters c. soil quality, including that of land known to be already contaminated d. release, into the air, of substances that deplete stratospheric ozone e. generation and handling of hazardous waste and any other kind of waste f. usage of natural resources (whether renewable or non-renewable) g. usage of energy the production of which generates emissions of gases known as 'greenhouse gases' h. generation of noise.	Chapter 14





REQUIREMENTS UNDER REGULATION 5.02B: CONTENTS OF DRAFT OR FINAL MASTER PLAN - TO BE ADDRESSED IN ENVIRONMENT STRATEGY	CHAPTER 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">a. the matters mentioned in subregulation 5.02A(2) and subregulations 5.02B(3) and (4); andb. the scope, identified by the airport-lessee company, for conservation of objects and matters at the airport that have natural, indigenous or heritage value; andc. the approaches and measures identified by the airport-lessee company as its preferred conservation approaches and measures; andd. the professional qualifications that must be held by a person carrying out the monitoring; ande. the proposed systems of testing, measuring and sampling to be carried out for possible, or suspected, pollution or excessive noise; andf. the proposed frequency of routine reporting of monitoring results to the airport environment officer (if any) for the airport, or to the Secretary.	Chapter 14
<p>6. In specifying under subparagraph 71(2)(h)(vi) or(3)(h)(vi) of the Act, the measures that it plans to carry out for the purposes of preventing, controlling or reducing environmental impact, an airport-lessee company must address:</p> <ul style="list-style-type: none">a. the matters mentioned in subregulations (2) to (4); andb. the means by which it proposes to achieve the cooperation of other operators of undertakings at the airport in carrying out those plans.	Chapter 14
<p>7. An airport-lessee company, in specifying the company's strategy for environmental management under subregulation 5.02A(3), must address the matters in subregulations (2) to (6).</p>	Chapter 14







Appendix

B

ANEF Data
Table

AP

RUNWAY	AIRCRAFT	ARRIVALS DAY	ARRIVALS NIGHT	DEPARTURES DAY	DEPARTURES NIGHT	TOTAL
05	A350-USER	559	0	326	270	1,155
05	717200	473	11	478	5	966
05	7773ER	1,985	706	2,316	640	5,646
05	7878R	2,365	439	2,734	408	5,946
05	BAE300	13	189	4	179	384
05	F10062	243	37	260	17	557
05	F-18	4	0	4	0	8
05	A320-NEO	2,949	1,092	2,949	983	7,974
05	A330-NEO	1,412	502	1,648	455	4,017
05	7378MAX	8,719	1,641	10,173	1,487	22,021
05	DHC830	1,712	972	2,724	791	6,198
05	SF340	691	438	986	328	2,442
05	CNA208	221	386	349	286	1,243
05	CNA441	1,448	425	1,937	388	4,198
05	GASEPV	1,168	241	2,206	309	3,924
05	BEC58P	311	0	588	0	899
	TOTAL	24,274	7,077	29,679	6,546	67,576
12	DHC830	2,767	1,238	0	0	4,006
12	SF340	933	395	0	0	1,328
12	CNA208	299	349	0	0	648
12	CNA441	1,955	384	0	0	2,339
12	GASEPV	1,492	321	0	0	1,813
12	BEC58P	398	0	0	0	398
	Total	7,844	2,687	0	0	10,531
23	A350-USER	1,305	0	606	662	2,572
23	717200	1,279	25	1,292	13	2,609
23	7773ER	4,631	1,500	4,300	1,566	11,997
23	7878R	5,519	932	5,078	998	12,527
23	BAE300	35	440	10	484	969
23	F10062	658	86	703	45	1,492
23	F-18	10	0	10	0	20
23	A320-NEO	7,973	2,549	7,973	2,658	21,153
23	A330-NEO	3,295	1,067	3,060	1,114	8,536
23	7378MAX	20,345	3,488	18,892	3,642	46,366
23	DHC830	4,370	1,633	7,326	1,768	15,097
23	SF340	1,762	565	2,591	864	5,782
23	CNA208	564	499	919	752	2,733
23	CNA441	3,693	548	5,093	1,021	10,354
23	GASEPV	3,439	573	4,153	824	8,988
23	BEC58P	917	0	1,107	0	2,023
	Total	59,794	13,902	63,110	16,410	153,216
30	DHC830	137	21	205	37	400
30	SF340	69	14	73	24	181
30	CNA208	22	13	26	21	82
30	CNA441	145	14	143	29	331
30	GASEPV	389	12	130	12	542
30	BEC58P	104	0	35	0	138
	Total	866	73	612	123	1,674
Helicopters	B430	1,256	1,535	1,619	1,172	5,582
	EC130	426	166	456	136	1,184
	Total	1,682	1,701	2,075	1,308	6,766
					TOTAL	239,762

Note: Day and night circuits were not included in the ANEF modelling at ultimate existing runway capacity.

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