

SYDNEY AIRPORT MASTER PLAN 2039



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Foreword

I am very pleased to present our Master Plan 2039 which sets out the strategic direction for the development of Sydney Airport over the next 20 years.

Sydney Airport is an exciting place to work, visit or travel to and from. As Australia's international gateway and an essential part of the transportation and infrastructure network, it connects Sydney to over 100 regional, national and international destinations.

Today, Sydney Airport is a vital infrastructure asset that generates over \$38 billion in economic activity per annum for NSW and Australia. It also generates or facilitates more than 30,900 jobs on airport and 338,500 Full-time equivalent (FTE) jobs across NSW and Australia. Planning for the continued growth of Sydney Airport is vital to achieving our local, state and national employment, tourism and development objectives.

Master Plan 2039 is designed to accommodate the forecast 51 per cent increase in passenger numbers to 65.6 million over the planning period. International passengers, who contribute the most to the NSW and Australian economies, will be the main driver of growth and, by 2039, the mix of international and domestic passengers is expected to be 48 percent and 52 percent respectively.



Importantly, Master Plan 2039 embeds our approach to sustainability into the planning and design for future Sydney Airport expansion. We have achieved a 4-Star Green Star Communities rating from the Green Building Council of Australia for this master plan.

Fundamentally, our development plans will maintain our sharp focus on safety and security, enhance the capacity and efficiency of the airport, and deliver continually improving passenger, community and environmental outcomes.

The plans are flexible and adaptable and will be developed in collaboration with our airline partners and in consultation with the community in which we operate. It is vital that in the evolving world of aviation and technology we are able to respond quickly to economic or aviation industry change.

In the following chapters you will find details of our proposed improvements to the airfield, aviation facilities, terminals and infrastructure. It also covers commercial opportunities in the landside and airside areas of the airport that complement aviation operations and enhance facilities and services to passengers, airport partners and other airport users.

Master Plan 2039 also contains a Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy to improve road network performance in and around Sydney Airport. The ground transport solutions have been designed recognising potential changes to traffic volumes and patterns resulting from the opening of WestConnex and any Sydney Gateway connection.

We also acknowledge the impact major airports have on the environment and our local community. We are committed to reducing the carbon footprint of the airport, ensuring it is resilient to climate change, conserving significant items of natural, indigenous or heritage value and protecting environmentally significant areas. Details of what we are intending to achieve are contained in our separate Environment Strategy 2019-2024 which is an addendum to Master Plan 2039.

I commend Master Plan 2039 to you and encourage you to read it. Please contact us if you have questions and to share your views.

Geoff Culbert
Chief Executive Officer

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Executive Summary



Welcome to the Sydney Airport Master Plan 2039

Sydney Airport is one of Australia's most important and most utilised pieces of infrastructure. It is our international gateway and an essential part of the transportation network connecting Sydney to over 100 regional, national and international destinations.

The continued growth of Sydney Airport is vital to achieving local and State employment, tourism and development objectives.

The **Sydney Airport Master Plan 2039** (Master Plan 2039) has been prepared to ensure that this growth can be achieved in the next 20 years.

Master Plan 2039 provides a strong planning framework for Sydney Airport consistent with regional economic conditions and major infrastructure delivery strategies in and around the airport. It delivers a flexible plan for Sydney Airport that can adapt to changing conditions in the economy and aviation industry more broadly.



The developments proposed in Master Plan 2039 are subject to an extensive public consultation process. Delivery of the developments will be further subject to macroeconomic conditions, technological advancements and collaboration, and consultation with key stakeholders and the community.

In addition to being a plan that positions Sydney Airport for growth, Master Plan 2039 is a statutory document prepared in accordance with the requirements of the *Commonwealth Airports Act 1996*.

Sydney Airport Corporation Limited, as the lessee of Sydney Airport, has prepared this Master Plan 2039.

Master Plan 2039 refreshes the current Sydney Airport Master Plan 2033 – approved in 2014 – and extends the planning period to 2039. It includes our development plans that reflect changes in the past five years, new forecasts for aviation and commercial activity, and ground transport improvements to be undertaken at the airport. The Five-Year Ground Transport Plan has been included within the body of Master Plan 2039.

Included as an addendum to Master Plan 2039 is the [Environment Strategy 2019-2024](#), which has been prepared in accordance with the specific legislative requirements for environmental matters at Sydney Airport. It is also subject to an extensive public consultation process.

Future development options are variously described in this Master Plan 2039 as “proposed”, “planned”, “potential”, “likely”, “possible” and other terms with similar meaning. In each case, these terms are describing potential developments at the airport at various stages in the planning and approval process that may or may not be implemented over the period of Master Plan 2039, or at all.



Image 1: Our Sydney Airport Ambassadors assist passengers with queries across our terminals

Our Vision for Sydney Airport

At Sydney Airport, our Vision is to deliver a world-class airport experience and foster the growth of aviation for the benefit of Sydney, NSW and Australia.

We are committed to responsible growth that delivers positive outcomes for our customers, investors and the community in which we operate. Master Plan 2039 outlines our 20-year strategies to deliver our Vision.

Our development plans will enhance the passenger experience and efficiency of the airport, focus on safety and security, drive productivity, jobs and economic growth, and improve environmental outcomes, while being a good neighbour and making a positive contribution to our community.

Master Plan 2039 Objectives

To ensure our Vision for the airport can be achieved over the 20-year planning period, the following Objectives have been developed for Master Plan 2039.



Enhance **safety** and **security** for users of the airport



Improve the **efficiency** of the airport



Consider the **community** impact in all planning, development and operational activities



Provide **adaptable** and **flexible** plans to accommodate aviation growth



Enhance the **experience** of all passengers and airport users



Maximise the **capacity** of the airport to meet demand within existing operational constraints



Continue to improve **ground access** to, from and past the airport



Stimulate leisure and business travel to **generate benefit and value for the economy**



Continue to improve **environmental performance** at the airport



Create an airport that is able to **compete internationally** to capture aviation demand



Further embed **sustainability** into airport decision-making

About Sydney Airport

As the gateway to Australia, Sydney Airport connects people, places and communities every day. It is located only eight kilometres south of the Sydney Central Business District (CBD), and less than 10 kilometres from Sydney Harbour and major tourist destinations.

Sydney Airport is Australia's largest transport and logistics hub, with 43 international airlines and seven domestic and regional airlines serving 54 international and 49 domestic destinations in 2017.

Surrounding the airport is a network of light industrial and airport related businesses, and emerging residential areas. Nearby businesses include freight and logistics, catering, engineering, vehicle rental and accommodation, which rely on or support the airport and nearby Port Botany.

Sydney Airport at a glance

More than
43.3 million passengers

Passed through Sydney Airport's terminals in 2017



348,520

Aircraft movements in 2017



907 hectares adjacent to Botany Bay

Sydney Airport has been the site of aviation activities since the early 1900s



Sydney Airport generates and facilitates (directly and indirectly):



\$38 billion in economic activity

6.8% of the NSW economy



338,500 jobs

30,900 jobs on-airport



\$17.6 billion

freight exports annually

Sydney Airport provides Sydney, NSW and Australia with an unmatched network of intrastate, interstate and international routes



Direct services to 27 countries and over 100 destinations



Over 50 airlines

Sydney Airport is committed to meeting the needs of its customers and delivering a world class passenger experience

Sydney Airport has invested more than \$4.3 billion on facilities, capacity, safety and security since 2002 following extensive and ongoing consultation with airlines



Facilities



Capacity



Safety and Security

The continued growth of Sydney Airport is vital to achieving local, State and National-based employment, tourism and development objectives



Sustainability at the Airport

At Sydney Airport, our ambition is to be an industry leader in sustainability, driving responsible growth that balances social and environmental needs with corporate objectives. Central to realising this aim is Master Plan 2039, which embeds the Sydney Airport Sustainability Policy and Sustainability Strategy commitments into planning and design for future Sydney Airport expansion.

Master Plan 2039 considers existing and anticipated environmental and sustainability performance, and local, District and State plans and priorities, to adopt resilient options that meet the needs of current and future airport stakeholders.

We have embedded our approach to sustainability across our development plans. We have achieved a 4-Star Communities rating for Master Plan 2039 under the Green Building Council of Australia’s Green Star Communities rating. Rating criteria have been integrated into Master Plan 2039 to drive sustainability in airport planning.

Master Plan 2039 is therefore the first step towards meeting our sustainability ambitions, and will inform future proposed designs, construction activities and operations.

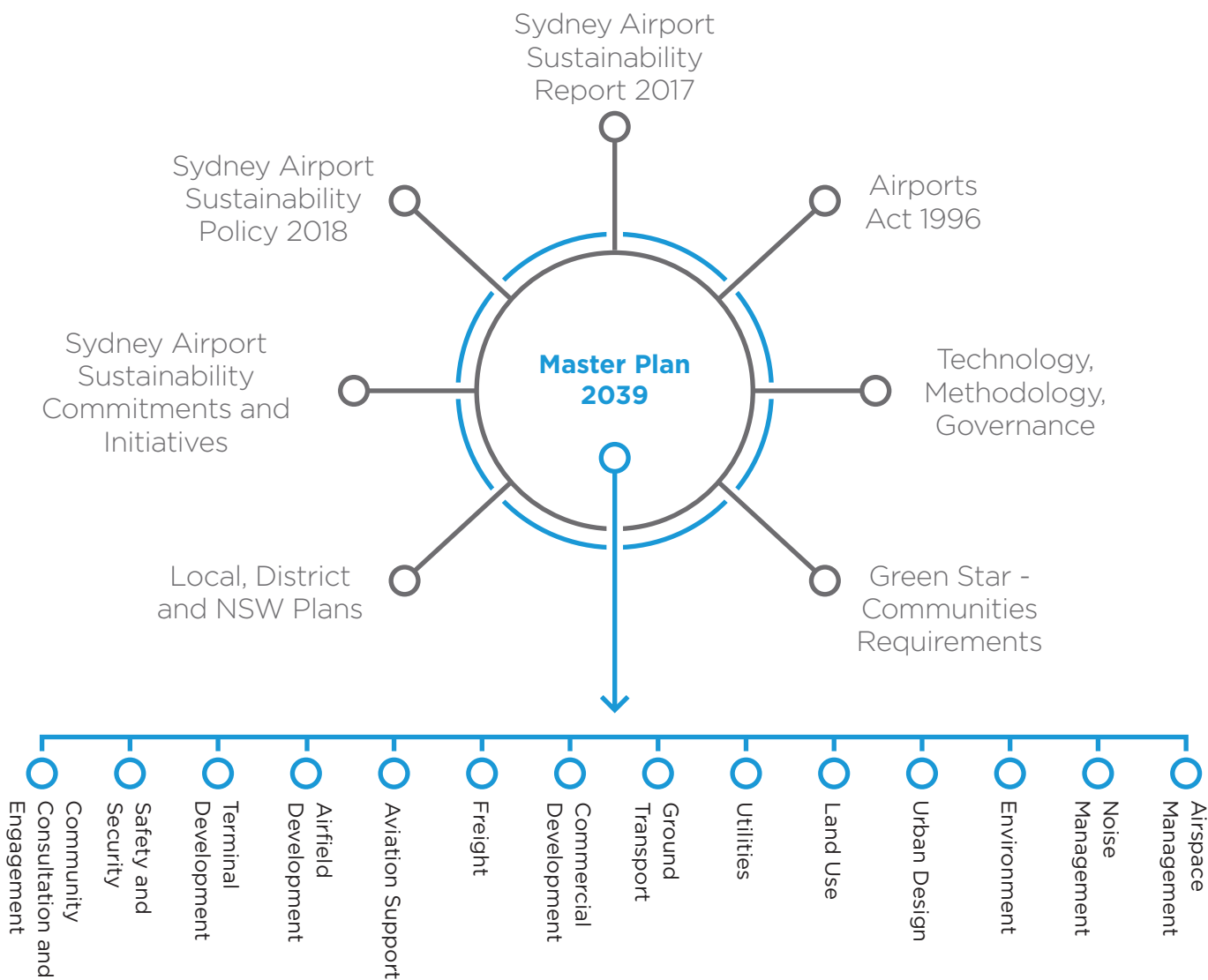


Figure ES-1: Inputs and implications of sustainability for Master Plan 2039

Stakeholder and Community Engagement

We are committed to strengthening and expanding our strong links with the community, not just in the vicinity of the airport but across Sydney, NSW and Australia. We actively engage with our local communities and organisations on an ongoing basis regarding airport operations, proposed development and future planning.

We also take an active role in supporting our local community and sporting groups, raising funds for charitable causes through corporate initiatives, and supporting the tourism industry through sponsorship and partnership programs.

With a large number of stakeholders who have a diverse range of interests, we ensure that our community and stakeholder engagement processes are inclusive, accessible and transparent. We have undertaken a broad stakeholder and community engagement process while developing Master Plan 2039.

Our ongoing engagement took into account the wide diversity in our local community to consider factors such as age, education, language, cultural background and mobility. A variety of engagement and communication mechanisms were used that are suitable for a wide range of people and groups, including:

- Face-to-face engagement activities
- Digital engagement through social media and an interactive and engaging website dedicated to Master Plan 2039
- Supporting information targeting key issues including noise management, environment, heritage, ground transport, air traffic forecasts, safety and security and the overarching vision for Sydney Airport



Image 2: Sydney Airport consulting with airport tenants about our Airport Environment Strategy

Air Traffic Forecasts

Forecasts of peak period passengers, aircraft movements and air freight volumes provide the fundamental basis for the planning of airport facilities at Sydney Airport. Air traffic forecasts have been independently prepared in consultation with the major international, domestic and regional airlines and airline associations, to ensure that the planning context for Master Plan 2039 is robust and provides confidence for our organisation and our stakeholders.

Total air passenger numbers are forecast to increase by 51 percent, from 43.3 million in 2017 to 65.6 million in 2039.

International passengers are forecast to be the main driver of growth at Sydney Airport. International passenger numbers are forecast to nearly double from 15.9 million in 2017 to 31.5 million in 2039. International passenger traffic contributes the most value to the NSW and Australian economies.

Our proximity to Asia and increases in global tourism and travel are expected to drive international travel. In particular, growth in major Asian markets, including China, India, South Korea and Vietnam. By 2039 we anticipate that the split between domestic and international passengers travelling through the airport will be 52 percent and 48 percent respectively.

Growth in total aircraft movements is expected to be significantly lower than passenger growth; 408,260 aircraft movement are forecast in 2039, an increase of 17 percent on 2017. This reflects airline feedback and expectations regarding continued up-gauging of aircraft and increased seat density and load factors.

Total freight at Sydney Airport is forecast to grow by 58 percent to one million tonnes in 2039. Passenger aircraft carry about 80 percent of all air freight. Consequently, freight is an important income stream for passenger airlines, which we support through land and facilities.

All of the forecasts for Sydney Airport assume that from late 2026 Sydney's aviation demand will be served by two international airports. Sydney Airport is expected to continue to benefit from its proximity to the Sydney CBD and local tourist attractions, and its breadth of network connectivity for passengers travelling internationally, domestically and regionally.

In 2039, Sydney Airport is projected to handle approximately:



65.6 million
passengers



408,260
total aircraft
movements



1.0 million
tonnes of
freight



31.5 million
international



34.1 million domestic
(including regional)



Image 3: Standoff Bays

Airport Development Plan

The Airport Development Plan contains the detailed plans to accommodate growth at Sydney Airport in accordance with our Vision and Objectives.

It outlines our proposed improvements to the airfield, aviation facilities, terminals and infrastructure to support the forecast increase in passenger numbers and aircraft movements over the planning period for Master Plan 2039. It also covers the commercial property opportunities in the landside and airside areas of the airport that complement aviation operations and support economic growth for the local economy.

The Airport Development Plan details the improvements to the ground transport network required to accommodate increased passenger, visitor, staff and freight traffic requirements to 2039. Specific actions for the 2019-2024 period are incorporated in the Five-Year Ground Transport Plan, as required by the Airports Act.

Our key operational strategies for the Airport Development Plan are:

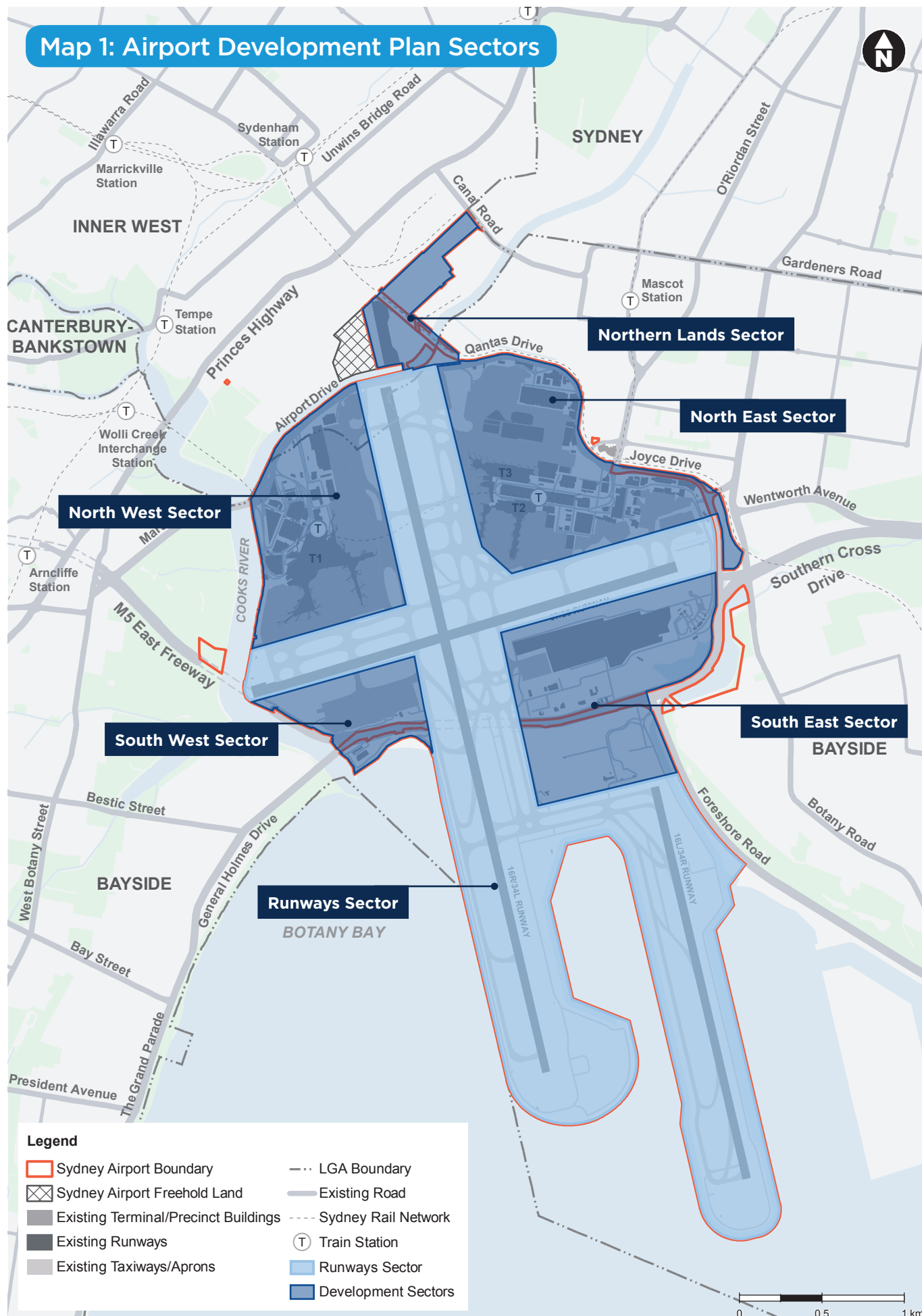
- Continued development of capacity in the T1 International Operations Precinct in the North West and South West Sectors
- Expanded capacity in the North East Sector to create a T2/T3 Integrated Operations Precinct that provides for international, domestic and regional passenger services

Sydney Airport is committed to embracing technology to deliver a world class airport experience. Embedded within our development plans are innovative solutions to enhance the passenger experience, improve the operations of the airport, and engage more effectively with our community.



Image 4: The airfield at Sydney Airport looking towards the Sydney skyline

Map 1: Airport Development Plan Sectors



Terminals

After significant consultation with stakeholders, we propose expansions of the existing terminal precincts to meet forecast growth in passenger numbers. Our plans will improve the passenger experience, reduce transfer times and enable more effective utilisation of terminal and airfield infrastructure.

Efficiency improvements include the introduction of new technologies and service systems, which are expected to continue to occur over the next few years. Such systems are envisaged to assist airlines in offering product differentiation and achieving operational efficiencies. This will also improve passenger facilitation and choice, while reducing queues and wait times.

Security and border control facilities are likely to see ongoing technology and automation enhancements, which should improve efficiency and passenger processing times in line with current and future protocols being put in place by the Australian Government's Department of Home Affairs.

In the same way that automation and technology improvements are seen as vital customer service initiatives, the advent and roll-out of these systems also provides opportunities for efficient use of terminal floor space and optimisation of capital investment. This will allow us to invest in terminal and airfield expansions and enhancements.



Image 5: An exterior shot of the Marketplace at T1 International

In addition to the initiatives outlined above, our Terminal Development Plan to 2039 includes:

- Provision of new terminal infrastructure north of T1 and east of T2 and T3, to deliver additional active stands:
 - 17 additional contact stands
 - Seven additional active bussed aircraft parking positions
- Development of a satellite pier in the South West Sector providing a passenger product with a similar experience to that provided in the current terminal connected piers
- Enhancements to the terminal forecourts and landside areas to improve passenger and visitor experiences
- Optimising the use of terminal infrastructure by introducing swing gates that can accommodate international and domestic/regional aircraft
- Improving the door to door experience for all passengers with investment in next generation technology, as well as enhanced access to multi-modal ground transport facilities
- Enhancing the retail and food and beverage offering throughout the terminals
- Improving passenger connectivity by reducing inter-precinct transfers
- A sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles
- Solutions to enhance airline efficiency by reducing minimum connection times and improving aircraft utilisation
- Increasing the flexibility of terminal infrastructure to respond to changing airline business models

Airfield

Developments and enhancements are planned throughout the airfield at Sydney Airport to provide sufficient capacity to meet the projected passenger demand and forecast air traffic movements in 2039. The three existing runways can accommodate growth in aviation, with improvements to taxiways, aprons and infrastructure delivering operational efficiencies.

Taxiway developments are based on efficiency of operation, safety and meeting demand. Apron developments are based on the planned terminal developments at the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct. Additional apron developments are also planned in the South East Sector to enable growth of aviation support facilities and to provide aircraft parking flexibility.

Consistent with Master Plan 2033, together with Airservices Australia we have undertaken considerable upgrades over the past five years to meet aviation demand and improve safety and operations. This includes the implementation of new air navigation systems, planning for a new air traffic control tower and upgrades to approach lighting and associated infrastructure to improve aircraft operations during periods of low visibility.



Image 6: Sydney Airport T1 Precinct

The following improvements are proposed to airfield and aviation support infrastructure over the planning period to 2039:

- Taxiway improvements, which have been tested with fast time simulation modelling, to reduce taxiing times for aircraft, and improve passenger experience and airlines' operating efficiency
- New apron developments across each of the terminal precincts to accommodate aircraft stand demand in 2039, as well as aviation support infrastructure to minimise impacts on the environment and community
- New active remote aircraft parking stands in the North East and South West Sectors to increase the capacity of the airport
- New remote aircraft parking stands in the South East Sector
- Additional storage areas for ground service equipment and further deployment of ground power and preconditioned air systems at aircraft parking stands
- Flexibility to accommodate new aircraft types that are being introduced into airline fleets serving Sydney Airport
- Flexibility to respond to aviation industry changes and growth
- A new air traffic control tower in the South East Sector to be developed by Airservices Australia
- Expansion of the Joint User Hydrant Installation and extension of apron hydrant systems to serve new terminal infrastructure and remote stands
- Consolidation and redevelopment of freight facilities in the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct
- Development of new freight facilities in the Northern Lands and South East Sectors to provide efficient and effective handling of freight
- Progressive relocation of aviation support facilities within the North East Sector and potential new aviation support facilities in the South East Sector

Commercial

The Airport Development Plan makes the majority of the airport site available for aviation activity. The remaining land is available for business activity, interim land uses, utilities and environmental conservation.

The Commercial Development Plan identifies the commercial and property developments proposed in landside areas. These developments are intended to support the efficient operation of the airport and provide facilities and services to passengers, airport partners and other airport users.

We continually seek to improve our facilities and services to reflect new markets and changing customer expectations, while addressing customer growth requirements in a sustainable manner. Our aim is to maintain flexibility in commercial development planning in order to respond to customer needs as they arise.

Potential commercial developments at Sydney Airport over the next 20 years are summarised below:

- The North West Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T1 terminal) for hotel, office and commercial development
- Additional hotels covering a range of product offerings with approximately 200 to 500 rooms in total could be developed in the North West Sector over time
- The North East Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T2 and T3 terminals) for hotel, office and commercial development
- By 2024, it is proposed that an approved 430 room hotel will be developed in the North East Sector, together with a multi-storey ground transport interchange
- Additional hotels covering a range of product offerings with approximately 500 to 900 rooms in total could be developed in the North East Sector over time
- Up to 70,000 square metres of freight, logistics and industrial developments could be developed in the South East Sector
- Up to 150,000 square metres of freight, logistics and industrial developments could be developed in the Northern Lands Sector
- Employment levels at Sydney Airport are forecast to increase to 35,800 jobs by 2023

Note that terminal and airfield developments proposed to 2039 are likely to displace some existing commercial developments.

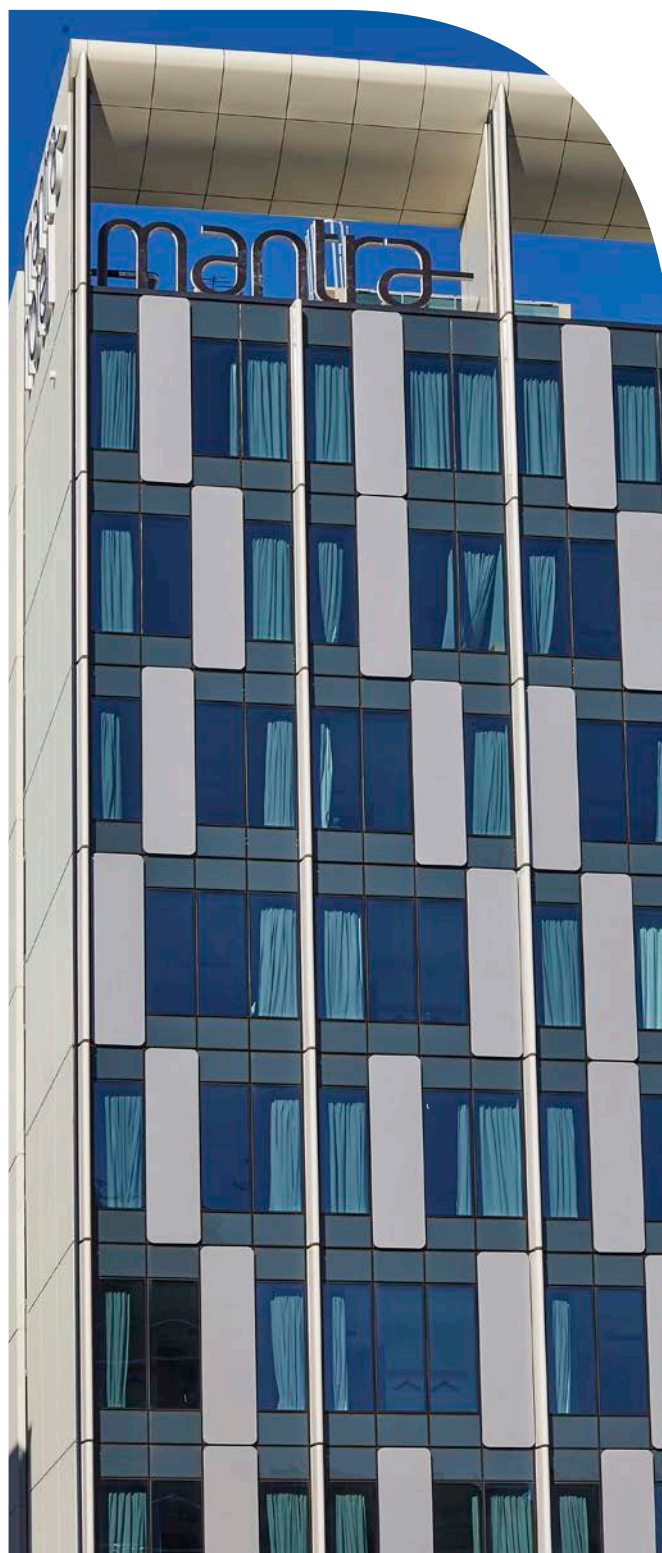


Image 7: The Mantra Hotel at Sydney Airport located near T2/T3 Domestic

Utilities

To support the efficient operation of Sydney Airport, we own and maintain an extensive network of utilities to supply the various developments across the airport site with power, water, sewer, natural gas, telecommunications and stormwater. We work closely with external utility authorities to ensure that these essential services are available in sufficient quantity and reliability to support the operation of the airport.

Substantial investments have been made to our utilities networks in recent years, aligned with our objectives of:

- Continuing to support projected growth at the airport
- Improving the reliability and redundancy of the utility networks
- Improving the sustainability of the supply arrangements

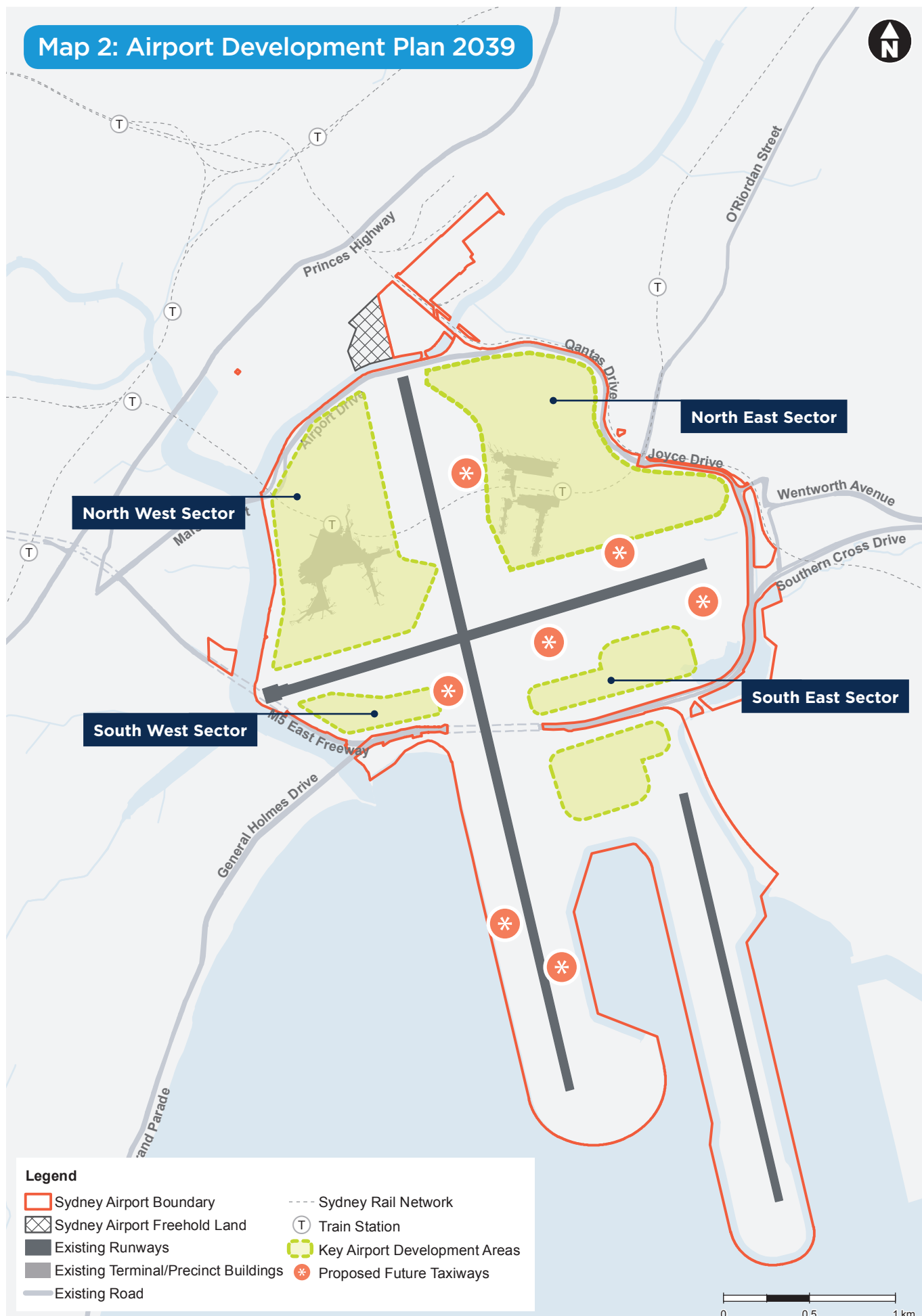
Aligned to our focus on sustainability, demand management and investigation of alternative supply arrangements will play a key role in ensuring that the utility networks are able to efficiently and sustainably support the growth projected at the airport. We have implemented a range of such initiatives in recent years, including expansion of the current recycled water facility, installation of rooftop solar and implementation of our energy and water savings action plans.

It is proposed that utility networks will continue to be expanded 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:

- Upgrade to the key electrical feeds
- Increase in recycled water treatment capacity
- Trunk drainage improvements
- Expansion of networks to supply new areas of development

New infrastructure will be provided to the existing South West Sector and the Northern Ponds area of the North East Sector to support remote active aircraft operations, including ground-based power units and preconditioned air.

Map 2: Airport Development Plan 2039





North West Sector

T1 International Operations Precinct

- New terminal infrastructure
 - Apron and stand infrastructure
 - Ground transport and utilities improvements
 - Expansion of JUHI facility
 - Air freight facilities consolidation
 - Commercial developments of approximately 120,000m² floor space
-



North East Sector

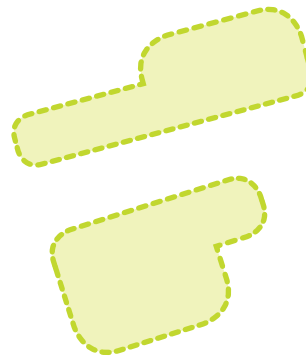
T2/T3 Integrated Operations Precinct

- New terminal infrastructure
 - Apron and stand infrastructure
 - Ground transport and utilities improvements
 - Relocation of aircraft maintenance facilities
 - Air freight facilities consolidation
 - Commercial developments of approximately 120,000m² floor space
-



South West Sector

- Satellite pier development
 - Apron and stand infrastructure
 - Airside terminal and satellite pier connections
-



South East Sector

- Apron and stand infrastructure
 - Satellite pier development
 - Airside terminal and satellite pier connections
 - General aviation facilities relocation
 - Aircraft maintenance facilities
 - Aviation support infrastructure
 - Air traffic control tower
 - Ground transport and utilities improvements
 - Air freight facilities
 - Commercial development
-

Ground Transport

Managing ground access in and around the airport is important for our customers and our local communities. Development and urbanisation in areas around the airport, together with passenger growth has increased demand on ground transport infrastructure as more people travel to, from and past Sydney Airport.

Growth in demand from passengers and commuters is expected to continue over the planning period of Master Plan 2039, placing increasing pressure on the road network within and surrounding the airport.

The Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy contained in Master Plan 2039 is designed to improve road network performance in and around Sydney Airport. The ground transport solutions have been designed recognising the potential changes in traffic volumes and patterns resulting from the opening of WestConnex and the proposed Sydney Gateway connection.

We welcome the recent growth in rail passenger demand to/from the airport and continue to advocate for further improvements to public transport, including provision of additional bus and rail services.

Five-Year Ground Transport Plan for T1

Ground transport solutions proposed in the Five-Year Ground Transport Plan for the T1 precinct include:

- Construction of a new integrated multi-storey pick-up/drop-off facility at P8, separating internal traffic and reducing conflicts and delays. It is proposed to include:
 - Direct vehicle access from Centre Road with a potential elevated ramp access to P8 to minimise traffic conflicts;
 - Direct vehicle exit onto Cooks River Avenue
 - Direct pedestrian connections to the terminal to enable a seamless customer experience
- Elevated ramp access to P6 from Arrivals Court or Departures Plaza, with exit on to Centre Road
- Subject to terminal infrastructure development, reconfiguration of P6 and P7 to incorporate a multi-modal ground transport interchange
- Upgrading Centre Road to accommodate increased vehicle movements
- Widening of Airport Drive to four lanes between the precinct and any proposed Sydney Gateway connection, to provide additional capacity to allow vehicles exiting the precinct to merge safely and efficiently with traffic to/from Marsh Street
- Additional exit ramp capacity to Marsh Street and Airport Drive to improve conditions for vehicles exiting the precinct
- Reconfigured access to Link Road from the proposed Sydney Gateway connection

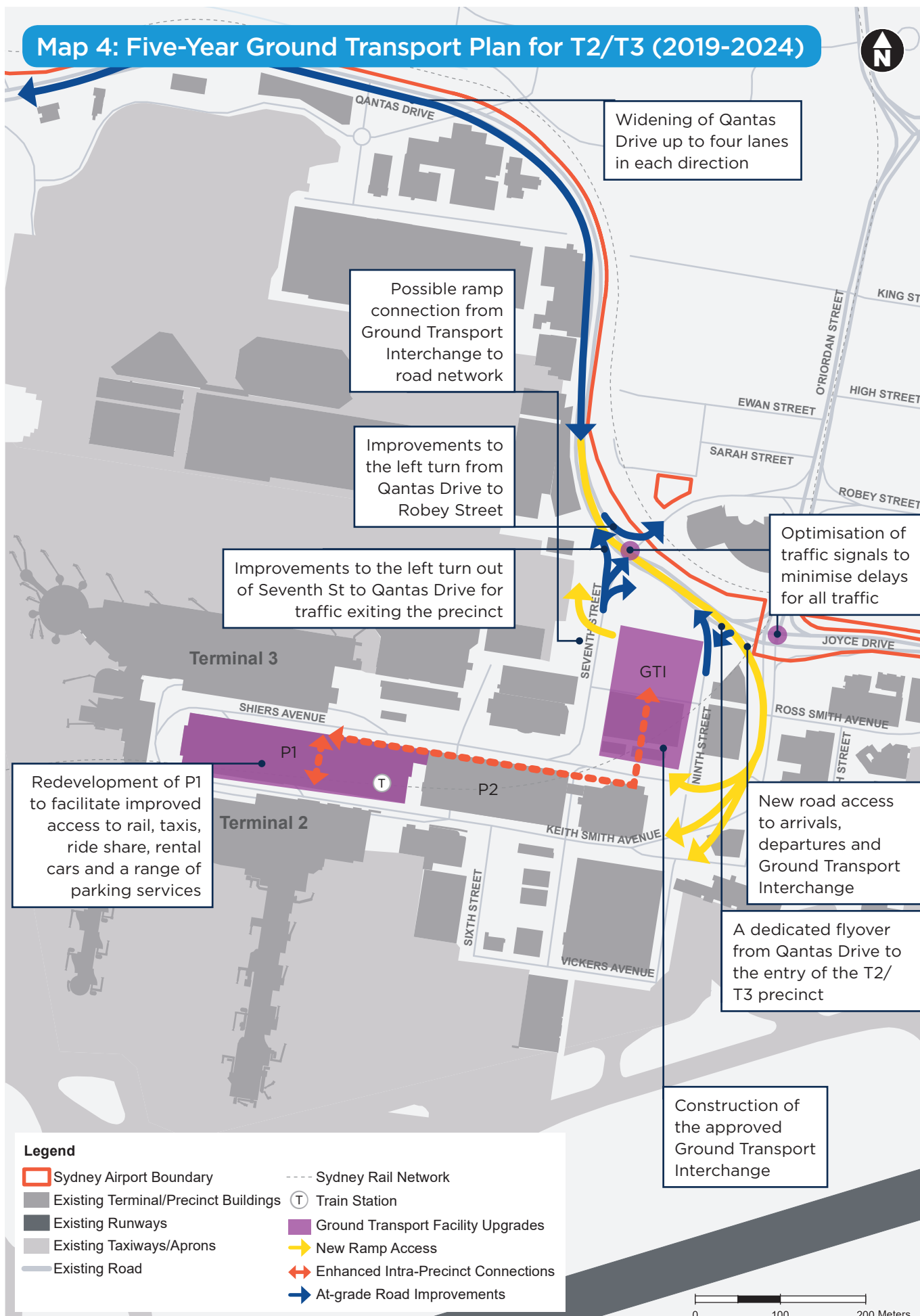


Five-Year Ground Transport Plan for T2/T3

Ground transport solutions proposed in the Five-Year Ground Transport Plan for the T2/T3 precinct include:

- Construction of the approved Ground Transport Interchange, providing additional capacity for a range of uses including for public and private bus operations
- Development of improved pedestrian connectivity and amenity between the Ground Transport Interchange and the two terminals, including through the existing P1, P2 and P3 car parks
- Redevelopment of P1 to facilitate improved access to rail, taxis, rideshare, rental cars and a range of parking services
- Improved loading dock facilities for terminal development, which provide ease of access and security
- Improvements to the current road network particularly at the intersections of Sir Reginald Ansett Drive/O’Riordan Street/Joyce Drive and Seventh Street/Robey Street/Qantas Drive. In particular this will include:
 - As part of the proposed Sydney Gateway connection, a dedicated flyover from Qantas Drive to the entry of the T2/T3 precinct
 - Improvements to the left turn out of Seventh Street to Qantas Drive (for traffic exiting the precinct)
 - Optimisation of traffic signal settings to minimise delays for all traffic
- Continued development of new facilities for vehicle pick-up/drop-off operations

Map 4: Five-Year Ground Transport Plan for T2/T3 (2019-2024)



Land Use Plan

The Land Use Plan in Master Plan 2039 has been prepared to provide the community and all levels of government with an understanding of future activities that could be located on different parts of the airport site. It has been prepared in accordance with section 70(2) of the Airports Act.

The Land Use Plan will guide future development of Sydney Airport, but does not lock in the future development outcomes. It must provide a degree of certainty for stakeholders and flexibility to allow investment and development decisions to be able to respond to changing economic conditions and market demands.

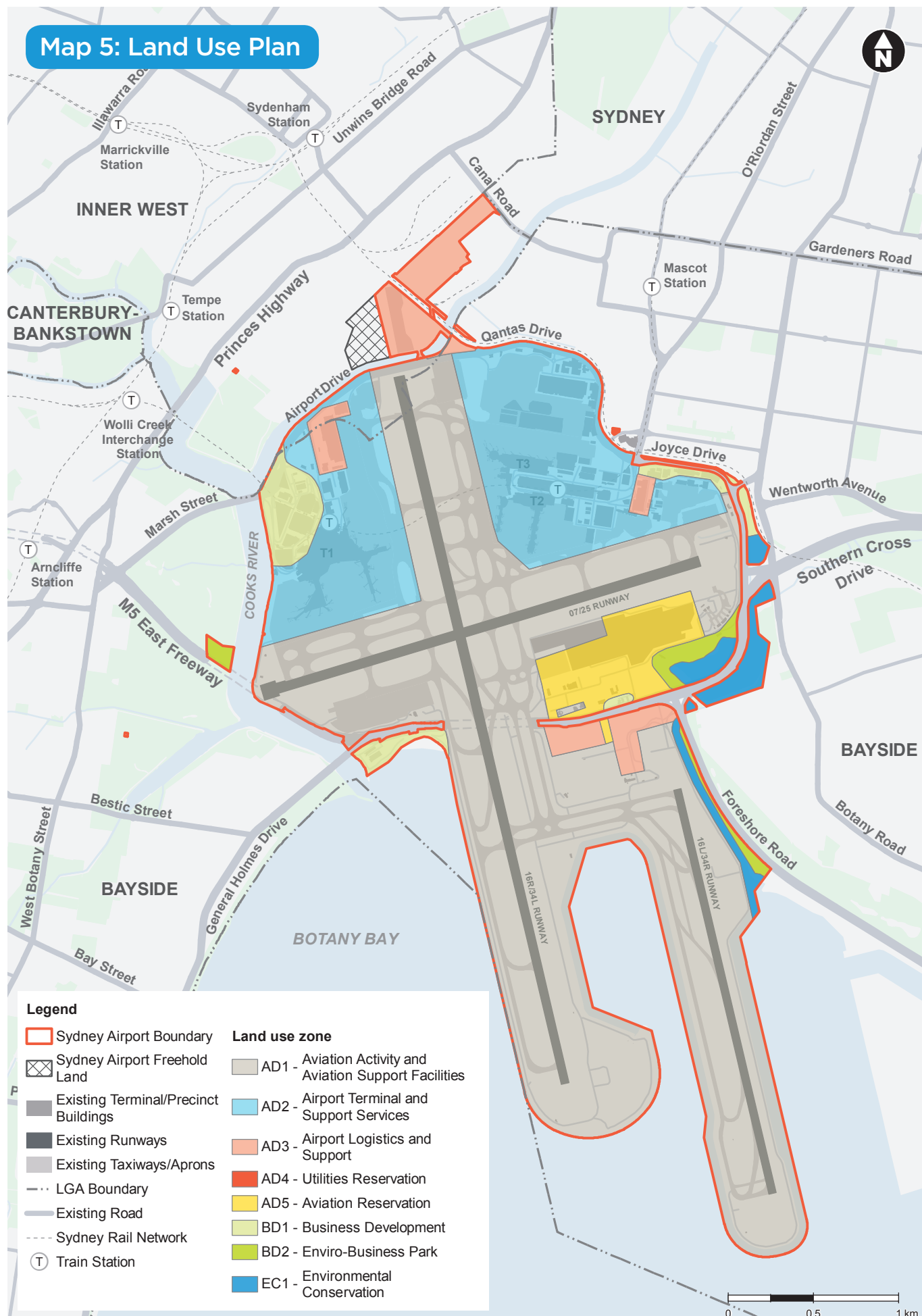
The Land Use Plan is generally consistent with Master Plan 2033; however there have been changes to land use zones to reflect changes to the Airport Development Plan.

The zones proposed for Sydney Airport describe the list of land uses and developments that are permissible in each of the six sectors of the airport. Assessment requirements are provided to guide proponents, our teams and the Airport Building Controller of the specific requirements for development in each zone.

Sydney Airport is divided into eight zones:

- AD1 – Aviation Activity and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support
- AD4 – Utilities Reservation
- AD5 – Aviation Reservation
- BD1 – Business Development
- BD2 – Enviro-Business Park
- EC1 – Environmental Conservation

Map 5: Land Use Plan



Environment

All major airports have an impact on the environment and local communities. Aircraft and ground-based noise and air emissions are of particular concern for local communities. Airport operations and development can either directly or indirectly generate carbon emissions and waste, consume water and energy, or affect local waterways, wildlife, biodiversity and heritage values.

Managing and/or minimising these environmental impacts is essential for Sydney Airport to operate sustainably. Environmental management at the airport focuses on a co-operative, proactive approach with regulatory agencies, airport stakeholders and business partners working together to ensure that potential impacts of airport operations are avoided or minimised. We are committed to working with others to ensure that aviation plays its role in protecting the environment.

The industry's challenge is to retain the many positive economic and social benefits that aviation provides, including providing the global economy with the benefits of fast, reliable, safe and efficient connectivity while reducing or eliminating its negative environmental impacts through the introduction of technological, operational and efficiency advances.

One of our objectives for Master Plan 2039 is to continually improve environmental performance at the airport over the planning period in order to:

- Reduce the carbon footprint of the airport
- Ensure the airport is resilient to climate change
- Conserve significant items of natural, indigenous or heritage value
- Protect environmentally significant areas

The details of what we are intending to achieve in the first five years of the planning period are provided in the separate Environment Strategy 2019-2024, which is an addendum to Master Plan 2039.



Image 8: Botany Water Pumping Station ruins that supplied water to Sydney from 1859 to 1885

Aircraft Noise

We recognise that noise from aircraft operations continues to be one of the most significant environmental issues for people living close to airports. We work closely with the community, aviation industry, and the Australian, NSW and local governments to manage and, where possible, minimise aircraft noise impacts.

The responsibility to manage aircraft noise impacts at Sydney Airport is shared by many organisations, including our own. Other organisations that play important roles in managing aircraft noise include:

- International Civil Aviation Organization
- The Australian, NSW and local governments
- Airlines
- Aircraft and engine manufacturers
- Regulators

Noise sharing is the key aim of our Long Term Operating Plan, which involves varying the use of our runways to produce different combinations of flight paths affecting different parts of Sydney.

Master Plan 2039 assumes that there will be no change to the curfew, aircraft movement cap or noise sharing arrangements at Sydney Airport, and no change to the flight paths or runways within the planning period.

Some of Sydney Airport's key initiatives to minimise aircraft noise impacts include:

- Continuing to provide and maintain the necessary on-airport infrastructure that allows noise sharing to be implemented
- Investing in infrastructure to support next generation quieter aircraft
- Working closely with the Australian, NSW and local governments to ensure appropriate planning policies are in place
- Consulting and engaging with the local community and airlines that use Sydney Airport, such as the Sydney Airport Community Forum



Image 9: The Airbus A350-1000 visiting Sydney on its world demonstration tour

Safeguarding Sydney Airport

Safeguarding operations at Sydney Airport and addressing internal safety and security is critical for the airport's ongoing operations and growth.

We proactively manage safety, security and protection of the ongoing operations of the airport. All airport developments are subject to an internal safety and security review to ensure compliance with our legislative obligations.

Inappropriate development, obstacles and certain land uses in areas surrounding Sydney Airport can severely restrict its operations and growth. While we can control development and activities on the airport, off-airport development involves external agencies and authorities, and needs to be managed co-operatively. Safeguarding Sydney Airport is an ongoing and shared responsibility between all levels of government and the airport.

The Australian Noise Exposure Forecast (ANEF) contained in the Master Plan 2039 is a land use planning and aircraft noise exposure tool. The ANEF assists in managing noise sensitive land uses around Sydney Airport.

The National Airport Safeguarding Framework (NASF), which applies to Sydney Airport and the surrounding areas, provides a national land use planning framework to:

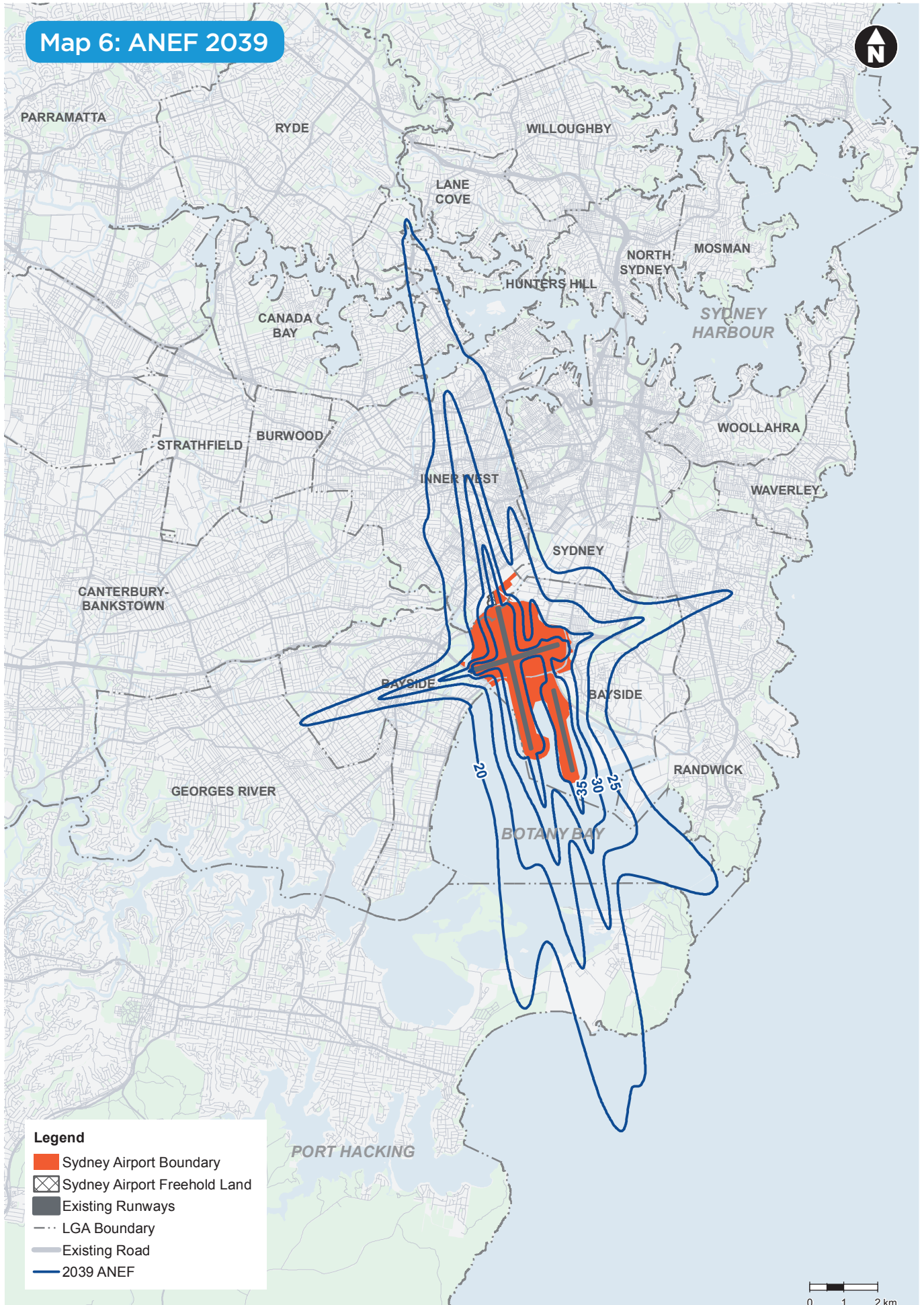
- Minimise aircraft noise-sensitive developments near Sydney Airport and communicate noise metrics
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning and development decisions

We support the NASF and actively promote its implementation by the NSW Government and local councils.



Image 10: The Integrated Operations Centre at Sydney Airport

Map 6: ANEF 2039



Section 1

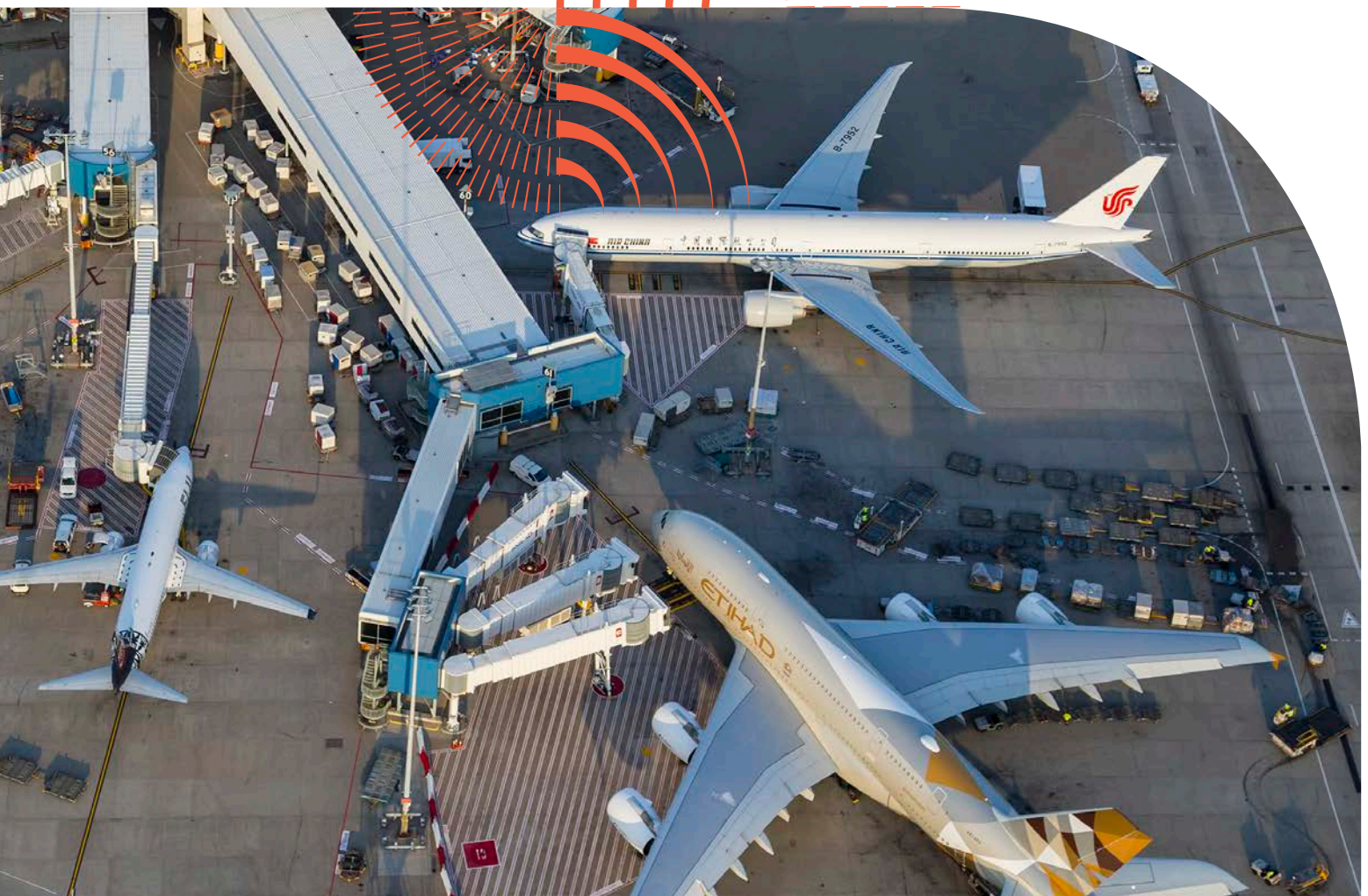
Introduction, Vision and Context







1.0 Introduction



1.1 Purpose of the Master Plan

Sydney Airport is one of Australia's most important pieces of infrastructure. It is our international gateway and an essential part of our transportation network connecting Sydney to over 100 regional, national and international destinations.

The continued growth of Sydney Airport is vital to achieving local and NSW employment, tourism, trade and development objectives. The **Sydney Airport Master Plan 2039** (Master Plan 2039) has been prepared to ensure that this growth can be achieved in the next 20 years.

It outlines a clear strategic direction for Sydney Airport consistent with regional economic conditions and major infrastructure delivery strategies.

Master Plan 2039 delivers a flexible blueprint for Sydney Airport that is adaptable to changing conditions in the economy and aviation industry, and responds to differing scenarios for aircraft and passenger movements.

Master Plan 2039 outlines the development opportunities for Sydney Airport's growth and is a statutory document prepared in accordance with the requirements of the *Commonwealth Airports Act 1996* (Airports Act). It includes development plans that reflect changes in the past five years and new forecasts for aviation activity.

Included as an addendum to Master Plan 2039 is the **Environment Strategy 2019-2024**, which has been prepared in accordance with the specific legislative requirements for environmental matters at Sydney Airport.

The developments proposed in Master Plan 2039 are subject to an extensive public consultation process. Delivery of the developments will be further subject to macroeconomic conditions, technological advancements and collaboration and consultation with key stakeholders and the community.

This Master Plan 2039 has been prepared for public and stakeholder consultation, as detailed in **Chapter 5.0**.

Master Plan 2039 is intended to be a key source of information for the local community, Australian and NSW Governments, local governments and the business sector. It provides a clear direction of our development strategy over the next 20 years and acts as an important link to other planning strategies for Sydney and NSW.

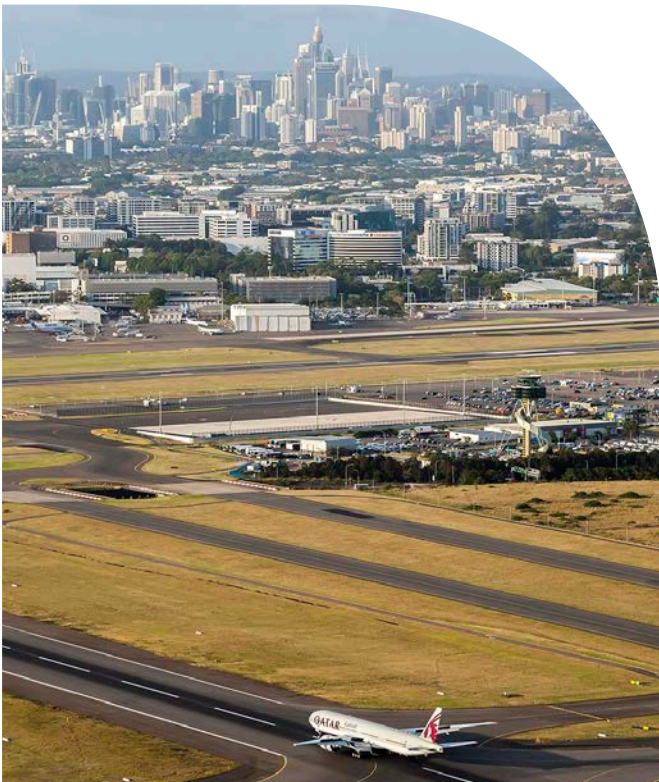


Image 1-1: Looking at the Sydney skyline from Sydney Airport

1.2 Legislative Framework

Sydney Airport is governed and operated in accordance with Commonwealth legislation, relating to its airspace, development, aviation operations, and environmental management.

Master Plan 2039 has been prepared to be consistent with our obligations under this suite of airport related legislation, illustrated in **Figure 1-1**.



Figure 1-1: Commonwealth legislative framework

1.3 Master Plan Process

1.2.1 Requirements for an airport master plan

The Airports Act and associated Regulations are the statutory controls for ongoing regulation of development activities on Sydney Airport land (leased from the Australian Government), for both aeronautical and non-aeronautical purposes. The Department of Infrastructure, Regional Development and Cities (DIRDC) is responsible for administering the Airports Act and Regulations.

Section 70 of the Airports Act requires there to be a final master plan for the airport that has been approved by the Commonwealth Minister for Infrastructure and Transport (the Minister). A master plan is required to:

- a. Establish the strategic direction for efficient and economic development at the airport over the planning period
See Chapter 2.0
- b. Provide for the development of additional uses of the airport site
See Chapter 10.0
- c. Indicate to the public the intended uses of the airport site
See Chapters 7.0, 12.0 and 13.0
- d. 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
See Chapter 13.0
- e. Ensure that operations at the airport are undertaken in accordance with relevant environmental legislation and standards
See Chapter 14.0 and Environment Strategy 2019-2024
- f. Establish a framework for assessing compliance at the airport with relevant environmental legislation and standards
See Chapter 14.0 and Environment Strategy 2019-2024
- g. Promote continual improvement of environmental management at the airport
See Chapter 14.0 and Environment Strategy 2019-2024

Master Plan 2039 has been prepared in accordance with these requirements, which are documented in detail in **Appendix D**.

The master planning process for airports is outlined in the Airports Act. This Master Plan 2039 has followed that process.

The Preliminary Draft Master Plan 2039 was on public exhibition for a period of 60 business days from Monday 27 August to Tuesday 20 November 2018. It was prepared following detailed technical and initial stakeholder engagement.

Following the public exhibition period, the Preliminary Draft Master Plan 2039 was amended, where appropriate, to produce the Draft Master Plan 2039. The Draft Master Plan 2039 was then submitted to the Minister for Infrastructure, Transport and Regional Development (the Minister) for approval.

The Minister approved the Draft Master Plan 2039 on 28 March 2019, at which point it became the final **Master Plan 2039**.

2.0 Vision for Sydney Airport



2.1 Vision

At Sydney Airport, our Vision is to deliver a world-class airport experience and foster the growth of aviation for the benefit of Sydney, NSW and Australia.

We are committed to responsible growth that delivers positive outcomes for our customers, investors and the community in which we operate. Master Plan 2039 outlines our 20-year plans to deliver our Vision.

Our development plans will enhance the passenger experience and efficiency of the airport, focus on safety and security, drive productivity, jobs and economic growth, and improve environmental outcomes, while being a good neighbour and making a positive contribution to our community.

Image 2-1: Sunset at Sydney Airport



2.2 Objectives

Master Plan 2039 has been developed in accordance with the following objectives, to ensure that the Vision for Sydney Airport can be achieved over the 20-year planning period of Master Plan 2039. Planning for the airfield, airport infrastructure and the environment has been undertaken in accordance with these objectives.



Safety and Security

Enhance **safety** and **security** for users of the airport by:

- Safeguarding the airport's aviation operations
- Ensuring a safe and secure environment for passengers, employees and infrastructure



Community

Consider the interface with the **community** in planning, development and operations by:

- Engaging in an open and genuine manner
- Supporting the NSW and local economies in which the airport operates



Experience

Enhance the **experience** of all passengers and airport users:

- Arriving and departing landside at the airport, including at ground transport facilities, rail stations, terminal forecourts and commercial precincts
- Travelling through the terminals
- Through safety and security improvements



Ground Access

Improve **ground access** to, from and past the airport through:

- Innovative solutions to ground access
- Partnership with the Australian, NSW and local governments
- Supporting increased public and active transport use



Environmental Performance

Continue to improve **environmental performance** at the airport in order to:

- Reduce the carbon footprint of the airport
- Conserve items of natural, indigenous or heritage value
- Protect environmentally significant areas



Capacity

Maximise the **capacity** of the airport to meet demand within existing operational restrictions including:

- 80 movements per hour
- Curfew from 11pm to 6am
- Access arrangements for regional airlines
- Long Term Operating Plan (LTOP)



Sustainability

Further embed **sustainability** into airport decision-making in order to:

- Minimise the impact on, and seek opportunities to enhance, the natural, constructed and social environments
- Reduce waste and promote sustainable use of energy, water and materials



Generate Benefit and Value for the Economy

Stimulate leisure and business travel to **generate benefit and value for the economy**

- Facilitate the activities of businesses operating at the airport
- Contribute to the growth of tourism, trade and jobs in the NSW and Australian economies



Efficiency

Improve the **efficiency** of the airport through:

- Investments in terminal and airfield infrastructure
- Utilising new technology
- Optimal use of the airfield



Compete Internationally

Create an airport that is able to **compete internationally** to capture aviation demand

- Deliver efficient infrastructure capacity and facilities to service new and existing international markets
- Continue to innovate and create a world class experience for our customers



Adaptability and Flexibility

Provide **adaptable** and **flexible** plans to accommodate aviation growth that:

- Meet forecast passenger growth
- Ensure responsible investments
- Are responsive to change



3.0 Strategic Context and Economic Significance



3.1 Overview

Sydney Airport is one of Australia's most important infrastructure assets. It is our international gateway and an essential part of our transportation network connecting Sydney to over 100 regional, national and international destinations.

As the gateway to Australia, Sydney Airport connects people, places and communities every day. It is located eight kilometres south of the Sydney Central Business District (CBD), and less than 10 kilometres from Sydney Harbour and major tourist destinations.

Sydney Airport serves passengers travelling to or from Sydney and is Australia's largest transport and logistics hub. 43 international airlines and seven domestic and regional airlines operate from Sydney Airport to 54 international and 49 domestic destinations.

Surrounding the airport is a network of residential, light industrial and airport related businesses that rely on or support the airport, such as freight and logistics, catering, engineering, vehicle rental and accommodation.

The significant benefits of aviation to Sydney, NSW and Australia are well established, and are recognised by all levels of government. Direct and indirect activity at Sydney Airport contributes significantly to the NSW and Australian economy, and generates almost 340,000 jobs. Nearly 31,000 jobs are located at the airport itself, with many of these undertaken by people living in surrounding areas.

3.2 Key Points

43.3 million passengers

Passed through Sydney Airport's terminals in 2017



348,520

Total Aircraft movements in 2017



907 hectares adjacent to Botany Bay

Sydney Airport has been the site of aviation activities since the early 1900s



Sydney Airport generates and facilitates (directly and indirectly):



\$38 billion in economic activity

6.8% of the NSW economy



338,500 jobs

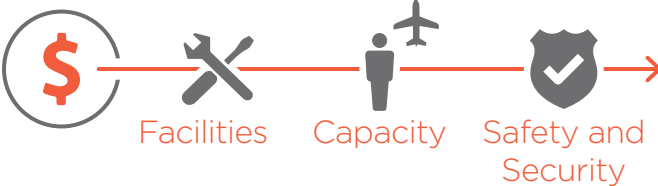
30,900 jobs on-airport



\$17.6 billion

freight exports annually

More than \$4.3 billion invested since 2002



Destinations

Over 50 international, domestic and regional airlines serve 27 countries and over 100 destinations from Sydney Airport.

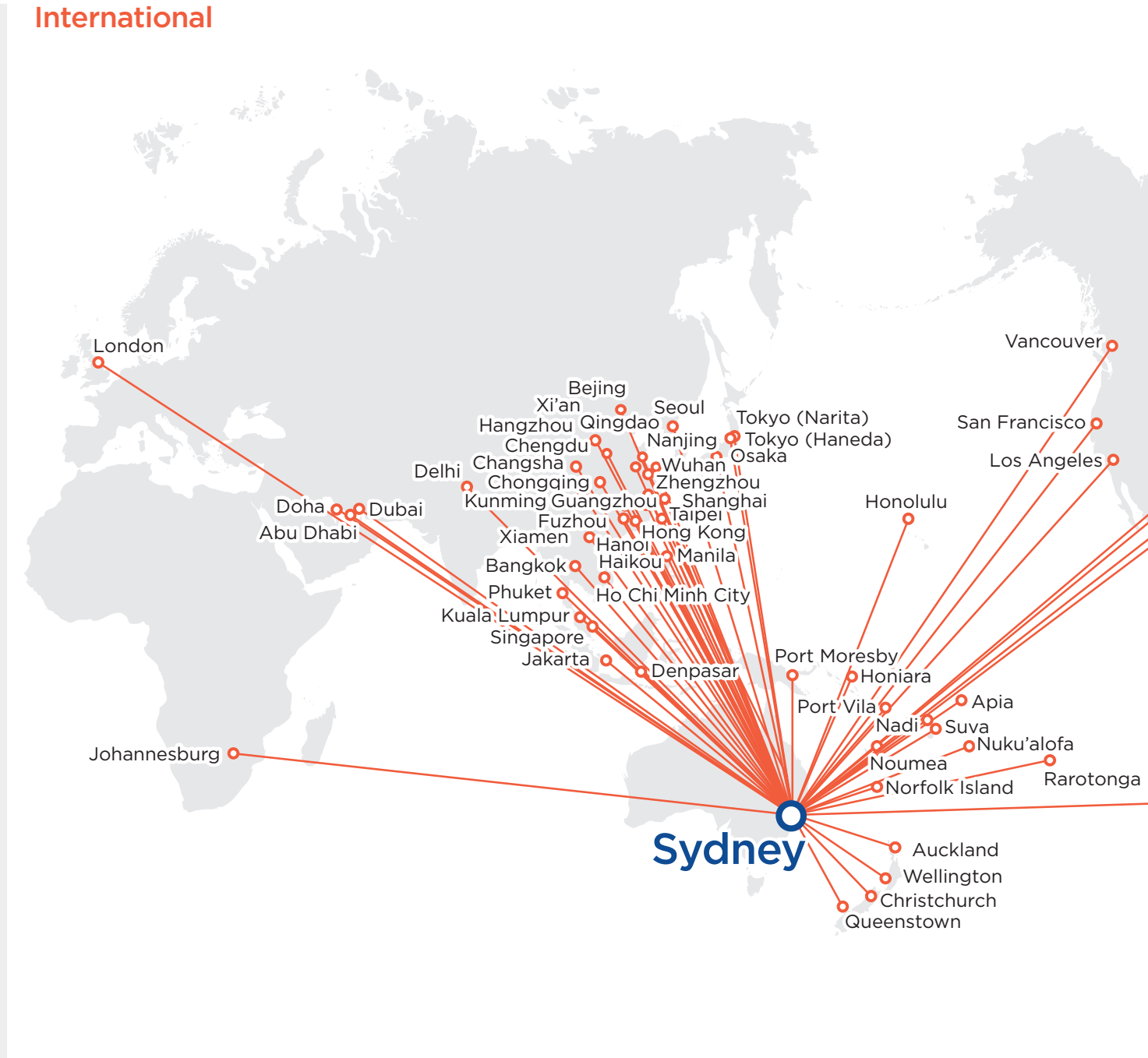
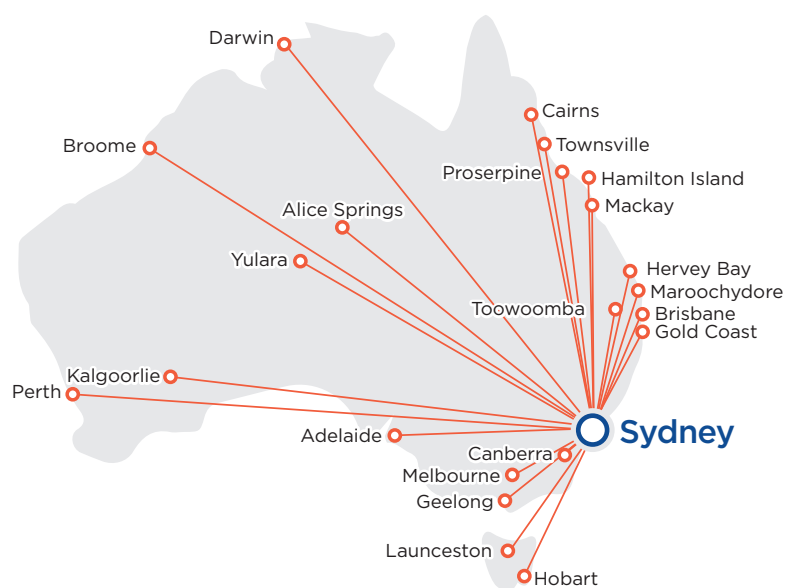


Figure 3-1: Destinations serviced by Sydney Airport



National



Regional



3.3 Sydney Airport Today

3.3.1 Airport context

The Sydney Airport site comprises 907 hectares of land in Mascot adjacent to Botany Bay. Seven hectares is owned by Sydney Airport and the remaining 900 hectares is leased from the Australian Government and subject to the Airports Act.

The location of the airport site, in the context of its locality and existing facilities, is shown on **Map 7**.

A legislated curfew is in place at Sydney Airport to manage night time noise impacts on surrounding urban areas. Aviation operations are restricted between the hours of 11pm and 6am. The LTOP for Sydney Airport also facilitates 'noise sharing' in areas surrounding the airport.

There are also restrictions on the number of aircraft movements per hour (capped at 80 movements). This artificially limits aviation activity at Sydney Airport.

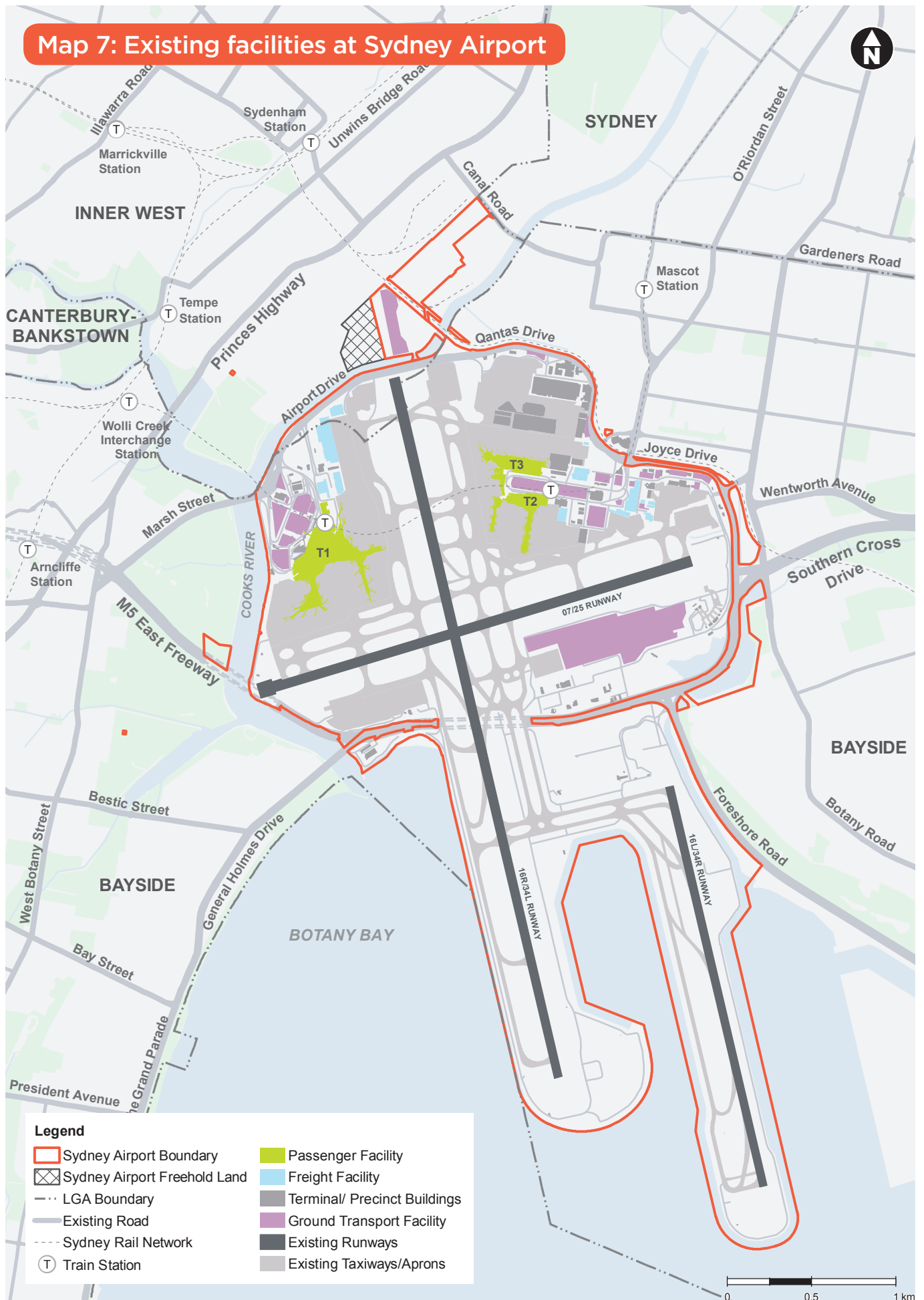
Sydney Airport has undergone continual upgrades and expansions to both its aviation and non-aviation facilities to meet changing and growing demands. Previous master plans have provided a clear understanding of these demands and a framework for upgrades and expansions.

Master Plan 2033 provided a sound basis for the planning needs of Sydney Airport. Master Plan 2039 builds upon this framework and reflects changes to the operating environment for the airport, in particular:

- Changes in travel and tourism globally
- The Australian Government's commitment to build the Western Sydney Airport
- Changes to ground access arrangements for Sydney Airport through improvements to the external road network already undertaken or proposed by the NSW Government

Appendix C provides a detailed breakdown of existing facilities at Sydney Airport.

Map 7: Existing facilities at Sydney Airport



3.3.2 Airport locality

Sydney Airport, Port Botany and surrounding areas are significant trading gateways for Australia providing large freight, business and tourism services. This locality includes a substantial amount of industrial land that is critical to providing support services to all the operations at Sydney Airport, particularly:

- Commercial and logistics uses in Tempe, St Peters, Mascot and Alexandria to the north
- Heavy industrial and petrochemical uses in Botany, Port Botany and Banksmeadow to the south east

Port Botany is NSW's primary port for bulk containers, bulk liquids and gas. Container volumes through Port Botany are expected to grow from 2.3 million twenty-foot equivalent units (TEU) in 2015 to between 5.3 million and 6.6 million TEUs by 2035. Bulk liquid and gas volumes through Port Botany are expected to grow from 4.7 million kilolitres in 2015 to between 6.7 million and 7.7 million kilolitres in 2035.

The closest residential areas around the airport site include:

- Kyeemagh to the south west
- Wolli Creek and Tempe to the north west
- Mascot to the north east
- Botany to the south east

In recent years there has been significant mixed use and residential development in the areas around the Mascot and Wolli Creek town centres.

Sydney Airport is connected to the Sydney CBD by rail and the M1 Motorway. The M1 Motorway traverses the airport site in a tunnel underneath the main runway, connecting to the M5 East Motorway just to the east of the airport boundary.

The WestConnex Motorway will link the M4 and M5 East motorways with Sydney Airport and Port Botany. WestConnex is being built in stages with the final stage (M4-M5 Link) expected to be open to traffic in 2023.

WestConnex will provide a new surface interchange at St Peters, around two kilometres to the north of Sydney Airport. From St Peters, Sydney Gateway will pass through Sydney Airport land to the north of the airport and create direct motorway access to the T1 and T2/T3 precincts. In addition, the entrance to the T2/T3 precinct will be significantly enhanced by a new dedicated flyover from Qantas Drive to the front door of the terminals. The project will be delivered by NSW Roads and Maritime (Roads and Maritime) and Sydney Airport is working closely with Roads and Maritime and rail authorities on all aspects of the project planning.

The NSW Government recently increased the number of train services to Sydney Airport. Upgrades to the power supply and safety aspects of the rail line will allow for services to be increased to up to 16 services per hour and, with further changes (such as the opening of the new Sydney Metro City and South West project in 2025), a total of 20 services per hour through the Airport line will be possible.

The NSW Government has also announced new and expanded bus services to the airport subject to completion of the Ground Transport Interchange in the T2/T3 precinct.

In its *Future Transport Strategy 2056*, the NSW Government has also indicated further high capacity 'turn-up-and-go' services through Sydney Airport.

Sydney Airport is also connected to surrounding areas and beyond by a network of bike routes and public footpaths.

3.4 Greater Sydney Context

Sydney Airport serves the Greater Sydney Region as its primary airport and is a significant contributor to economic activity. The NSW Government has recognised the importance of the airport in its planning strategies for Greater Sydney.

3.4.1 Greater Sydney Region Plan

The *Greater Sydney Region Plan: A Metropolis of Three Cities*, was finalised by the Greater Sydney Commission (GSC) in March 2018. The Greater Sydney Region Plan provides:

- A vision for the Sydney's future over the next 40 years (to 2056)
- A plan for the next 20 years to manage growth and change

It is focussed around the key areas of infrastructure and collaboration, liveability, productivity and sustainability.

The Greater Sydney Region Plan is built on a vision of three cities where most residents of Greater Sydney live within 30 minutes of their jobs, education and health facilities, services and great places. The three cities are:

- Eastern Harbour City, focussed around the Sydney CBD (and includes Sydney Airport)
- Central River City, focussed around Parramatta
- Western Parkland City, focussed around the future Western Sydney Airport

The three cities approach seeks to deliver a more productive region by supporting opportunities for investment, business and jobs growth, increased economic diversity, more internationally competitive industry sectors, and rebalancing the region's eastern economic focus so that all three cities will benefit from planned growth.

Sydney Airport and Port Botany in particular are identified as international trade gateways for the region. Protection of the operations of these gateways, including minimising land use conflicts and protecting flight paths, are key issues identified in the Greater Sydney Region Plan.

The future growth of Sydney Airport aligns with the Greater Sydney Region Plan, which recognises the airport's significant contribution to Sydney and the nation's future economic growth and prosperity.

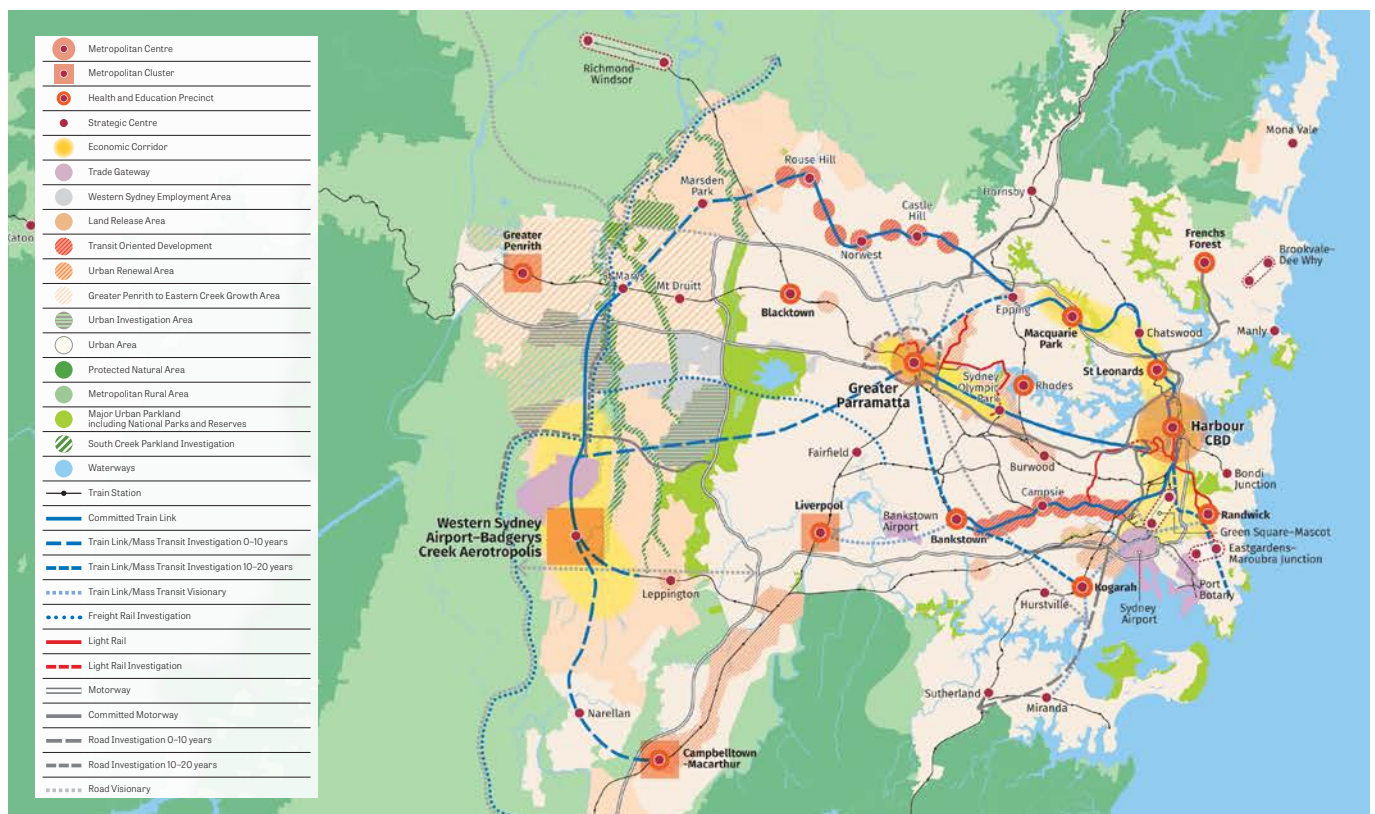


Figure 3-2: A Metropolis of Three Cities, Vision to 2056 – Connectivity
Source: Greater Sydney Regional Plan, 2018

3.4.2 Eastern City District Plan

To support the Greater Sydney Region Plan, five district plans have been finalised by the GSC. The district plans are guides for implementing the Greater Sydney Region Plan at a district level over the next 20 years, linking regional and local planning.

The Eastern City District Plan contains planning priorities and actions covering:

- Infrastructure and collaboration
- Liveability (including housing supply)
- Productivity (including jobs growth)
- Sustainability
- Implementation

The planning priorities in the Eastern City District Plan that relate to Sydney Airport include:

- Planning Priority E9: Growing international trade gateways – providing for a competitive and efficient freight and logistics network for both Sydney Airport and Port Botany
- Planning Priority E12: Retaining and managing industrial and urban services land – to ensure that industrial and urban services land is planned, retained and managed appropriately, which includes accommodating freight and logistics services
- Planning Priority E14: Protecting and improving the health and enjoyment of Sydney Harbour and the District's waterways – this includes Botany Bay and the Cooks River, to contribute to the provision of green infrastructure to cool and green the district, as well as supporting coastal, marine and groundwater dependent ecosystems

Sydney Airport is identified as a major freight, business and tourism gateway not just for the Greater Sydney Region but also nationally. The Eastern City District Plan seeks to support the long term future of Sydney Airport and Port Botany as international trade gateways.

Partly, this is proposed through support of nearby industrial precincts and their essential transport connections, and by providing for growth through appropriate land use zoning on these sites and adjoining lands. The Eastern City District Plan also provides direction to control land use outside of the airport to ensure its ongoing operation.

Within the next five years, local government authorities surrounding the airport will be reviewing and amending their local environmental plans to ensure consistency with the Eastern City District Plan.

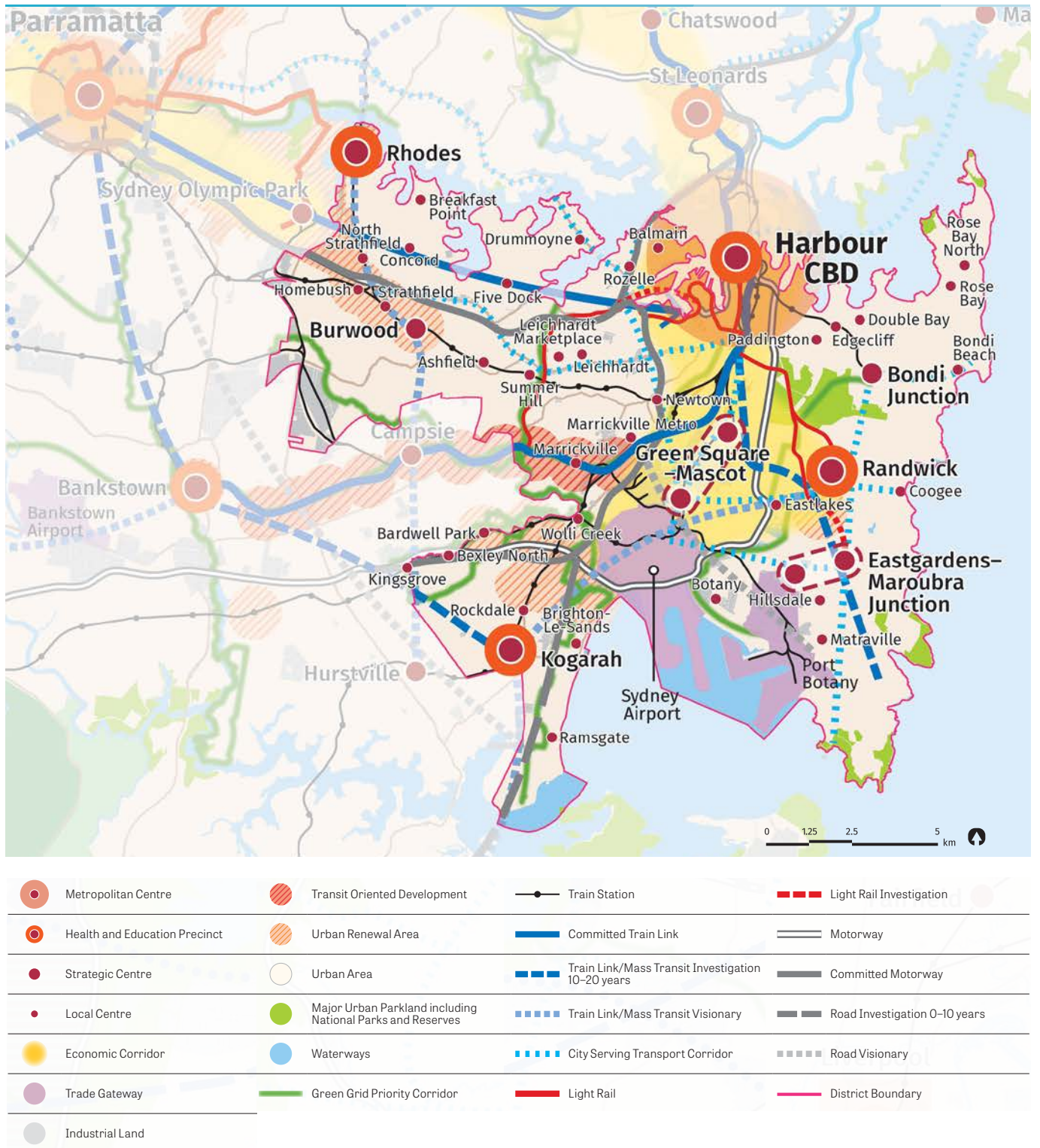


Figure 3-3: Structure Plan for the Eastern City District
Source: Eastern District Plan, 2018

3.4.3 Future Transport Strategy 2056

The NSW Government Future Transport Strategy 2056 (Future Transport 2056), released in March 2018, provides an update of the 2012 Long Term Transport Master Plan for NSW. Future Transport 2056 seeks to ensure that NSW is prepared for rapid changes in technology and innovation to create and maintain a world class, safe, efficient and reliable transport system over the next 40 years.

Future Transport 2056 has been developed to meet six outcomes:

- Customer focused
- Successful places
- A strong economy
- Safety and performance
- Accessible services
- Sustainability

Aligned with the Greater Sydney Region Plan, which is built on a metropolis of three cities for Greater Sydney, Future Transport 2056 seeks an integrated network of corridors between these cities to support the efficient movement of people and goods. Such an integrated network of corridors is based around the following corridor hierarchy:

- City-shaping corridors
- City-serving corridors
- Centre-serving corridors

City-shaping corridors are major trunk road and public transport corridors providing higher speed volume connections between the cities and centres that shape locational decisions of residents and businesses. Future Transport 2056 recognises the need to strengthen connections between Sydney Airport, the Harbour CBD, Greater Paramatta, and Western Sydney Airport.

Future Transport 2056 also identifies a strategic freight network for Greater Sydney consisting of the most significant corridors that support the movement of goods. This includes corridors connecting trade gateways, freight precincts and centres across Greater Sydney as well as corridors that connect the region with outer metropolitan areas and regional NSW.

In relation to Sydney Airport, Future Transport 2056 recognises:

- Key transport initiatives for investigation over the next 10 years, including Sydney Airport road upgrades and the More Trains, More Services program
- The importance of a world-class travel experience for visitors, and proposes improved public transport connections to arrival and departure points such as airports and cruise terminals
- The use of drones to support future transport and the need to develop and review policies around the management of airspace and air safety to enable a potential future of aerial mobility

Greater Sydney Strategic Transport Corridors

Corridors represent the way people move around using multiples modes of transport

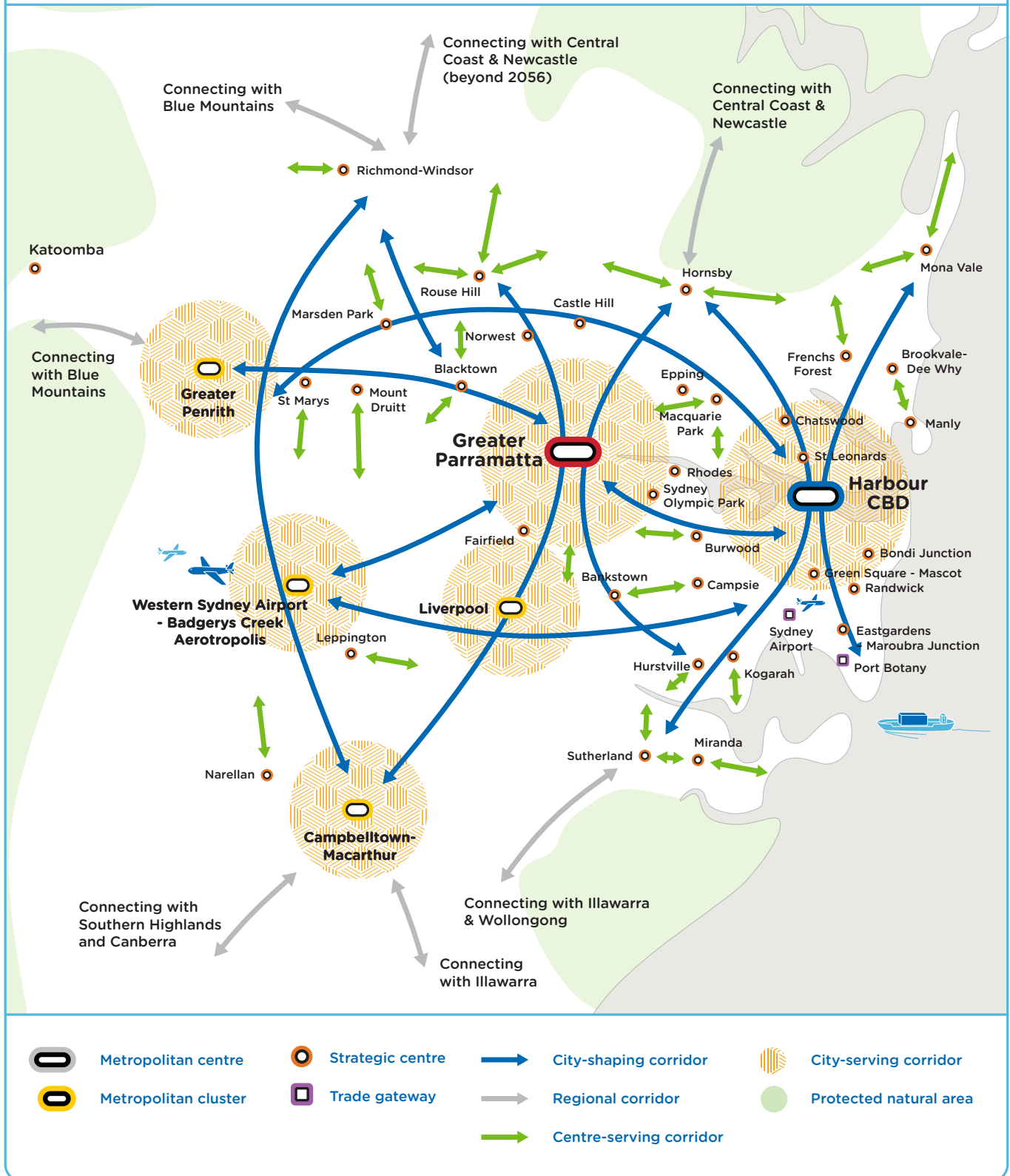


Figure 3-4: Greater Sydney Strategic Corridors
Source: Future Transport Strategy 2056, 2018

3.4.4 Visitor Economy Industry Action Plan 2030

The NSW Government, in August 2018, released the Visitor Economy Industry Action Plan 2030 (VEIAP 2030), which sets the direction for the NSW visitor economy for the next decade.

The VEIAP 2030 identifies that Sydney's reputation as a global city is key to growing the visitor economy in NSW.

To drive growth in the visitor economy, VEIAP 2030 recognises the need to closely track emerging markets to anticipate and respond to visitor needs. It recognises that the Indian market represents a significant growth opportunity for Sydney and regional NSW, along with continued growth in the China visitor market. To help deliver such growth, it recognises that the NSW Government will invest in new ways to support the visitor economy, including in:

- Innovation and emerging sectors
- A statewide Destination Management Plan
- Critical infrastructure
- Improved wayfinding and digital access to information

Focus 05 of VEIAP 2030 states that investing in critical infrastructure, future planning and better ways to do business will ensure the continued growth and future prosperity of the NSW visitor economy. Relevant to Sydney Airport, VEIAP 2030 has recommended that the NSW Government accelerate work with the Australian Government to:

- Address artificial capacity constraints at Sydney Airport, such as the movement cap and shoulder curfew
- Have regional slots not counted within the movement cap

3.4.5 NSW Freight and Ports Plan 2018-2023

The NSW Government has prepared the NSW Freight and Ports Plan 2018-2023 (Freight and Ports Plan) to facilitate collaboration between government and industry on clear initiatives and targets to plan for freight growth, improve efficiency and safety.

The Freight and Ports Plan is a supporting plan to Future Transport Plan 2056. It has been developed around four key objectives:

- Drive economic growth – by delivering more than \$5 billion worth of infrastructure
- Increase efficiency, connectivity and access
- Deliver greater capacity by investing and enabling regional growth
- Improve safety and sustainability by doing more together

The Freight and Ports Plan recognises that the NSW freight network is made up of ports, shipping channels, airports, prescribed airspace, roads, rail lines, pipelines, intermodal terminals and freight-related precincts.

In relation to airports, the Freight and Ports Plan recognises that most air freight (about 80 per cent) is carried in the hold of passenger planes, with the remainder being transported by dedicated freight aircraft. To support the growth in air freight, it recognises that a number of constraints will need to be addressed, including:

- Congestion on the road network around Sydney Airport
- Curfew restrictions which currently limit the type of aircraft permitted to operate overnight freight services to older and smaller aircraft (when larger more modern aircraft may meet desired noise standards)

The Freight and Ports Plan identifies the benefits of creating a freight precinct at Western Sydney Airport and advocates for an “... outcomes-based approach to managing noise emissions from freight aircraft operating in the Sydney Airport curfew period.”

It also identifies the need for road and rail freight infrastructure improvements, including road upgrades around Sydney Airport and the proposed Sydney Gateway, linking WestConnex at St Peters Interchange and the Sydney Airport and Port Botany precinct.

Additionally, the Freight and Ports Plan seeks to protect land needed for freight and logistics uses and infrastructure. It highlights that a key action of the NSW Government is to ensure that freight and logistics land and corridors are identified and protected from sensitive land uses, including land around important trade gateways such as Sydney Airport.

3.5 Economic Contribution of Sydney Airport

Sydney Airport is Australia's largest transport and logistics hub. Some 43 international, seven domestic and regional airlines operate from Sydney Airport to over 100 destinations, including 11 international and eight regional destinations not served by any other Australian airport. Large numbers of passengers and significant volumes of freight are transported through the airport every day.

Substantial investments by airlines and other businesses in the region surrounding the airport, and the presence of established route networks, provide invaluable strategic economic and commercial advantages to Sydney and NSW.

Sustainable growth of the airport is critical to achieving the NSW Government's targets for visitor growth and employment in local government areas close to the airport. For example, a typical daily international service contributes an estimated \$122 million a year to the NSW economy and generates an estimated 1,300 direct and indirect jobs in the state. This is even greater for each daily A380 service from China, which is estimated to generate more than 5,200 direct and indirect jobs and contributes an average of \$470 million a year to the Australian economy.

Airports need to plan and invest for the long term in the context of changing airline strategies and business needs, new operational and security requirements, and evolving technology.

Over \$4.3 billion of investments and other initiatives at Sydney Airport since 2002 have helped to improve service levels, enhance safety and security, deliver environmental improvements and increase aviation capacity to meet demand.

The Airport Development Plan in Master Plan 2039 will ensure that Sydney Airport can be responsive and flexible in the development and use of its facilities to accommodate an ever-changing landscape of airlines and associated passenger services.

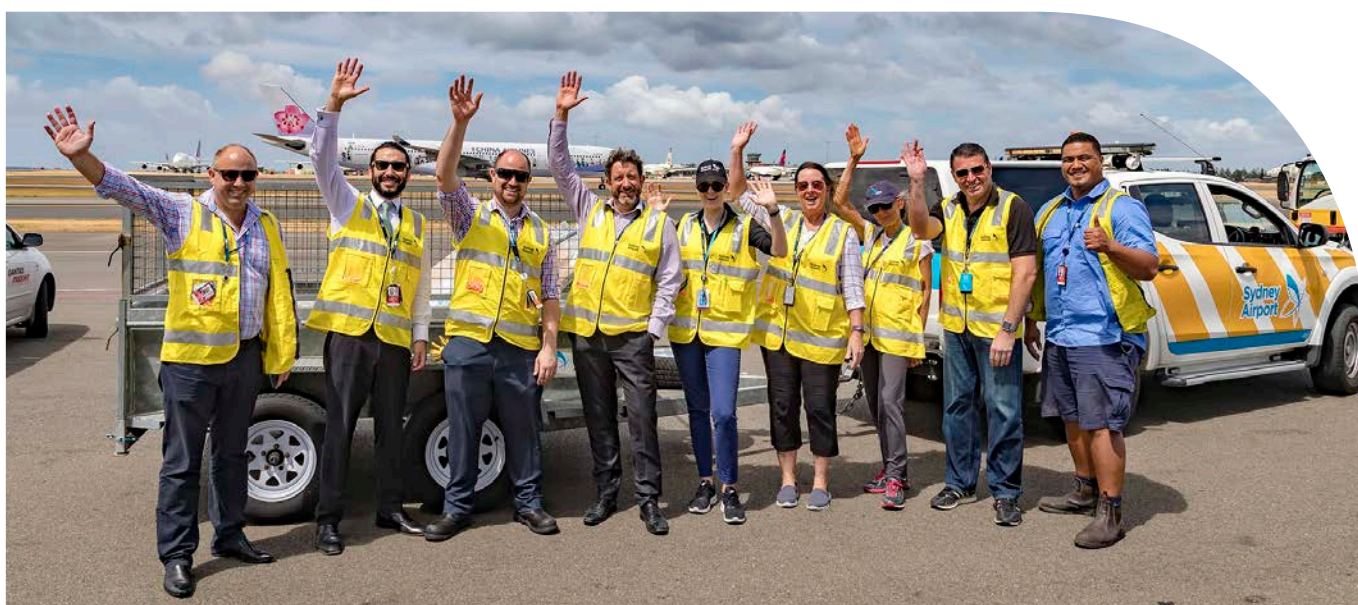


Image 3-1: Sydney Airport team during Airport Safety Week

3.5.1 Located at the heart of tourism and trade

International trade and international air routes are vital to Australia's continued economic prosperity. Airports are an essential part of the transport networks that all successful modern economies rely on.

Sydney Airport provides an extensive breadth of transport interconnectivity within the Sydney region.

In addition to providing NSW residents with the opportunity to travel, whether for business or leisure, the airport also:

- Delivers convenience for business visitors to Sydney, with the CBD just eight kilometres away
- Delivers convenience for tourists to Sydney, with major tourist destinations including Sydney Harbour and Bondi Beach within 10 kilometres of the airport
- Serves as a hub for travel between regional NSW, other Australian cities and the world
- Provides an interchange between air, sea and land freight, enabling high value and/or time critical exports and imports
- Serves as an air freight hub for NSW

The success of business and tourism for Sydney, NSW, Australia and Sydney Airport are interdependent. Sydney Airport's location is a significant strategic advantage for Sydney and NSW when competing with other Australian and overseas cities. The airport's substantial route network includes:

- 54 international destinations
- 49 domestic and regional destinations

Sydney's status as Australia's pre-eminent global city, in turn, supports the route network at Sydney Airport and the development of the airport and related businesses. The availability of direct flights to a wide network of destinations also significantly strengthens the competitiveness of the Sydney tourism industry.

The partnership between Sydney Airport and Destination NSW, the lead government agency for the NSW tourism and major events sectors, is actively working to boost tourism, attract new airlines and increase airline services to Sydney, in support of the NSW Government's target to double overnight visitor expenditure between 2012 and 2020.

Sydney Airport and Tourism Australia are also working together to promote tourism to Australia, in line with Australian Government targets.

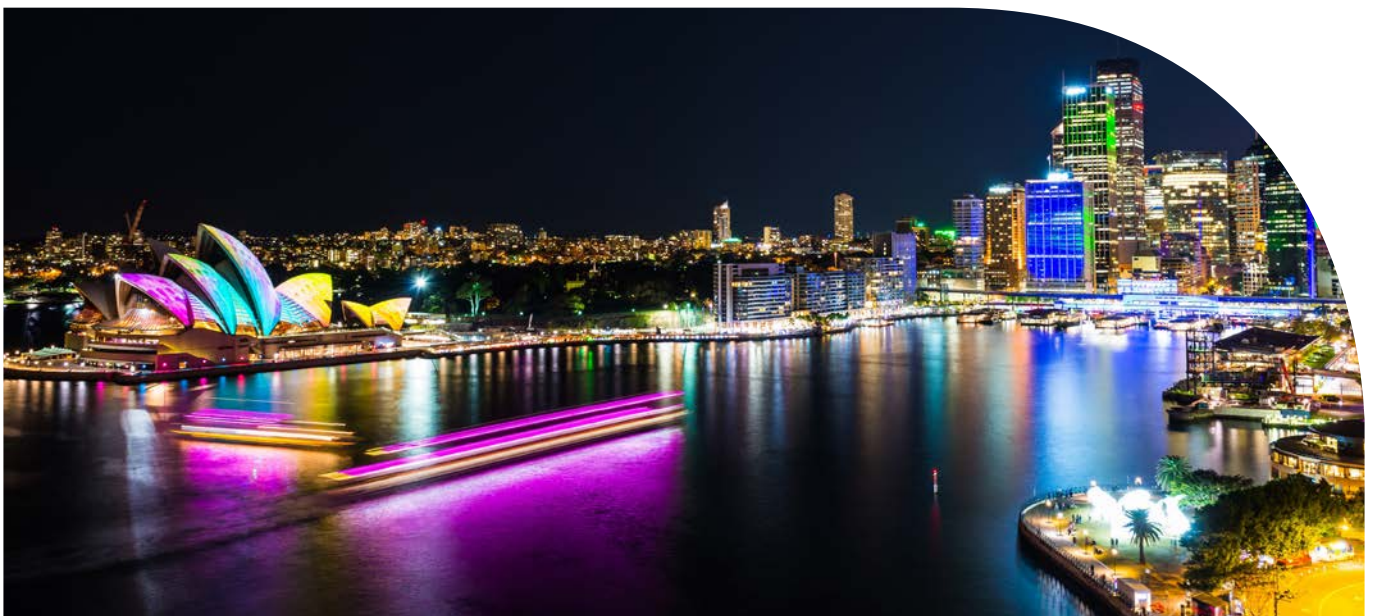


Image 3-2: Vivid Sydney lights up Sydney Harbour

3.5.2 A key source of jobs and income

The most prominent on-airport operations are the domestic and international passenger airlines' activities, including catering, baggage handling and aircraft maintenance and refuelling. However, the majority of businesses generating economic activity at Sydney Airport are not directly involved in regular passenger transport aviation. These businesses include:

- Onsite retail, such as news agencies, fashion and duty-free stores
- Precinct hospitality, including accommodation and on-site food and beverage options
- Ground transport, including terminal shuttle buses, rail, taxi and rideshare services
- Security
- Australian Government services, including customs, Australian Federal Police and quarantine
- Dedicated freight and logistics businesses
- Other corporate/office-based businesses

A breakdown of the sectors where jobs currently exists at Sydney Airport is included in the table below:

Table 3-1: Employment breakdown at Sydney Airport by sector

Area	Employment Proportion
Transport and storage	63%
Construction	8%
Retail, cafes and accommodation	9%
Government services	7%
Property and business services	5%
Maintenance, cleaning and engineering services	2%

A 2017 study by Deloitte Access Economics into the economic contribution of Sydney Airport quantified the benefits of these activities. Key findings of the study included that Sydney Airport generates or facilitates (directly and indirectly):

- 338,500 jobs (equivalent to 10.1 percent of NSW employment), 30,900 of which are at the airport (an increase of more than 1,800 since 2014)
- \$38.0 billion in economic activity, an increase of \$7.2 billion since 2014. This is equivalent to 6.8 percent of the NSW economy and 2.2 percent of the Australian economy
- Household income of \$19.9 billion, an increase of \$5.2 billion since 2014. Additionally, at \$85,400 a year, the average full-time equivalent wage of an employee working at Sydney Airport is 12 percent higher than the NSW average wage
- Taxes, including:
 - Substantial income tax and GST revenues to the Australian Government
 - Substantial payroll taxes to the NSW Government
 - Annual contributions, in lieu of rates, to Bayside and Inner West Councils

Modelling used in the study also indicated that Sydney Airport's economic contribution will increase significantly as the airport continues to develop. The forecast for economic activity generated or facilitated by Sydney Airport is an increase from \$38.0 billion in 2017 to over \$52.6 billion in 2039; total employment will increase from 338,500 jobs in 2017 to 414,600 by 2039.

This study highlights that a relatively small development at Sydney Airport can have a potentially large economic impact on both the NSW and Australian economies. In addition, the study highlights the significance of Sydney Airport within the local community. It is estimated that there are more than 800 businesses operating on Sydney Airport, employing significant numbers of people living close to the airport.

3.5.3 Connecting regional NSW

We recognise the importance of the regional network servicing 25 communities across NSW. This regional network also helps support the development of the international network at Sydney Airport.

Since 2002, when the airport was privatised, regional traffic has grown at Sydney Airport with a 54 percent increase in passenger numbers.

We are proud of the service we provide to regional communities. This includes an extensive route network during the peak hours, facilitating connectivity with international and domestic routes. Sydney Airport's 25 regional routes have an average of six movements each during the peak hours.

With the exception of two routes – Lord Howe Island and Cooma – all regional routes are well served in the morning and afternoon peak periods.

Continued access for regional services in these peak periods is mandated by Australian Government policy and supported by slot allocation rules. Master Plan 2039 assumes that the existing rules guaranteeing access to Sydney Airport by regional airlines will remain unchanged throughout the planning period.

We also offer lower airport charges than almost all other airports in the Sydney regional route network.

Sydney Airport has seen growth in regional demand matched by airlines up-gauging to larger aircraft. Regional aircraft have increased in size more quickly than any other market segment, and the increase in aircraft size has both responded to and promoted passenger growth.

With continued increases in regional aircraft size, Sydney Airport will be able to accommodate passenger demand for regional air travel in the future.



Image 3-3: Planes of one of Sydney Airport's regional carriers, Rex

3.6 Western Sydney Airport

Demand for aviation services in Sydney is forecast to double over the next 20 years and will continue to grow (see **Chapter 6.0 Air Traffic Forecasts**). The Australian Government has committed to building a new Western Sydney Airport approximately 50 kilometres from the Sydney CBD at Badgerys Creek.

Western Sydney Airport is proposed to be developed in stages in response to passenger demand. It is proposed to be a full-service airport, catering for all types of domestic and international passenger and freight services.

WSA Co, a new Government-owned company, has been established to build the airport, which is anticipated to open in late 2026. Western Sydney Airport will have a single runway around 3.7 kilometres in length and terminal capacity to cater for up to 10 million passengers a year. Stage 1 of the airport will include terminal and runway areas, as well as cargo facilities and dedicated maintenance areas.

The NSW Government in August 2018 released the *Western Sydney Aerotropolis – Land Use and Infrastructure Implementation Plan – Stage 1: Initial Precincts*. This Land Use and Infrastructure Implementation Plan (LUIIP) sets out a planning framework to support all levels of government and spread the benefits of population and economic growth across Greater Sydney. The draft Stage 1 plan has been prepared for consultation with the community and industry.

The LUIIP aligns with the Greater Sydney Region Plan and provides the initial framework for developing the Western Sydney Aerotropolis, focussed on the planned Western Sydney Airport.



4.0 Sustainability



4.1 Overview

At Sydney Airport, our ambition is to be an industry leader in sustainability, driving responsible growth that balances social and environmental needs with corporate objectives. Central to realising this aim is Master Plan 2039, which embeds the Sydney Airport Sustainability Policy and Sustainability Strategy commitments into planning and design for future Sydney Airport expansions.

Master Plan 2039 considers existing and anticipated environmental and sustainability performance, and Local, District and State plans and priorities, to adopt resilient options that meet the needs of current and future airport stakeholders.

We have embedded our approach to sustainability across our development plans. We have achieved a 4-Star Communities rating for Master Plan 2039 under the Green Building Council of Australia (GBCA) Green Star Communities rating. Rating criteria have been integrated into Master Plan 2039 to drive sustainability in airport planning.

Master Plan 2039 is the first step towards meeting our sustainability ambitions, and will inform future proposed designs, construction activities and operations.



Image 4-1: The Sydney Airport community taking part in Clean Up Australia Day at Lady Robinson's Beach

4.2 Key Points

- We are committed to taking a sustainable approach to managing future growth at Sydney Airport
- Our approach to sustainability is categorised into three broad themes:



Responsible business

Being ethical, responsible and transparent in how we do business



Planning for the future

Delivering operational excellence through innovative, technology based solutions and supporting our customers' needs now and into the future



Supporting our community

Working with our communities to protect the environment and create shared value

- We have made significant progress in the sustainability performance of Sydney Airport in the areas of:
 - Climate change and carbon neutrality
 - Resource use
 - Waste and resource recovery
 - Community and stakeholders
 - Safety and security
 - Resilience
- Proposed development initiatives have been prioritised based on their relevance to our sustainability principles contained in our Sustainability Strategy
- We have achieved a 4-Star Communities rating for Master Plan 2039 under the GBCA
- Green Star Communities requires recertification every five years, which aligns with the requirement to review airport master plans under the Airports Act

4.3 Sustainability at Sydney Airport

We are committed to responsible growth that delivers positive outcomes for our customers, investors and the community in which we operate.

As Sydney's population continues to grow towards eight million people by the middle of the century, the pressures on the airport will also increase. Recognising that a responsible approach can generate value and positive outcomes for all stakeholders, we are committed to taking a sustainable approach to managing the future growth of the airport.

4.3.1 Sustainability Policy

Sydney Airport issued its first Sustainability Policy in 2016. The policy is updated periodically and can be found at <https://www.sydneyairport.com/corporate/sustainability/investor-sustainability/reporting-and-performance>. The Policy provides the following commitments:

1. *At Sydney Airport, our vision is to deliver a world-class airport experience and foster the growth of aviation for the benefit of Sydney, NSW and Australia. In doing this we are committed to delivering responsible growth that balances social and environmental needs with corporate objectives. As an airport operator, we aim to be recognised as a leader in sustainability.*
2. *We recognise that a responsible approach can generate value for both our business and our stakeholders and is vital to our long-term success. As such, we are committed to making sustainability central to our business strategy and underpinning everything we do.*



Image 4-2: Sydney Airport supports Surf Life Saving Sydney across 15 beaches in Sydney

4.3.2 Sustainability Strategy

Sydney Airport formulates sustainability strategies to underpin our strategic vision and to ensure a continued positive impact on people, customers and neighbours. A set of sustainability principles was developed to address the issues that are most material to our organisation and our stakeholders.

Key to our Sustainability Strategy is the commitment to action and the measurement and demonstration of improvement against sustainability indicators.

These commitments are broad ranging and have impacts across both planning and operations.

Master Plan 2039 provides us with the opportunity to progress a number of these commitments into the next development phase. It has drawn from the commitments within the annual Sustainability Report and integrated appropriate actions relevant to the planning process.



Community

Making a positive contribution to the communities in which we operate



Innovation and technology

Fostering an innovation culture, approaching things differently and using technology to deliver better outcomes



Customer experience

Working with our employees, airport users, business partners and other stakeholders to deliver an enhanced customer experience



Governance and reporting

Establishing systems to ensure sustainability is embedded into the way we do business and how we report on our performance to our stakeholders



Environmental efficiency

Improving energy and water efficiency and reducing carbon intensity



Climate change

Building resilience and adapting to the physical impacts associated with climate change



Skills, training and employment

Attracting and retaining the right people and investing in their growth and development



Inclusion and diversity

Creating an inclusive and diverse airport work environment



Materials and supply chain

Sourcing responsible materials and managing the social and environmental impact of our procurement decisions



Health and wellbeing

Promoting a healthy workforce to support the physical and emotional wellbeing of our people and the airport community



Safety and security

Ensuring the safety and security of the airport community



Waste

Minimising waste going to landfill

4.3.3 Annual Sustainability Report

The *Sydney Airport Sustainability Report 2017* <https://www.sydneyairport.com/corporate/sustainability/investor-sustainability/reporting-and-performance> provides an update on our approach to sustainability at Sydney Airport. We recognise that in order to deliver a world class airport, Sydney Airport needs to be a sustainable business.

As part of our approach, we have given consideration to the United Nations' Sustainable Development Goals (SDGs), and the role we can play to address some of the significant challenges facing our world today. We identified nine SDGs as being relevant to our overall vision and strategy and in areas that we feel can make a positive impact. More information on how we have supported each of these SDGs can be found in our annual Sustainability Report.



Figure 4-1: United Nations' Sustainable Development Goals relevant to Sydney Airport

4.3.4 Governance

We have developed a Governance Framework for Sydney Airport to guide the direction of sustainability at the airport and to outline the roles and responsibilities for decision making and delivery. This Governance Framework, which is reviewed on a regular basis, will ensure the successful and sustainable delivery of future developments outlined in Master Plan 2039.

Further details on the Governance Framework can be found in our annual Sustainability Report.

4.3.5 Resilience

At Sydney Airport, we recognise the importance of building resilience into existing and future developments and operations. Master Plan 2039 uses current and forecast trends to anticipate and respond to shifting operational needs and predicted environmental and social impacts, including anticipated impacts of climate change.

Our Airport Development Plan incorporates the flexibility to adapt to changing circumstances, providing resilience for the airport and aviation operations. We have committed to considering and reporting on climate risk in accordance with the Task Force on Climate-related Financial Disclosures framework.



Figure 4-2: Sydney Airport Governance Framework

4.4 Recent Sustainability Achievements

Since the publication of Master Plan 2033, significant progress has been made in the sustainability performance of Sydney Airport.

Recent achievements are summarised in .

A full list of achievements and further details can be found in our annual Sustainability Report. Other measures specific to environmental management are outlined in [Chapter 14.0 Environment](#) and [Environment Strategy 2019-2024](#).

Table 4-1: Summary of recent sustainability achievements

Sustainability Aspect	Achievement
Climate Change and Carbon Neutrality	Achieved Level 3 of the Airport Carbon Accreditation program, an international certification program designed to assess and acknowledge airports' efforts to manage and reduce carbon emissions. This includes calculation of Sydney Airport's Scope 3 emissions
	Reduced carbon intensity per passenger by 27.2 percent and absolute emissions by 5.5 percent since 2010
	Offset the emissions from our vehicles through Greenfleet, which plants 1,600 trees annually to recapture carbon from the environment and promote healthy air quality
Resource Use	Introduced a new lighting system in the P2 car park, reducing energy use in the car park by 30 percent
	Installed a new solar photovoltaic (PV) system on top of the P6 car park
	Introduced six electric buses operating between the Blu Emu car park and the T2/T3 precinct
	Continued use of the water recycling plant, which takes wastewater from T1, treats it and supplies it for toilet flushing and air conditioning cooling towers. Since 2012, this plant has delivered an average of more than 600 kilolitres a day of recycled water for use across the airport. This is equivalent to saving an Olympic-sized swimming pool worth of water every four days
Waste and Resource Recovery	Implemented a new waste contract in 2016, targeting a 30 percent recovery of recyclable and organic material from the non-quarantine general waste stream
	Conducted an audit of the airport's waste streams to identify future opportunities for resource recovery, particularly from construction and demolition activities
Community and Stakeholders	Introduced a new shared pedestrian/cycle bridge to provide direct access to T1 from Cooks River Drive
	Refreshed the Sydney Airport Community Investment Strategy and increased community investment spend by 69 percent between 2014 and 2017. Our community investment strategy includes a partnership with Surf Life Saving Sydney, where we deliver a corporate volunteering program and a 'swim smart' education campaign
	Became a foundation partner of the AFL Women's Greater Western Sydney (GWS) GIANTS team in the league's inaugural season. Supported GIANTS Care to help young people and families in Western Sydney access health and education services
	Commissioned a major public art project in a landmark partnership with the Museum of Contemporary Art Australia (MCA), creating opportunities for the public to engage with MCA exhibitions and programs. The commissioned indigenous artwork was unveiled at the T1 Marketplace in 2018
Safety and Security	Enhanced our Foreign Object Debris (FOD) Management Strategy including revised procedures, and purchased additional FOD management equipment, such as magnetic bars on our sweeper trucks to remove smaller metal items
	Delivery of an airport-wide safety and security awareness program, including training for our employees
	Development of an airside driving awareness course as part of an integrated Airside Driving Management System
Resilience	Enhanced our Airport Emergency Plan, including additional airside and landside emergency response procedures, plans and capabilities
	Undertook a climate change risk assessment and preparation of a Climate Risk and Adaptation Plan

4.5 Broader Sustainability Context

4.5.1 Regional and District Plans

As detailed in **Chapter 3.0 Strategic Context and Economic Significance**, GSC has released the Greater Sydney Region Plan: A Metropolis of Three Cities and the Eastern City District Plan, within which Sydney Airport is located.

The District Plan outlines a number of planning priorities for sustainability, which Master Plan 2039 has considered, including:

- *Planning Priority E14 – Protecting and improving the health and enjoyment of Sydney Harbour and the District’s waterways*
- *Planning Priority E15 – Protecting and enhancing bushland and biodiversity*
- *Planning Priority E16 – Protecting and enhancing scenic and cultural landscapes*
- *Planning Priority E17 – Increasing urban tree canopy cover and delivering Green Grid connections*
- *Planning Priority E18 – Delivering high quality open space*
- *Planning Priority E19 – Reducing carbon emissions and managing energy, water and waste efficiently*
- *Planning Priority E20 – Adapting to the impacts of urban and natural hazards and climate change*

Master Plan 2039 is aligned with Planning Priorities E14, E15, E16, E19 and E20. However, Planning Priorities E17 and E18, are only partially aligned given the large non-publicly accessible airside zones and operational constraints of aviation.

4.5.2 Climate change

In 2015, the Australian Government committed to the Paris Agreement¹ and will implement national policies to reduce emissions and adapt to climate change impacts as part of the global coordinated action.

By 2030, Australia is targeting a reduction in emissions of 26 to 28 percent compared with 2005 levels, with the long term goal of net-zero carbon emissions by 2050 across the economy. To meet this goal, we will aim to reduce Sydney Airports’ carbon footprint by adopting the sustainability initiatives in Master Plan 2039 and other operational initiatives that improve aviation efficiency.

Our Climate Risk Assessment and Adaptation Plan has identified key risks for Sydney Airport. These risks have been considered and incorporated into Master Plan 2039 to ensure future developments have embedded resilient design.

Further details of climate change and resilience risks and opportunities can be found in **Chapter 14.0 Environment** and **Environment Strategy 2019-2024**.

4.5.3 Market trends

Increased local and global market pressures including increased competition, the price of fuel and increased security risks make it more important than ever for an airport to function efficiently in order to support its sustained growth. In response to these pressures, measures to streamline operations at Sydney Airport have included:

- Enhancing the customer experience
- Incorporating upgrades to ground access
- Digitalisation of wayfinding
- Introduction of smart gates
- Digital mapping

Our focus is on improving operational efficiency at Sydney Airport. Efficiencies such as improved baggage handling, streamlined passenger processing and improved aircraft taxiways can lead to benefits including improved customer experience, reduced fuel consumption from shortened taxiing times, and increased airport passenger capacity. Ultimately, these benefits raise Sydney Airport’s overall competitiveness on the global stage as a world-class airport.

¹ The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change dealing with greenhouse gas emissions mitigation, adaptation and finance starting in the year 2020. The Agreement aims to respond to the global climate change threat by keeping a global temperature rise this century well below two degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

4.6 Embedding Sustainability within Master Plan 2039

The preparation of Master Plan 2039 has aligned individual technical disciplines to our relevant sustainability policies, plans and ambitions, as illustrated in **Figure 4-3**. Information on current sustainability initiatives and their performance (historically and forecast) has been an important consideration when deciding which sustainability initiatives to adopt for 2039.

The master planning process has used existing information to identify and embed sustainability initiatives into the Airport Development Plan and Airport Planning Framework.

During the preparation of Master Plan 2039 we held an in-house design review workshop, which considered Master Plan 2039 in the context of its integration with existing development, urban form, design for mixed use, employment, and landscape and green infrastructure.

Proposed development initiatives in Master Plan 2039 have been prioritised based on their relevance to our sustainability principles. We have focused on innovation and technology, using an understanding of currently available technologies and airport operations, in conjunction with development workshops to provide solutions that will maximise sustainability for the airport.

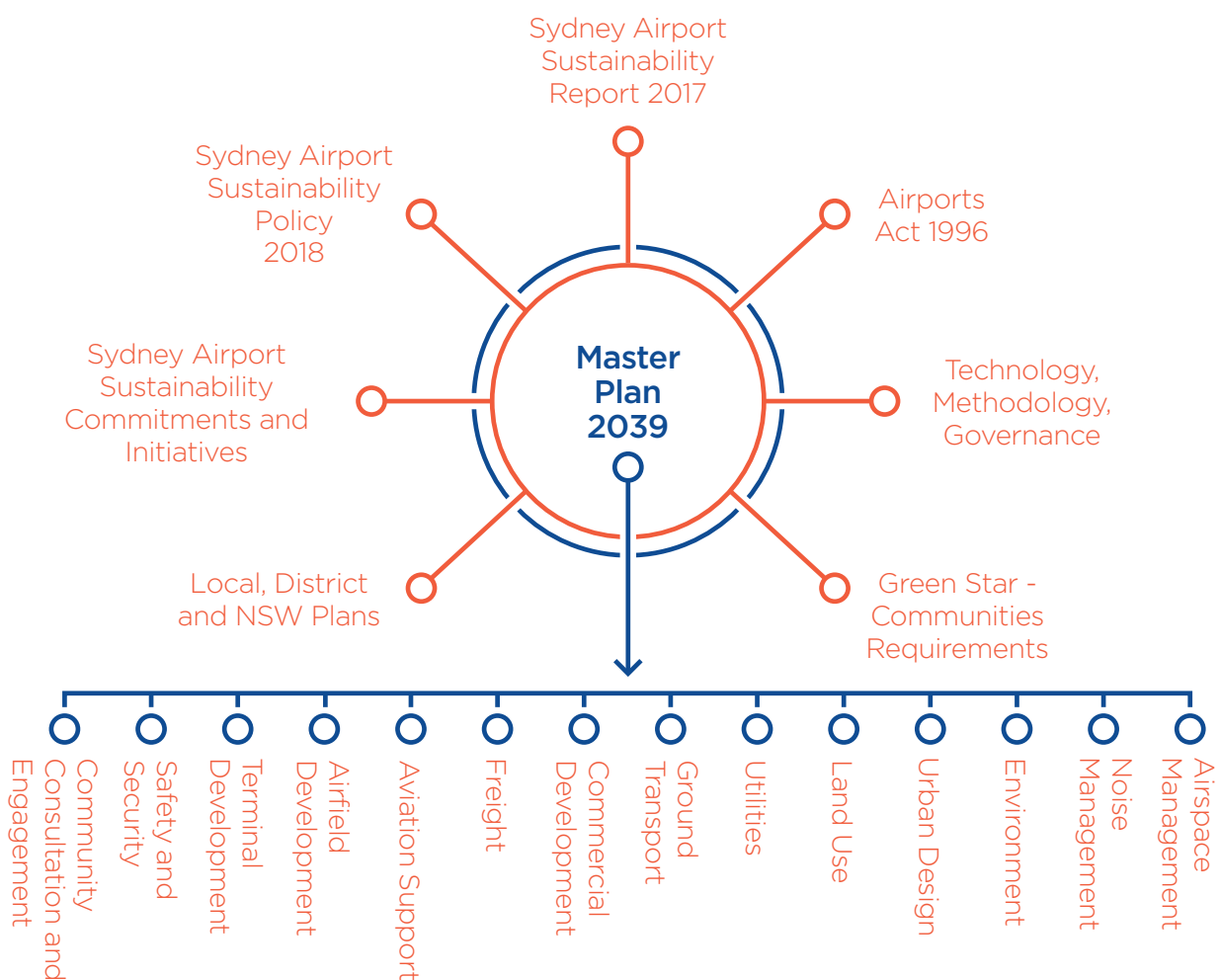


Figure 4-3: Inputs and implications of sustainability for Master Plan 2039

4.7 Green Star Communities

Green Star Communities is a nationally recognised sustainability design framework and rating tool developed by the GBCA to assess the planning, design and construction of large scale development projects at the precinct level. The framework acts as a mechanism for driving sustainable development and behaviours that benefit both the direct asset and surrounding neighbourhoods through application and assessment against the five categories outlined below.

In line with our ambition to become a recognised leader in sustainability, we have achieved a 4-Star Communities rating for Master Plan 2039. Achievement of the rating involved embedding under the GBCA each of the technical requirements into Master Plan 2039 and more broadly across all our operations and future development plans to provide social, environmental and economic benefits to airport users and community members.



Governance

Aims to encourage and recognise developers and projects that demonstrate leadership within the sector, by establishing and maintaining strong governance practices. The category promotes engagement and transparency, as well as community and industry capacity building. It also seeks to ensure that community projects are resilient to a changing climate.



Livability

Aims to encourage and recognise developments that deliver safe, accessible and culturally rich communities. The category encourages the development of healthy and active lifestyles, and rewards communities that have a high level of amenity, activity and inclusiveness.



Economic prosperity

Aims to encourage and recognise projects that promote prosperity and productivity. The category encourages affordable living and housing, investment in education and skills development, and community capacity building. This category also promotes greater productivity through emerging opportunities in the digital economy.



Environment

Aims to reduce the impact of urban development on ecosystems. It encourages resource management and efficiency by promoting infrastructure, transport and buildings with reduced ecological footprints. The Environment category seeks to reduce the impacts of projects on land, water and atmosphere.



Innovation

Aims to recognise the implementation of innovative practices, processes and strategies that promote sustainability in the built environment.






Figure 4-4: Green Star Communities Categories

Growth of Sydney Airport has the potential to increase demand and pressure on existing infrastructure networks including energy, water, waste and transport. The Green Star Communities rating focuses on alleviating pressures associated with growth to provide infrastructure solutions. Sydney Airport's large public precincts, and the large numbers of people using them, also provide a sizable opportunity for enhancing users' and surrounding community members' wellbeing and experience by applying the rating criteria.

A key feature of Green Star Communities is the requirement for recertification every five years, which aligns with the requirements of the Airports Act for airport master plans to be periodically reviewed. This will ensure that commitments made at planning and design stages are delivered and implemented. It will also provide us with an incentive to continually improve our processes through review, improvement and innovation.

Table 4-2 outlines how the Green Star Communities categories align with our sustainability principles, as highlighted in the Sustainability Strategy.

Table 4-2: Alignment of Green Star Communities categories and Sydney Airport sustainability principles

Green Star Communities Category	Sydney Airport Sustainability Principle
 Governance	Governance and reporting
 Livability	Community
	Customer experience
	Health and wellbeing
	Inclusion and diversity
	Safety and security
 Economic prosperity	Skills, training and employment
 Environment	Climate change
	Environmental efficiency
	Materials and supply chain
	Waste
 Innovation	Innovation and technology

4.7.1 Adoption of Green Star Communities

The master planning process has identified the credit requirements for 4-Star Green Star Communities rating that are applicable to Sydney Airport. The flexibility provided by the Green Star Communities tool has allowed us to choose criteria that align with our initiatives and priorities.

Our approach has been to embed these criteria in relevant chapters of Master Plan 2039. The Green Star Communities criteria for each category and their alignment with Master Plan 2039 are provided in **Table 4-3**.



Image 4-3: Sydney Airport and community volunteers supporting Conservation Volunteers Australia

Table 4-3: Green Star Communities criteria embedded in Master Plan 2039

Aspect	Criterion	Master Plan 2039 Chapter
Governance		
Engagement	Stakeholder Engagement Strategy	5.0 Stakeholder and Community Engagement
Adaptation and Resilience	Climate Adaptation	14.0 Environment Environment Strategy 2019-2024
	Community Resilience	14.0 Environment Environment Strategy 2019-2024
Environmental Management	Environmental Management System	14.0 Environment Environment Strategy 2019-2024
	Environmental Management Plan	14.0 Environment Environment Strategy 2019-2024
Liveability		
Healthy and Active Living	Minimum Requirement – Footpaths	11.0 Ground Transport Development Plan
	Active Lifestyle	11.0 Ground Transport Development Plan
Sustainable Buildings	Certified Non-residential Buildings	8.0 Terminal Development Plan 10.0 Commercial Development Plan
Culture, Heritage and Identity	Understanding Culture, Heritage, and Identity	14.0 Environment Environment Strategy 2019-2024
Safe Places	Design for Safety	16.0 Safeguarding Sydney Airport
Economic Prosperity		
Employment and Economic Resilience	Increase in Local Jobs	3.0 Strategic Context and Economic Significance
Environment		
Peak Electricity Demand Reduction	Reduce Peak Electricity Demand	12.0 Utilities Development Plan 14.0 Environment
Integrated Water Cycle	Water Management	12.0 Utilities Development Plan 14.0 Environment Environment Strategy 2019-2024
Greenhouse Gas Strategy	Greenhouse Gas Strategy	14.0 Environment Environment Strategy 2019-2024
Sustainable Transport and Movement	Sustainable Transport and Movement – Performance Pathway	11.0 Ground Transport Development Plan
Ecological Value	Biodiversity	14.0 Environment Environment Strategy 2019-2024
Waste Management	Construction, and Demolition Waste	14.0 Environment Environment Strategy 2019-2024
	Operational Waste	14.0 Environment Environment Strategy 2019-2024

5.0 Stakeholder and Community Engagement



5.1 Overview

We are committed to developing and maintaining strong links with the community, not just in the vicinity of the airport, but across Sydney and NSW. We actively engage with local communities and organisations about airport operations, proposed development and future planning. We actively participate in and support our local communities through our established grants programs. We also run numerous corporate initiatives to raise funds for charitable causes and we work to support the tourism industry through sponsorship and partnership programs across a range of levels.

With a large number of stakeholders who have a diverse range of interests, we ensure that our community and stakeholder engagement processes are inclusive, accessible and transparent. The preparation of Master Plan 2039 has involved a significant and broad stakeholder and community engagement process.



Image 5-1: Sydney Airport has a 17 year relationship with Surf Life Saving Sydney

5.2 Key Points

- We are committed to consultation and engagement to balance the needs of stakeholders, passengers, customers and the community
- We recognise the integral role the community and key stakeholders play in Sydney Airport's success and ongoing operations
- We have undertaken a broad stakeholder and community engagement process to inform the development of Master Plan 2039
- Feedback from a wide range of community stakeholders in metropolitan Sydney and across NSW has been sought throughout the process, beyond the minimum requirements for public consultation specified by the Airports Act
- Our engagement process has taken into account the wide diversity in our local community and considers factors such as age, education, language, cultural background and mobility
- A variety of engagement and communication mechanisms were used to reach a wide range of people and groups

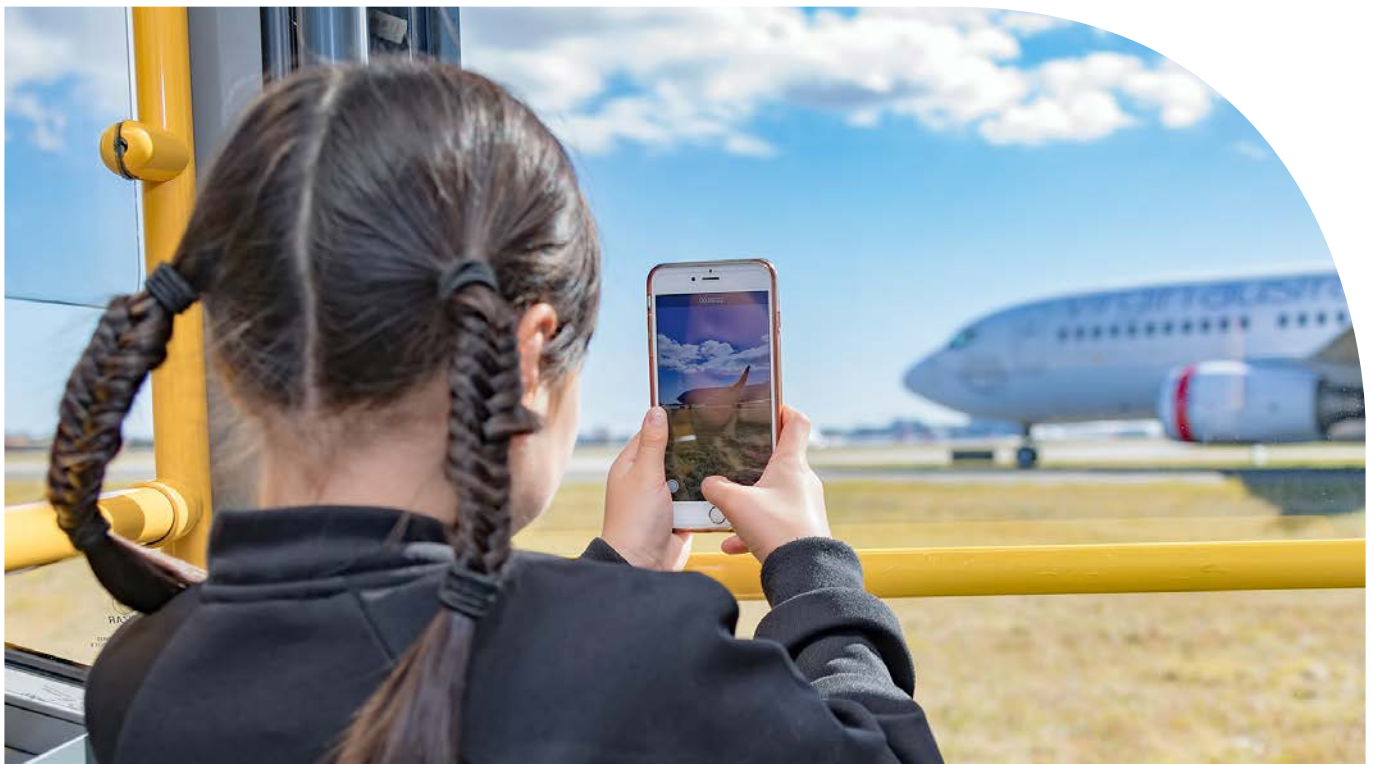


Image 5-2: An airside tour with primary school students as part of our Kids Teaching Kids partnership



5.3 Stakeholder Engagement in the Preparation of Master Plan 2039

5.3.1 Initial stakeholder consultation and briefings

As part of the initial consultation stage during the preparation of the Master Plan 2039, Sydney Airport actively engaged with a wide range of community, industry and government stakeholders.

These included:

- Airlines and their representatives
- Other aviation industry and related stakeholders, including tenants, ground transport operators and hotels
- Sydney Airport Community Forum (SACF)
- Australian Government agencies, including DIRDC, Airservices Australia, Civil Aviation Safety Authority (CASA), Australian Border Force, Department of Environment and Energy
- NSW Government agencies, including Department of Premier and Cabinet, Department of Planning and Environment, Transport for NSW, Roads and Maritime Services, Infrastructure NSW, Destination NSW, Office of Environment and Heritage and the Environment Protection Authority

- Local Government elected officials and senior planning staff
- Federal and NSW Government Ministers and Members of Parliament
- Business, tourism and industry groups

The feedback and comments received during this initial engagement process contributed to the development of Master Plan 2039 and all its parts, including the **Environment Strategy 2019-2024** and the Australian Noise Exposure Forecast.

In accordance with section 79(1A) of the Airports Act, Sydney Airport formally advised the NSW Minister for Planning; the NSW Department of Planning and Environment; and each Local Government surrounding the Airport of its intention to prepare this master plan.



Image 5-3: Consultation with our tenants about the Airport Environment Strategy

5.3.2 Public exhibition of Preliminary Draft Master Plan 2039

We have a strong commitment to consultation and engagement to balance the needs of stakeholders, passengers, customers and the community. We recognise the integral role the community and key stakeholders play in Sydney Airport's success and ongoing operations.

The engagement we undertook in 2012 to support the preparation of Master Plan 2033 was well-regarded. Master Plan 2039 is focused on consolidation, responsible growth and an enhanced customer experience; therefore the engagement approach was designed to be commensurate with this intent.

Our engagement approach for Master Plan 2039 is contemporary, exceeded statutory and regulatory requirements, and addressed the expectations of the Minister and DIRDC, as outlined in the *Airport Development Consultation Guidelines (2012)*.

As required by the Act, Master Plan 2039 was formally exhibited for public comment for 60 business days from 27 August 2018 to 20 November 2018. Throughout the public exhibition phase, a range of stakeholder and community engagement activities were undertaken, including:

- Public notification that Master Plan 2039 had been released for public comment
- Public display of Master Plan 2039
- A dedicated Master Plan 2039 website
- Digital engagement
- Notification to most affected stakeholders
- Community updates
- Community information sessions
- Informing communities living in the vicinity of Sydney Airport or underneath or near flight paths
- Master Plan 2039 community information line and email
- Briefings and presentations during the public exhibition period

A summary of the engagement approach for Master Plan 2039 and the issues raised during public exhibition is in [Appendix I](#).





6.0 Air Traffic Forecasts



6.1 Overview

Forecasts of peak period passengers, aircraft movements and air freight volumes provide the fundamental basis for the planning of airport facilities at Sydney Airport.

Air traffic forecasts have been independently prepared in consultation with the major international, domestic and regional airlines and airline associations, to ensure that the planning context for Master Plan 2039 is robust and provides confidence for our organisation and our stakeholders.

Total air passenger numbers are forecast to increase by 51 percent over the planning period, from 43.3 million in 2017 to 65.6 million in 2039.

International passengers are forecast to be the main driver of growth at Sydney Airport, with international passenger numbers nearly doubling from 15.9 million in 2017 to 31.5 million in 2039. International passenger traffic contributes the most value to our State and National economies.

Our proximity to Asia and increases in global tourism and travel are expected to drive international travel. In particular, growth in major Asian markets including China, India, South Korea and Vietnam.

By 2039 we anticipate that domestic and international passengers travelling through the airport will be 52 percent and 48 percent, respectively.

Growth in total aircraft movements is expected to be significantly lower than passenger growth, an increase of 17 percent to 408,260 in 2039. This reflects airline feedback and expectations regarding continued up-gauging of aircraft and increases in seat density and load factors.

Total freight at Sydney Airport is forecast to grow by 58 percent to 1.0 million tonnes in 2039. Passenger aircraft carry about 80 percent of all air freight. Consequently, freight is an important income stream for passenger airlines, which Sydney Airport supports through land and facilities.

All forecasts assume that from late 2026, Sydney basin's aviation demand will be served by two international airports. Sydney Airport is expected to continue to benefit from its proximity to the Sydney CBD and local tourist attractions, and its breadth of network connectivity for passengers travelling internationally, domestically and regionally.



6.2 Key Points

In 2039, Sydney Airport is projected to handle approximately:



65.6 million
passengers



31.5 million
international



34.1 million domestic
(including regional)



408,260
Total aircraft
movements



1.0 million
Tonnes of freight

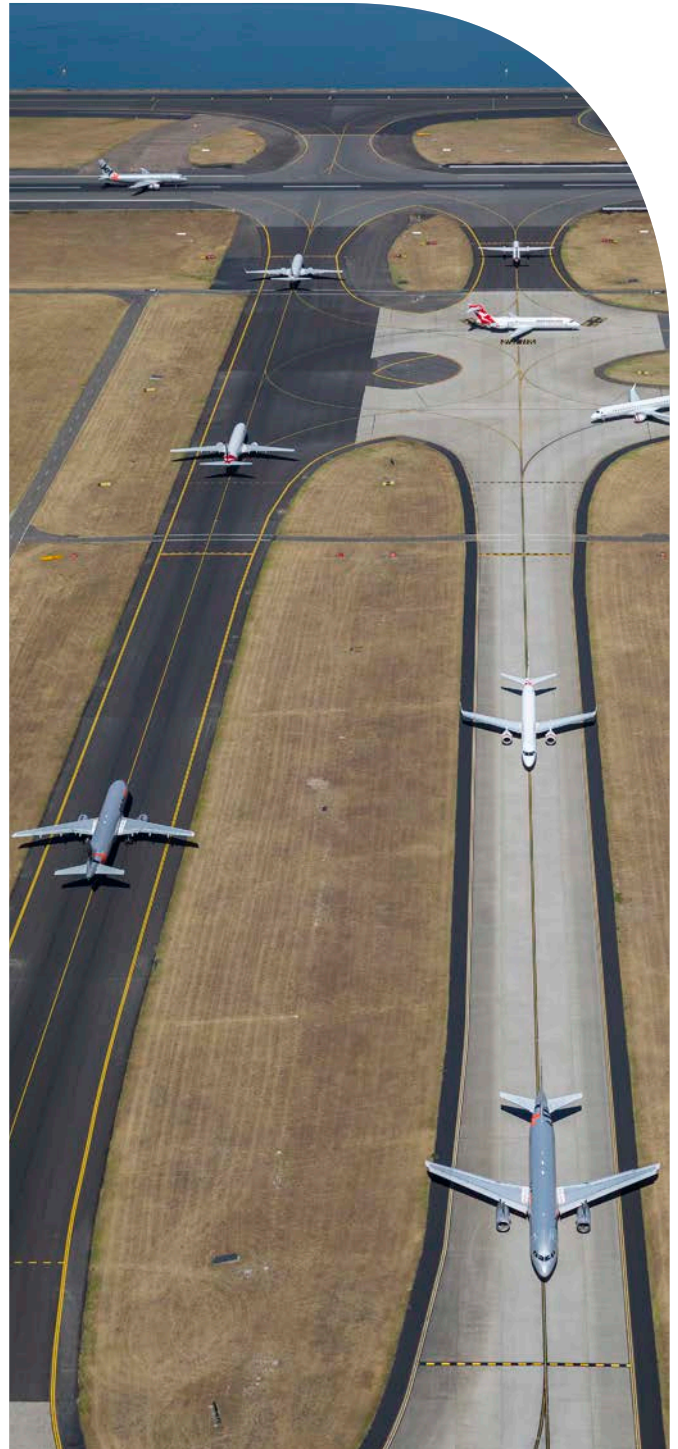


Image 6-1: Taxiways on the airfield at Sydney Airport

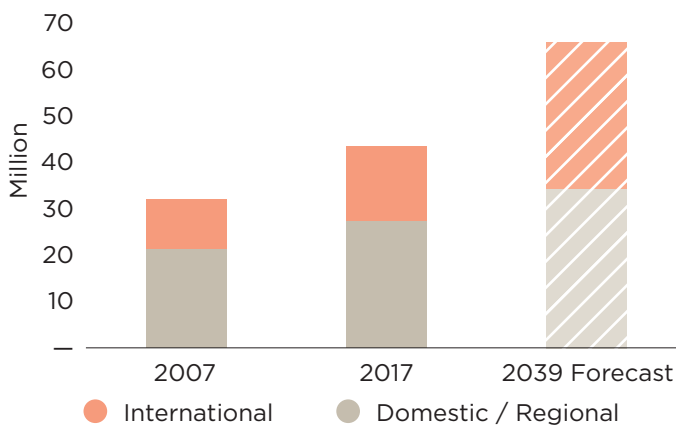
Sydney Airport Traffic

Passengers are forecast to grow at a much faster rate than aircraft movements, delivering positive economic outcomes and minimising impact on the community

Passenger Growth



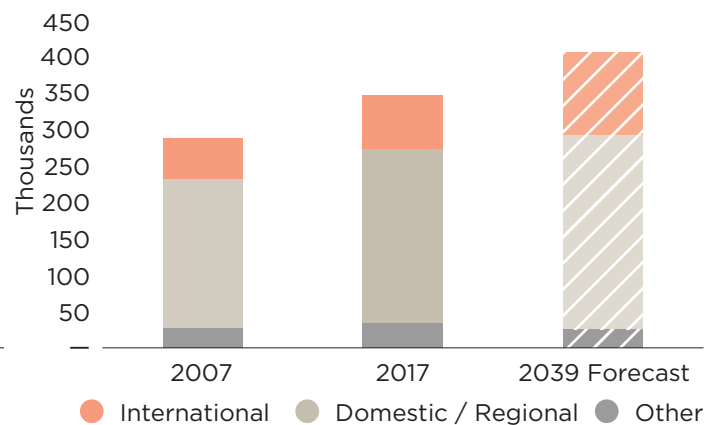
International passengers are forecast to increase from 15.9 million to 31.4 million in 2039, representing 48% of total passengers



Aircraft Movements

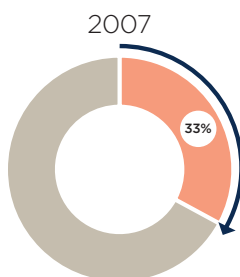


Advances in aviation technology have ensured larger, quieter and more fuel efficient aircraft service Sydney Airport

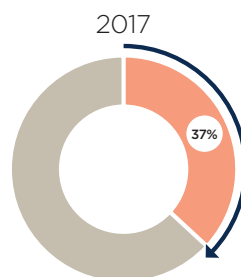


International Passenger Growth

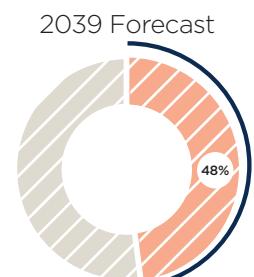
International passengers are the main driver of growth at Sydney Airport and contributes the most value to our State and National economies



International (Orange)
Domestic / Regional (Grey)



International (Orange)
Domestic / Regional (Grey)



International (Orange)
Domestic / Regional (Grey)

6.3 Aviation Industry Trends

The forecasts prepared for Master Plan 2039 are a critical input into the long-term planning at Sydney Airport. They are used to inform the development plan for terminals, airfield and all supporting infrastructure.

We anticipate that the aviation industry's shift towards larger, quieter and more fuel efficient next generation aircraft will continue, and passenger numbers will continue to grow at a faster rate than aircraft movements. This has positive outcomes for noise and environmental impacts.

Since privatisation in 2002, Sydney Airport has experienced significant growth. Passengers have increased by 81 percent, from 23.9 million to 43.3 million in 2017.

As passengers have grown, so has the importance of aviation to the economy. In 2017, the value of tourism and freight facilitated by Sydney Airport, and from businesses operating at the airport, was estimated to be \$38.0 billion. This represents approximately 2.2 percent of Australia's Gross Domestic Product (GDP). Accommodating further growth in aviation is a key priority for Sydney Airport.

The evolution of low cost carriers (LCCs) and technology advancement has led to reductions in real airfares, which in turn has stimulated air traffic growth. Further, liberalisation of air rights has encouraged growth in air travel and improved tourism and trade ties between nations.

These industry changes have been gradual, sustained over a long period of time, and are ongoing. They were taken into account in preparing passenger and aircraft movement forecasts and airport capacity requirements for Sydney Airport. Key trends include:

- Passenger demand has grown more quickly than the general economy
- Next generation aircraft have become larger, quieter, safer, more fuel efficient and more comfortable. Airline fleets have reflected this trend, including:
 - Replacement of older generation B737-300 and B737-400 aircraft with B737-800s (with 25-50 percent more seats)
 - Up-gauging of Dash8-200 aircraft to predominantly Dash8-Q400s (with 100 percent more seats)
 - Replacement of B747-400, A330 and B777-300 aircraft with A380s, B787s, A350s and B777Xs
- Airlines have increased the average number of passengers per aircraft through increased seating density and improved load factors
- Demand for air travel has been stimulated by lower air fares
- The gradual increase in the proportion of leisure passengers is both a cause and an effect of the growth of LCCs
- Changing airline partnerships and alliances have resulted in new products and offerings for passengers

Other changes are more unpredictable and frequently produce changes in the shorter term. At the most extreme are disruptions arising from terrorism, war, natural events and health scares. In most cases, traffic levels quickly return to the previous trend once the circumstances causing the disruption have abated.

Higher oil prices have in the past slowed the growth in aviation traffic by increasing input costs to airlines, and subsequently the price of airfares to passengers, causing demand to fall. However, increased fuel costs have led to aircraft manufacturers and airlines introducing more fuel efficient aircraft.

6.3.1 Ongoing evolution of aviation activity

Airports globally are competing for next generation aircraft that are being delivered to predominantly Asian and Middle Eastern airlines and global LCCs. These developments have dramatically increased the level of competition among airports for traffic in Australia, as elsewhere.

Over the past 10 years seats to Sydney Airport from the Middle East have grown significantly, serviced by Middle Eastern carriers, with the Europe/Africa market contracting, as demonstrated in **Figure 6-1**. Those markets continue to be served by code share agreements.

Individual airline strategies have also continued to evolve to adapt to changing market conditions:

- The number of mainland Chinese operators to Sydney Airport has now increased to eight following significant growth in the Sydney-China market

- Qantas has recently moved its stopping point for London flights back from Dubai to Singapore to enable better connections to fast growing Asian markets
- Virgin Australia has recently implemented a codeshare partnership with Chinese airlines in the HNA Group to increase its presence in the China market
- Virgin Australia increased its stake in Tigerair from 60 percent to 100 percent in 2014. Consequently, the two major domestic airline groups, Qantas Group (which includes Qantas and Jetstar) and Virgin Australia (which includes Virgin Australia and Tigerair) now both offer a full-service and LCC product

As airlines have evolved to compete for market share and to meet passenger demand, our development plans have been adapted to meet changing needs and priorities. The Airport Development Plan in Master Plan 2039 has been designed to be flexible so that we can continue to respond to changing conditions.

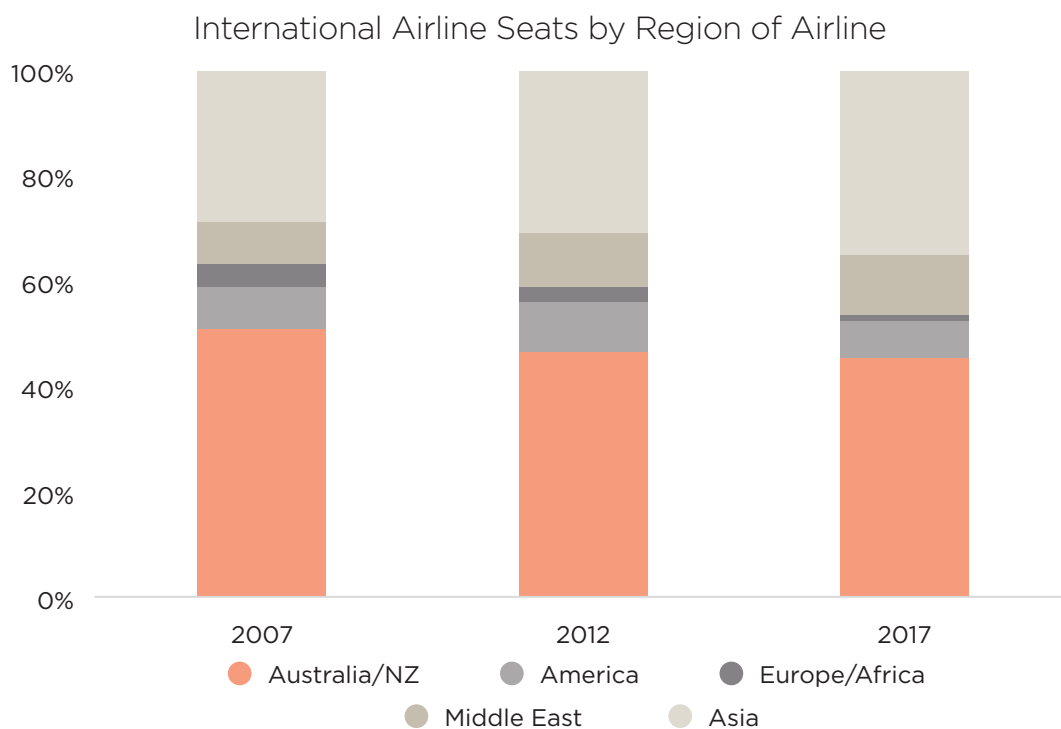


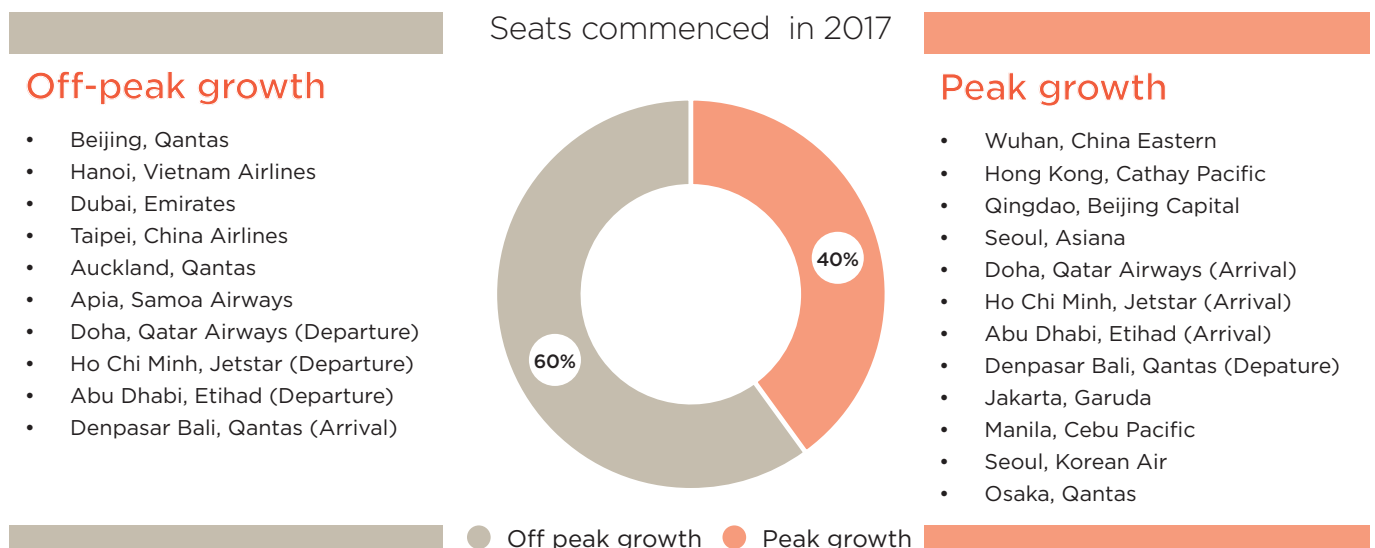
Figure 6-1: Proportion of international aircraft seats by region of airlines

6.3.2 Off-peak growth

The changes to the aviation industry, together with the maturation of specific routes, are also supporting the spreading of the existing morning and afternoon peaks at Sydney Airport. This is illustrated in **Figure 6-2**, which highlights that 60 percent of new seats commenced in 2017 were outside peak periods.

Peak spreading will continue to be driven by a number of factors, including:

- The focus of LCCs on maximising aircraft utilisation throughout the day, rather than serving predominantly business passengers and transfer connections for international and domestic operations
- Scheduling windows for origin and destination (O&D) services to Asia, which are different from the traditional Europe-bound services
- Differences in scheduling windows between Asian hubs and Middle Eastern and European hubs
- Creation of second and subsequent departure banks in Asia and within Australia as carriers grow. For example, Singapore Airline's 10 movements per day are scheduled for 10 different hours, with the majority well outside peak periods



*International peak is defined as 6am to 12pm

Figure 6-2: Timing of seats commenced in 2017

6.4 Forecast Approach

6.4.1 Specialist advisers

Forecasts of peak period passengers, aircraft movements and air freight volumes provide the fundamental basis for the planning of airport facilities at Sydney Airport. We recognise the need for and value of forecasts prepared by independent specialists recognised by the aviation industry. We engaged the following companies to assist us in preparing the forecasts for Master Plan 2039:

- **Tourism Futures International (TFI)**

TFI is a research-oriented company specialising in the future of aviation, travel and tourism. TFI prepares in-depth passenger and aircraft movement forecasts and traffic trend analysis for airports and local and state authorities across Australia, New Zealand, Asia and the Middle East.

TFI worked with us to prepare the passenger and aircraft movement forecasts for input into Master Plan 2039.

- **CAPA – Centre for Aviation**

CAPA is the leading provider of independent market intelligence, research and data solutions that support strategic decision-making by the aviation industry.

CAPA peer reviewed the forecasts prepared by TFI.

- **Airbiz**

Airbiz is a specialist international consultancy, providing expert advice to airport owners, airline operators, investors, government agencies and other aviation stakeholders. They cover a wide range of aviation business disciplines including air transport forecasts.

Representative day forecast schedules were prepared by Airbiz in consultation with TFI. Schedules were prepared for selected years, including 2019 and 2039.

- **Ryan Aviation Consulting**

Ryan Aviation Consulting is a specialist aviation consulting firm, focused on leading and managing the development of forecasts for the freight and logistics industry, including forecasting trends in imports and exports of air freight.

Forecasts of air freight volumes were prepared by Ryan Aviation Consulting.

6.4.2 Forecasting method and assumptions

TFI's forecasting method involved five steps:

1. Top down econometric modelling

Economic factors considered by TFI included:

- Gross domestic product (GDP) for the countries contributing visitors to Sydney and Australia
- Australian GDP
- NSW gross state product (GSP)
- Australian trade weighted index
- Global exchange rates

TFI utilised forecasts for these variables from:

- The International Monetary Fund (IMF)
- The Organisation for Economic Cooperation and Development
- National and state/provincial governments
- Central banks
- Private forecasters, such as Consensus Economics

Demographic factors that might impose constraints on demand in the long term were considered, including population forecasts for overseas visitor markets, Australia and Australian states and territories.

2. Development of segment-based forecast models for individual markets and/or routes

Trend assessments and segment models were developed by TFI at the route level for the domestic market, and at the country level for the international market.

3. Review of the fleet orders of airlines and the forecasts of aircraft type by the aircraft manufacturers

4. Iterative consultation with the key airlines

These consultations were extensive and provided TFI with detailed airline information to input into the forecasts. They included meetings with:

- The Board of Airline Representatives of Australia
- network development teams of:
 - » Virgin Australia (including Tigerair)
 - » Qantas Group (Qantas, QantasLink and Jetstar)
 - » Regional Express Group
 - » Air New Zealand

Meetings occurred with these stakeholders during the preparation of the draft forecasts to discuss TFI's forecasting methodology and clarify assumptions, including:

- Passenger demand
- Aircraft types
- Seating densities
- Load factors
- Frequencies
- Peak and off-peak operations
- Turnaround times
- Freight volumes

We held additional meetings following the preparation of the draft forecasts. The airlines that participated in the consultation generally accepted the approach, assumptions and forecasts.

5. Benchmarking of the outputs

The forecasts produced by TFI were benchmarked against other forecasts:

- For Sydney (Bureau of Infrastructure, Transport and Regional Economics [BITRE] and the *Joint Study on aviation capacity in the Sydney region* [Joint Study])
- For Australia (BITRE and Tourism Forecasting Committee)
- Worldwide, including by:
 - » Aircraft manufacturers
 - » The US Federal Aviation Administration
 - » Eurocontrol
 - » The UK Department of Transport

This five step method resulted in a Sydney Basin traffic forecast. Beyond 2026, an assessment was then made of Sydney Airport's 'natural share' reflecting its proximity to the Sydney CBD and network connectivity for passengers travelling internationally, domestically and regionally.

Aircraft movement forecasts were prepared using the passenger forecasts and the average numbers of passengers per movement, following consultation with the airlines. Passengers per movement depend on passenger load factors, seating density and aircraft types.

Broad assumptions underlying the forecasts used in Master Plan 2039 include:

- Continued strong economic growth during the medium and longer term for China, India and much of Asia
- Strong growth in the middle classes across Asia as average incomes grow and more of the population has the ability to travel internationally
- The delivery of new aircraft types that combine fuel efficiency, lower noise profiles and longer range (B787, A350, B777-X) to airlines serving Australia. Combined with the growth in the middle classes this should facilitate an increase in city pair connections across Asia and between Australia and Asia
- An increase in the average number of seats per aircraft movement for Sydney Airport across all traffic segments (i.e. international, domestic and regional)
- The ongoing development of new passenger markets by LCCs



Image 6-2: The China Airlines next generation A350 touching down in Sydney for the first time

6.5 Passenger Forecasts

Total air passenger numbers at Sydney Airport are forecast to increase by 51 percent over the planning period of Master Plan 2039, from 43.3 million in 2017 to 65.6 million in 2039. Forecast growth to 2039:

- International passengers 31.5 million (up 97 percent)
- Domestic passengers 31.4 million (up 25 percent)
- Regional passengers 2.7 million (up 22 percent)

This represents annual average growth rates of 3.1, 1.0 and 0.9 percent respectively for international, domestic and regional passengers.

International passengers are forecast to be the main driver of growth at Sydney Airport with international passenger numbers nearly doubling from 15.9 million in 2017 to 31.5 million in 2039. These passengers contribute the most value to the NSW and Australian economies. By 2039 we anticipate that international passengers travelling through the airport will be 48 percent of total traffic, up from 37 percent in 2017.

The passenger growth forecast is a critical input into our approach to long-term planning. It informs the development plans for the terminals, apron and supporting infrastructure. Delivery of projects in the Airport Development Plan is based on projections of demand and is undertaken with significant internal and external stakeholder consultation.

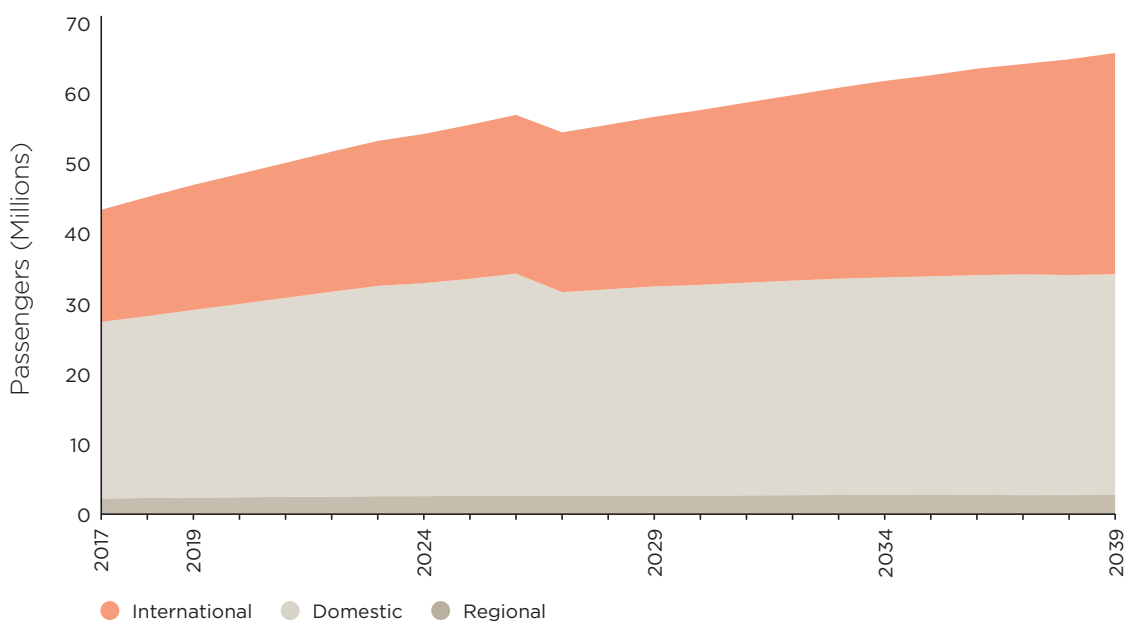


Figure 6-3: Forecast passenger growth, 2017 to 2039

Table 6-1: Passenger forecasts

	2017	% of total	2039	% of total	CAGR*
International	16.0	37%	31.5	48%	3.1%
Domestic	25.1	58%	31.4	48%	1.0%
Regional	2.3	5%	2.7	4%	0.9%
Total	43.3	100%	65.6	100%	1.9%

* Compound Annual Growth Rate

6.6 Aircraft Movement Forecasts

Total aircraft movements at Sydney Airport are forecast to increase to 408,260 in 2039. Of that, scheduled passenger movements are forecast to be 382,305 in 2039.

Significantly, growth in total aircraft movements is lower than passenger growth and reflects a 17 percent increase from current levels to 2039. This expectation is derived from airline feedback and expectations regarding continued up-gauging of aircraft and increases seat density and load factors.

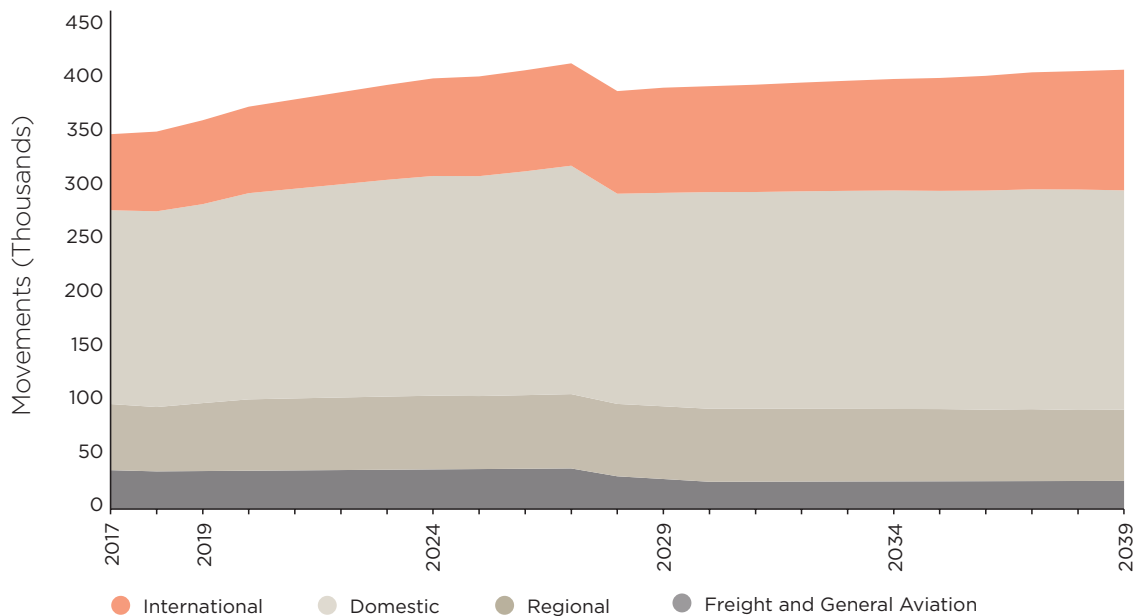


Figure 6-4: Forecast aircraft movement growth, 2017 to 2039

Table 6-2: Aircraft movement forecasts

	2017	%	2039	%	CAGR
International	73.6	21%	113.5	28%	2.0%
Domestic	180.8	52%	202.9	50%	0.5%
Regional	59.4	17%	65.9	16%	0.5%
Total RPT	313.9	90%	382.3	94%	0.9%
Freight & GA	34.7	10%	26.0	6%	-1.3%
Total	348.5	100%	408.3	100%	0.7%

6.6.1 Average number of passengers per flight forecast

Passenger numbers per aircraft approximately doubled in the 20 years between 1966 and 1986, and then approximately doubled again by 2006.

The number of passengers per aircraft increased by 13 percent between 2007 and 2017, driven by an increasing international share as well as growth in passengers per aircraft on the international sector. Passengers per aircraft are forecast to increase by approximately 24 percent over the next 22 years.

Figure 6-5 depicts the historical growth in the average number of passengers per aircraft movement over the past 10 years and the projected increase to 2039.

This increase in the average number of passengers per flight is expected to be achieved through:

- Increased use of larger capacity aircraft, such as:
 - The A380, A350, B777x and B787 (international)
 - The B737max, A321 and A320 neo family (domestic)
 - Continued up-gauging of regional aircraft

- Increased seat density, particularly as a result of the growth of LCCs, which frequently operate without premium cabins and provide less leg room for passengers
- Further increases in load factors, continuing the international and Australian trends of the past several decades, to levels consistent with today's best practice

For regional services, the average number of passengers per movement is forecast to grow from 38 in 2017 to around 42 in 2039. The forecast schedule anticipates that regional destinations will continue to be served predominantly by turbo-prop aircraft, although by 2039 seven percent of the movements to regional destinations are expected to be operated by jet services. This is likely to be predominantly to leisure destinations (e.g. Ballina). Aircraft technology improvements mean these jet aircraft are no longer materially louder than the much smaller turbo-prop aircraft they replace.

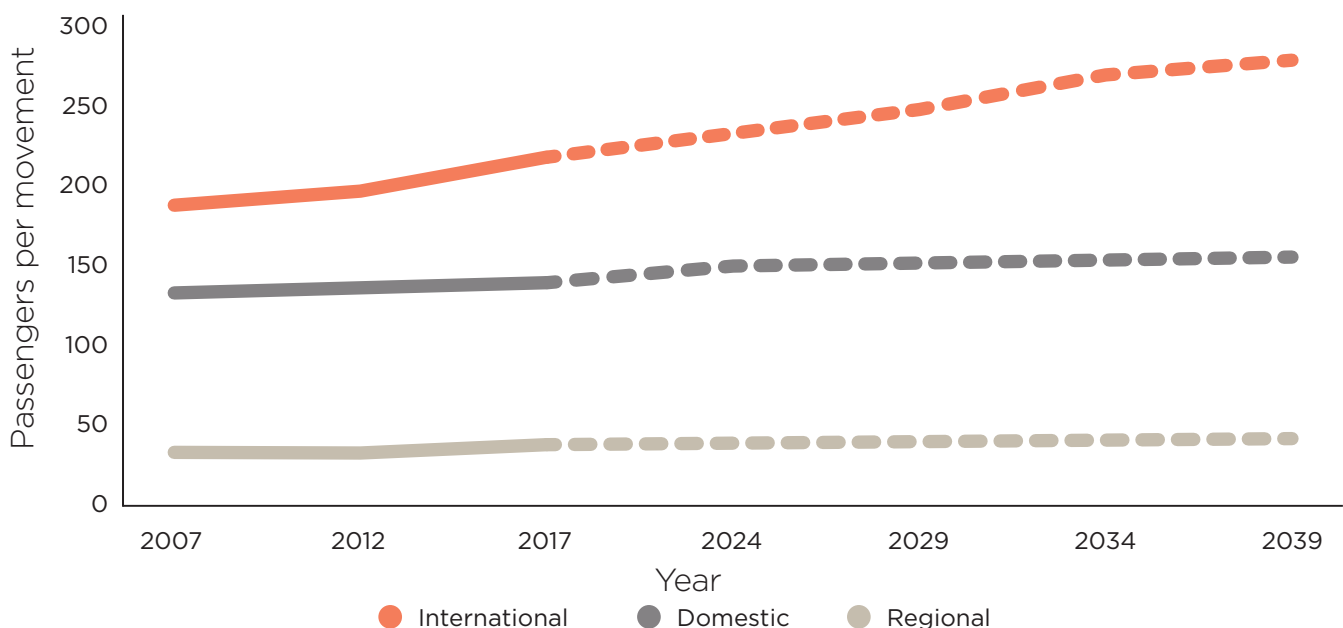


Figure 6-5: Historical and forecast average passengers per movement, 2007 to 2039

6.7 General and Business Aviation

Unusually for a major capital city airport, Sydney Airport is not just Australia's primary airport for passenger and core freight operations; it is also Sydney's primary airport for specialised freight, executive aviation and helicopters.

In 2017 general and business aviation (GA) movements were 26,100. This figure includes 14,615 helicopter movements.

While Sydney Airport can continue to accommodate GA, it could operate more efficiently with increased focus on core international, domestic and regional passenger operations (and related freight), with the associated economic benefits for NSW. In the long term, there will be increased demand for specialised freight, GA, executive aviation and helicopter activities at other airports and heliports.

We believe that it is important for a helicopter strategy to be developed for the Sydney market. Our understanding is that the demand for helicopters is tightly centred on the CBD and the Harbour, and that most helicopter operators have a strong desire to be able to operate from the CBD rather than from Sydney Airport. Sydney's competitiveness as a tourist and business destination would be enhanced if a suitable location could be found closer to the CBD.

RAAF Base Richmond could also be developed for non-core civilian use, including specialised freight, GA, helicopters and other aviation activities. Sydney Airport should not be expected to be the primary airport in Sydney for all aviation users, but should focus on international, domestic and regional passenger operations (and related freight).



Image 6-3: Corporate aviation at Sydney Airport

6.8 Air Freight Forecasts

Air freight is a vital economic activity at Sydney Airport, with about half of Australia's international air freight passing through the airport. It also provides an important income stream for passenger airlines, which transport about 80 percent of all air freight. The remaining 20 percent is flown by air freight companies in dedicated freight aircraft.

Total freight is forecast to grow from 643,000 tonnes in 2017 to 1,018,000 tonnes in 2039. This represents an average annual growth of 2.1 percent. There is a forecast decline in freight tonnage between 2026 and 2027, reflecting the potential move of dedicated freight traffic to Western Sydney Airport, but subsequent growth means the 2026 total is forecast to be exceeded again by 2034 (see [Figure 6-6](#)).

Dedicated freight aircraft movements are forecast to decline from 8,572 in 2017 to 6,522 in 2039, which represents an annual average decline of 1.2 percent.

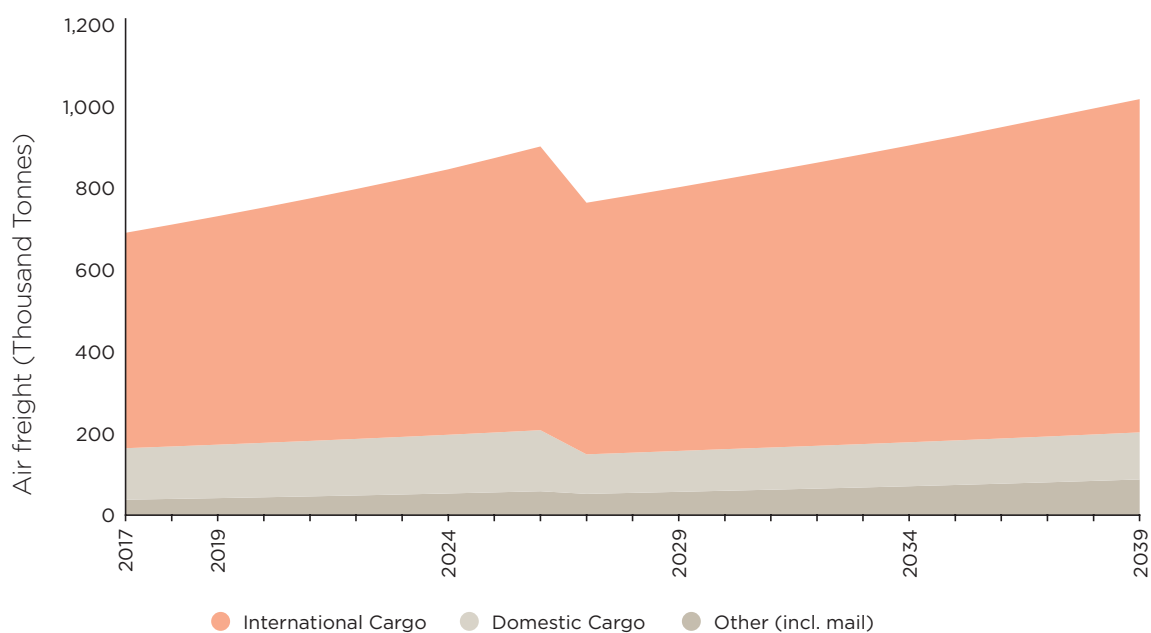


Figure 6-6: Air freight forecasts, 2017 to 2039

6.9 Benchmarking of the Traffic Forecasts

The annual traffic forecasts have been benchmarked against:

- Historic traffic development at Sydney Airport
- Projections from:
 - Master Plan 2033
 - The Joint Study
 - BITRE
 - International Air Transport Association (IATA)
- Existing large Asian routes at busy airports

6.9.1 Comparison with historical performance

Sydney Airport currently handles approximately 40 percent of all international and approximately 46 percent of all domestic and regional air passengers nationally.

In the period from 2007 to 2017, total annual passengers through Sydney Airport increased from 31.9 million to 43.3 million. This represents an average annual growth rate of 3.1 percent.

Between 2007 and 2017, aircraft movements increased from 288,750 to 348,520, an annual increase of 1.9 percent. This marginal increase in aircraft movements reflects a trend to larger capacity aircraft with higher average load factors using the airport

Figure 6-7 shows the growth of passenger and aircraft movements at Sydney Airport over the period from 2007 to 2017.

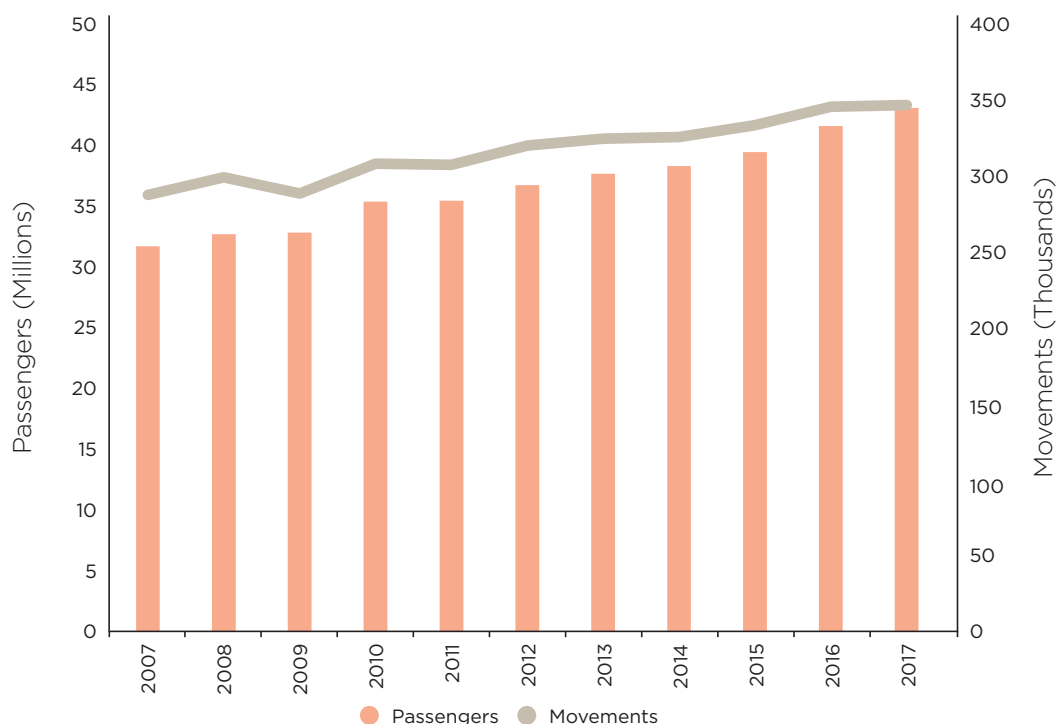


Figure 6-7: Growth of passenger and aircraft movements at Sydney Airport over the period from 2007 to 2017

Table 6-3 compares the historic and forecast growth rates for international and domestic (including regional) passengers, aircraft movements and passengers per aircraft. Passengers, passengers per aircraft and aircraft movements are all forecast to grow less quickly than historical averages.

Table 6-3: Historical and forecast CAGR

	Passengers	Passenger aircraft movements (RPT only)	Passengers per movement
International			
1996 to 2016	4.3%	2.9%	1.4%
2017 to 2039	3.1%	1.9%	1.1%
Domestic			
1996 to 2016	3.4%	1.0%	2.4%
2017 to 2039	1.0%	0.5%	0.5%
Total			
1996 to 2016	3.7%	1.4%	2.3%
2017 to 2039	1.9%	0.9%	1.0%

The forecast passenger growth for Sydney Airport reflects:

- Increasing competition from a growing number of Asian destinations
- The slowing economic growth in Australia given the declining proportion of the Australian population in the workforce
- Growing maturity of the Australian domestic passenger market
- Development of new markets and passenger segments by LCCs and airlines operating next generation aircraft

The IMF has increased slightly its global growth forecasts for 2018, with upward revisions for the European Union (EU), Japan, China and emerging Europe offsetting downward revisions for the US, UK and India¹. Global output is now projected to grow by 3.6 percent in 2017 and 3.7 percent in 2018. However, medium-term risks to the outlook remain skewed to the downside.

The IMF and others point to:

- Policy uncertainties, namely around negotiation of the UK's relationship with the EU post-Brexit and around US regulatory and fiscal policies
- The risk of a sharp slowdown in China if authorities fail in their efforts to rein in the credit expansion
- Ongoing challenges in adjusting to weaker commodity prices
- Low inflation, weak productivity growth and rising old-age dependency ratios in some of the advanced economies
- Constrained scope for easing fiscal policy to support economic activity in many of the emerging and developing economies
- Pressures for increased protectionism
- Risk of intensified conflict and geopolitical tensions

¹ World Economic Outlook, October 2017

6.9.2 Comparison with Master Plan 2033

Annual traffic forecasts in 2039 for Master Plan 2039 are lower than those used in Master Plan 2033 out to 2033. The decrease in overall forecasts is largely a result of traffic to date (particularly domestic) being behind the forecast in Master Plan 2033, and the inclusion of the assumption of a two-airport system serving Sydney from 2027 onwards.

Master Plan 2033 forecast a total of 74.3 million passengers and 388,466 passenger aircraft movements by 2033. The forecasts prepared for Master Plan 2039 indicate that in 2033 it is expected the airport will be handling 60.7 million passengers and 371,654 passenger aircraft movements.

This results in a different hourly profile in 2039 than was forecast for 2033 by Master Plan 2033, with fewer movements in the middle of the day when noise sharing is most likely. The forecast number of aircraft movements per hour in 2039 is higher in the late morning and mid-afternoon, as shown in **Figure 6-8**.

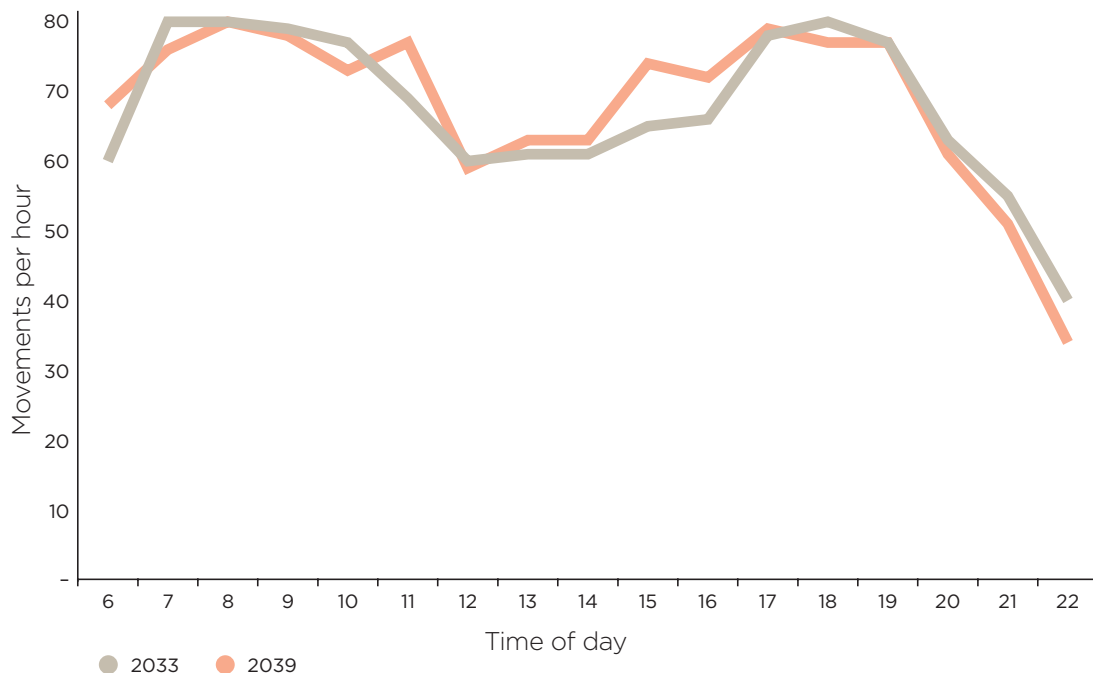


Figure 6-8: Comparison with Master Plan 2033 aircraft movement forecasts

6.9.3 Comparison to other passenger forecasts

The forecasts for Sydney used in Master Plan 2039 are broadly consistent with other forecasts prepared for the Sydney Basin. In addition, Master Plan 2039's international passenger growth rates are similar to other forecasts for total world growth. The inclusion of the assumption of a two-airport system serving the Sydney Basin from 2027 onwards results in lower growth rates for Sydney Airport.

The latest Airbus global market forecast indicates that LCCs will be the fastest growing airlines, increasing their share of world revenue per passenger kilometre traffic from 15 percent in 2011 to 20 percent by 2031.

Table 6-4 compares the traffic forecasts with a variety of other passenger forecasts for the Sydney basin, Asia Pacific and the world.

Table 6-4: Comparison of traffic forecasts

Source	Forecast Annual Growth
Master Plan 2039 (Sydney Airport)	
International	3.1%
Domestic	1.0%
Total	1.9%
Joint Study: Sydney 2010-2030 (Sydney Basin)	
International	4.1%
Domestic	2.8%
Total	3.2%
BITRE: Sydney 2010-2030 (Sydney Basin)	
International	4.5%
Domestic	3.1%
Total	3.6%
IATA: Sydney 2014-2021 (Sydney Basin)	
Total	3.0%
IATA: World 2016-2036	
Total	3.6%
ICAO: World 2010-2030	
Low	3.7%
Most Likely	4.7%
High	5.2%
ACI: World 2016-2031	
Total	4.9%
Airbus: world 2012-2031	
Total	4.7%

6.9.4 Comparison of Sydney to Melbourne in 2039 with large routes today

In the 'busy day' schedule used for planning, it is assumed that the average number of seats per aircraft movement on the Sydney to Melbourne route would grow from 183 in 2017 to 214 in 2039.

The result was then compared with the top 20 domestic routes worldwide in terms of total seat capacity in 2017. Comparing **Figure 6-9** and **Figure 6-10**, it is noticeable that:

- Sydney to Melbourne ranks fourth in terms of total annual aircraft seats (Sydney to Brisbane is 17th)
- Sydney to Melbourne ranks only 14th in terms of seats per aircraft (Sydney to Brisbane 19th)
- Growth to an average 214 seats per movement in 20 years for Sydney to Melbourne would still be outside the top 10 for today's worldwide routes

This indicates that there is significant scope for an increase in average aircraft size at Sydney Airport and that the forecast increase is supported by experience elsewhere in the world.

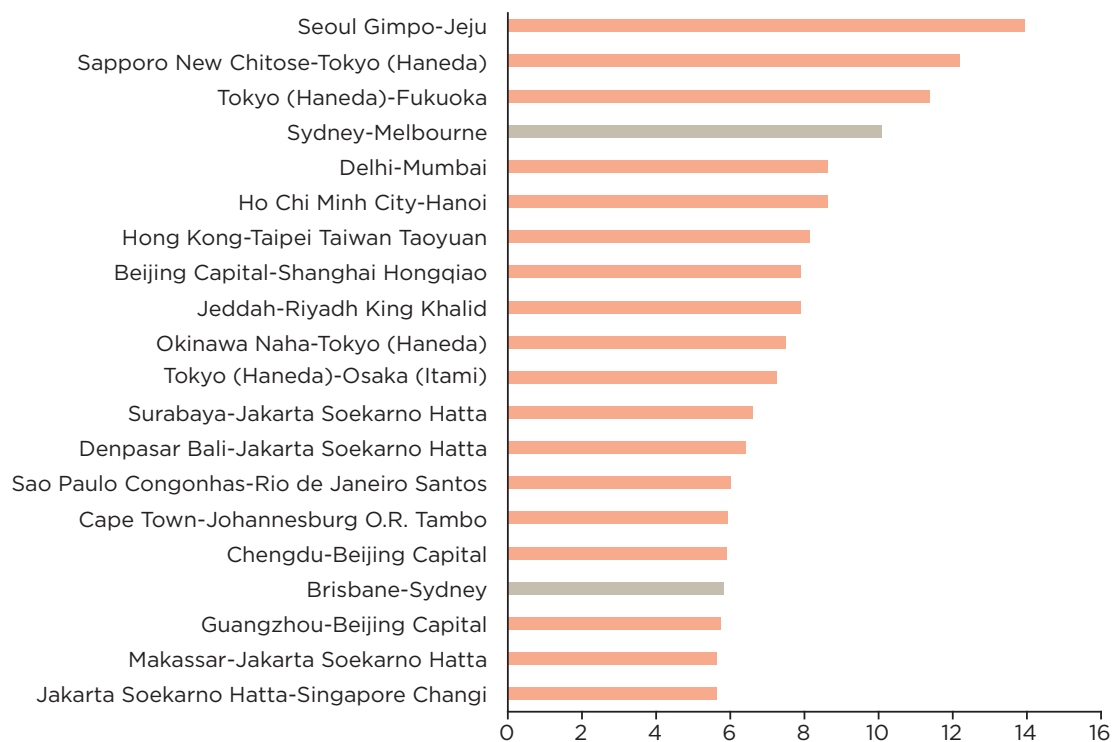


Figure 6-9: Top 20 worldwide routes based on annual aircraft seats in 2017

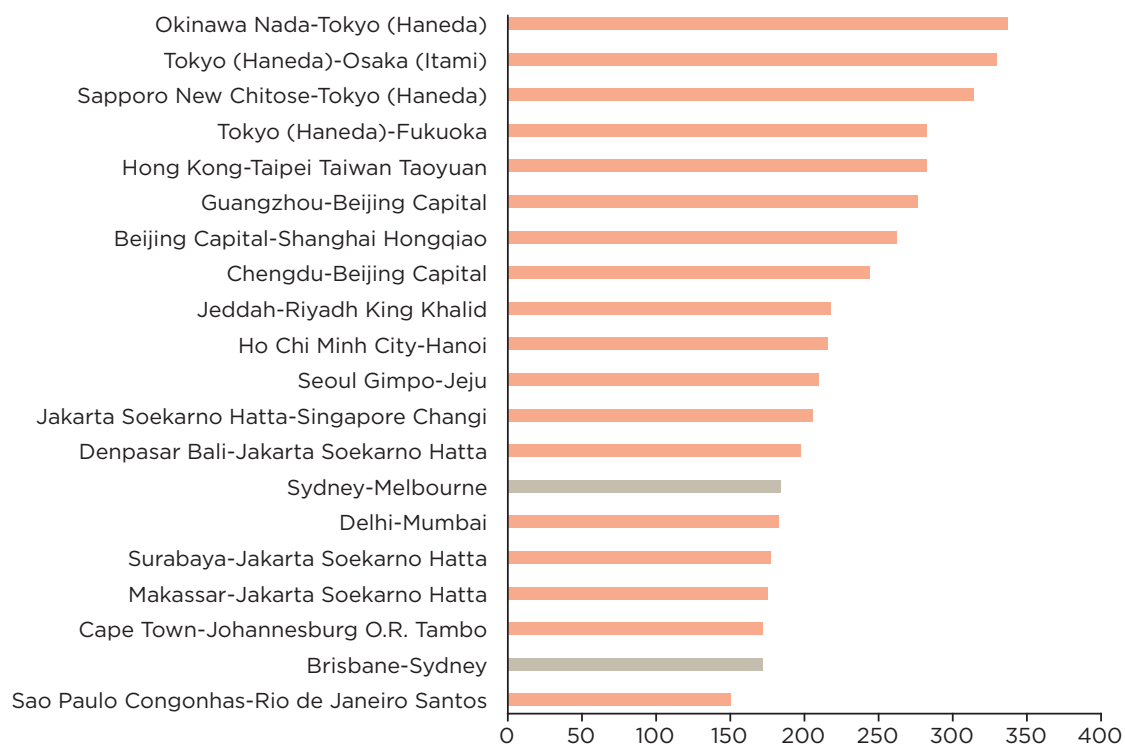


Figure 6-10: Top 20 worldwide routes based on annual aircraft seats in 2017- ranked by seats per aircraft

6.10 Representative Days and Noise Sharing

A representative busy day schedule was developed for 2039 to assess facility requirements, based on a busy Friday in August at Sydney Airport. This is consistent with previous master plans and with the practice of the slot coordinator for Sydney Airport.

The representative busy day analysis assessed:

- The operational suitability of an aircraft type for a given route network
- The aircraft rotations compatible with a high level of utilisation
- The use of commercially feasible arrival and departure timings throughout the network
- All regulatory requirements

In reality, there will be days in 2039 that are busier than the representative busy day however there will be more days that are less busy. The effect this will have on noise sharing under the Long-Term Operating Plan for Sydney Airport is discussed in section 15.6.3.

Figure 6-11 shows the forecast representative busy day hourly aircraft movement profile for 2039, broken down by flight category. This covers Sydney Airport's normal 17-hour operating day between 6am and 11pm. There are a small number of international passenger aircraft arrivals in the 5am-6am curfew shoulder period, which are not shown on the graph.

During the 11pm-6am curfew period, permitted freight and GA aircraft movements are projected to be four and 18 respectively. In 2017, a representative busy day (9 August) had 24 total movements by freight and GA aircraft during the curfew period.

It is expected that NSW regional air traffic at Sydney Airport will continue to account for a substantial proportion of slots in the peak hours in 2039.

Modernisation of the operating restrictions that govern Sydney Airport, as recommended by the Joint Study, could reduce the number of aircraft movements during the off-peak and increase the potential for noise sharing.

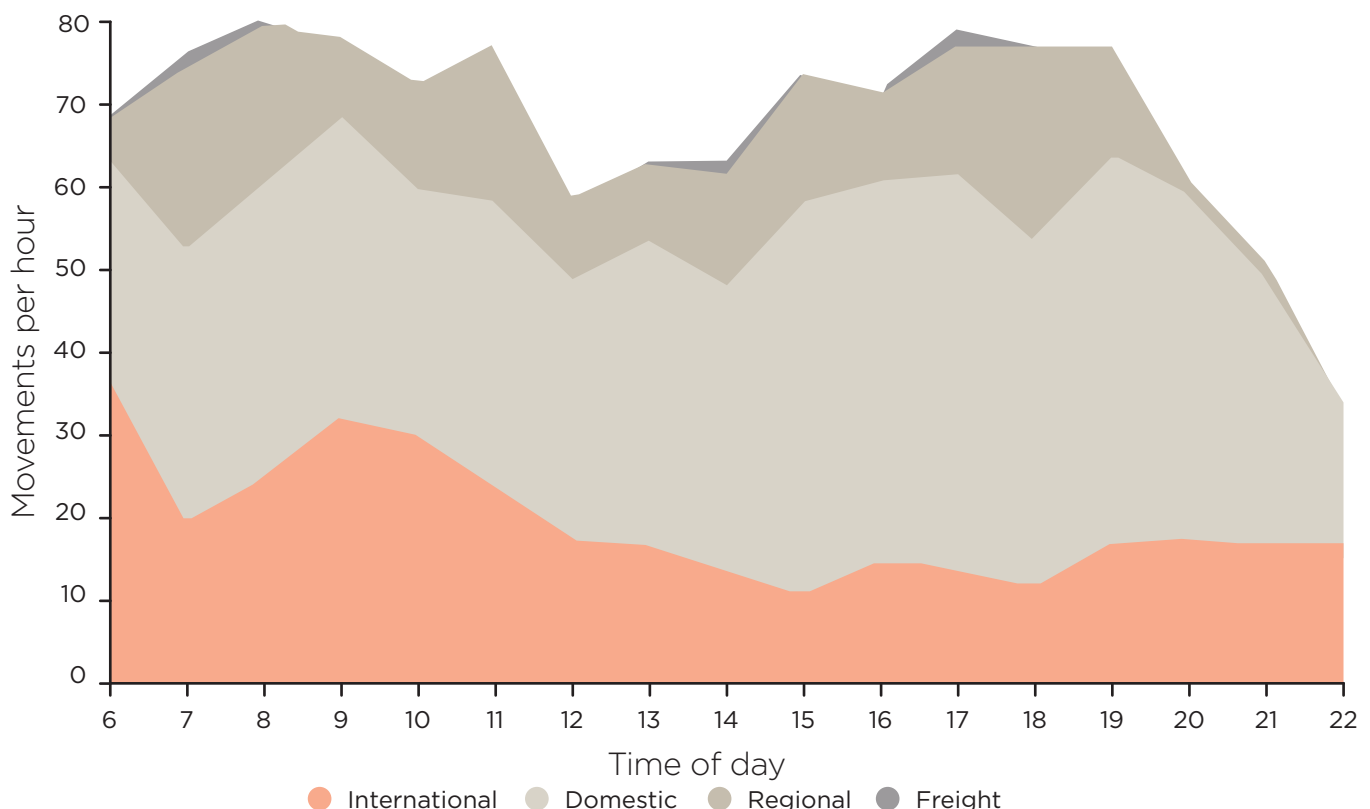


Figure 6-11: Forecast representative busy day hourly aircraft movements, 2039



Section 2

Airport Development Plan







7.0 Development Plan Overview



7.1 What is the Airport Development Plan?

The Airport Development Plan contains our plans to accommodate growth at Sydney Airport in accordance with our Vision and Objectives. It outlines our plans for improvements to the airfield, aviation facilities, terminals and infrastructure to support the forecast increase in passenger numbers and aircraft movements to 2039. The Airport Development Plan also outlines the commercial property opportunities that exist in the landside areas of the airport that are complementary to aviation operations and provide economic growth for the local economy.

Details are also provided of the improvements to the ground transport network required to accommodate increased passenger, visitor, staff and freight traffic requirements to 2039. A detailed Five-Year Ground Transport Plan is included in accordance with the requirements of the Airports Act.

Master Plan 2039 (including the **Environment Strategy 2019-2024**) complies with all relevant laws and is consistent with Sydney Airport's obligations under existing leases, including those in respect of the environment, development planning and building works.

The Airport Development Plan is divided into six chapters:

- 7.0 Development Plan Overview (this chapter)**
- 8.0 Terminal Development Plan**
- 9.0 Airfield Development Plan**
- 10.0 Commercial Development Plan**
- 11.0 Ground Transport Development Plan**
- 12.0 Utilities Development Plan**

7.2 Key Achievements Since Approval of Master Plan 2033

Our development plans in Master Plan 2033 outlined a number of key priorities for the initial five year planning period. A number of these priorities have been initiated or completed to improve the efficiency and capacity of the airport to accommodate recent growth in passenger numbers and increases in the number of airlines flying to Sydney Airport.

A list of the key developments and achievements since Master Plan 2033 was approved in 2014 are detailed in **Table 7-1**. These developments will be crucial to accommodating the forecast growth in the next five years and will be built upon as we plan for 2039.



Image 7-1: Construction in the areas surrounding Sydney Airport

Table 7-1: Key achievements since Master Plan 2033

Development/Initiative		Year
Terminal	Redevelopment of check-in counter C in T1 to streamline throughput and reduce queuing by increasing the use of technology and further automating the check-in process.	2018
	Departures level increase and upgrade of gate lounge seating and improvement of facilities in T1.	
	T2 Pier B expansion and redevelopment to create space and additional retail amenities.	
	Upgrade to Bay 31 at T1 enabling its use by larger aircraft and dual aerobridges.	2017
	Five new airside buses improving bussing times and capacity at T1.	
	Refurbishment of the Baggage Reclaim Hall at T1 to improve service levels and ambience.	
	Refurbishment and replacement of eight baggage carousels at the Baggage Reclaim Hall at T1 to increase resilience.	
	Bathroom upgrades in T3 and commencement of rolling upgrade program at T2, improving customer experience.	2016
	Completion of the luxury and lifestyle speciality retail precincts and the Cityview and Marketplace food and beverage areas in T1, providing greater value and choice.	
	Expansion of check-in counter A at T1 providing extra capacity.	
	Delivered infrastructure allowing rear door / dual boarding at T3, aiding on-time performance.	
	Major redevelopment at T1 raising the roof to 17 metres at its apex at Pier B, creating a vibrant dwell area, straight paths and improved line of sight as well as providing more space and light and additional seating.	
	Expansion of the Departures T1 bussing capability and increasing capacity and improving the passenger experience with delivery of two new Arrivals bussing lounges.	
	Upgrades to the T2 food court enhancing the overall customer experience.	
	Expansion of the Baggage Reclaim Hall at T1 with the addition of two A380 capable baggage carousels.	2015
	Pier A and Arrivals concourse works at Gates 8, 9 and 10 at T1 to improve functionality, capacity and ambience.	
	Installation of emigration SmartGates for Departures, in partnership with the Australian Government.	
	Terminal enhancements to wayfinding, seating, sightlines and boarding gate lounges.	
Airfield	Improvements to the T1 outbound baggage handling facility, including new baggage make-up capacity, with an additional 50 make-up positions providing more capacity and faster baggage delivery times.	2014
	Expansion of the lounge offering for airlines, including: <ul style="list-style-type: none"> • Etihad Airways first and business lounge • Sky Team Alliance lounge • The American Express lounge All three lounges were Australian firsts, further cementing Sydney Airport's position as the nation's gateway airport.	
	Installation of high intensity approach lighting system on Runway 34R to facilitate Special Authorisation Category 2 aircraft, improving safety standards and operational capacity.	2017
	Extensive resurfacing of the airfield including the parallel runway and taxiways.	
	Upgrade and enhancements in the South East Sector to provide better facilities for plane spotters and school children on airport tours.	
	Runway and taxiway works resulting in asset life extension and taxiway fillet widening, resulting in increased capacity by accommodating larger aircraft.	2016
	Asphalt re-sheeting, strengthening and widening of Taxiways A, B and C to increase capacity and accommodate larger aircraft including A380s.	2015
	Full pavement reconstruction of the intersection of Taxiways A and G, including the installation of aeronautical ground lighting within the pavement.	
	Aircraft and passenger boarding performance enhancement with a new aerobridge on Gate 50, facilitating Code E aircraft such as the B777 and A330 and providing more flexibility for airlines.	
	Installation of new centre line lighting to serve Runway 16L and Runway 34R to improve on-time performance during low visibility weather conditions.	

Development/Initiative		Year
Airfield	Sydney Airport was the first Australian airport to commission satellite-based navigation technology, commissioning SmartPath, in partnership with Airservices Australia, Qantas and Honeywell, resulting in an immediate improvement in operational performance, with more aircraft able to land during low visibility conditions.	2014
Commercial	Acquisition of the Ibis Budget Hotel and development of the new Mantra Hotel in the T2/T3 precinct, delivering additional capacity and choice for on-airport accommodation	2017
Ground Transport	Widening of Qantas Drive between Robey and O'Riordan streets timed with Roads and Maritime's implementation of the first stage of one-way traffic flow change.	2017
	New road at the T1 International precinct separating traffic from Departures Road and recirculating traffic directly onto Centre Road.	
	New exit from the T1 Departures Road and Arrivals Court under the Giovanni Brunetti Bridge and improvements to Marsh Street exit, reducing congestion.	
	New pick-up arrangements at T1 offering more choice for customers, including a priority pick-up zone for use by limousines, pre-booked taxis, ridesharing services and the public.	
	New elevated pedestrian and cycleway linking the T1 terminal to the Cooks River/Alexandra Canal pedestrian and cycle paths.	
	Addition of four new levels on the northern multi-storey car park (P6) in the T1 precinct.	
	New entry from Marsh Street on to Centre Road in the T1 International precinct.	2016
	New landside bridge that links the Northern Lands Sector to Airport Drive. The bridge provides access to a vehicle storage area and was named after the founder of Sydney Airport, Sir Nigel Love.	
	Widened Sir Reginald Ansett Drive from two to five entry lanes providing increased capacity for traffic entering the Domestic precinct. This has eased traffic flows at the intersection of Ross Smith Avenue and Sir Reginald Ansett Drive and complements the one-way exit from the T2/T3 precinct.	
	Introduction of overflow drop-off area at T1 for use during peak periods to increase throughput and assist with on-time performance for airlines.	
	Expansion of parking capacity and new products and services to provide customer choice.	
	New pick-up arrangements at T2/T3 offering more choice for customers, including a priority pick-up zone for use by limousines, pre-booked taxis, ridesharing services and the public.	
	New enlarged express pick-up zone introduced at the P3 multi-storey car park, providing 15 minutes free parking.	
	New express pick-up and drop-off zone, new centre road and a dedicated city exit at T1.	2015
	New one-way exit and extension of Seventh Street providing increased capacity for traffic exiting the T2/T3 precinct. This complements the one-way entry to the precinct.	
Utilities	Introduction of fully automated taxi short fare system utilising licence plate recognition.	2014
	Introduction of first three-door Blu Emu Express bus with increased capacity and improved efficiency.	
	Solar PV system installed on the P6 multi-storey car park providing low-cost clean energy.	2017
	Installation of new lighting in the P2 car park reducing energy usages in the car park by 30 percent.	
	Installation of new energy efficient chillers at T1.	
	Increased capacity of the recycled water treatment plant in the T1 precinct.	
	Refurbishment of the critical sewage pump station serving the North East Sector.	

7.3 Sydney Airport Development Plan Sectors

For ease of reference, Master Plan 2039 divides Sydney Airport into six sectors, which are shown on **Map 8**:

1. Runways
2. North West
3. North East
4. South West
5. South East
6. Northern Lands

With the exception of the Runways Sector, each sector has an airside and a landside component that is described below. The North West and North East Sectors are also divided into precincts representing existing and proposed terminal developments.

7.3.1 Runways Sector

The Runways Sector covers the three runways at Sydney Airport:

- Main runway 16R/34L
- Parallel runway 16L/34R
- Cross runway 07/25

It also includes the majority of taxiways between the runways, terminals and aprons.

7.3.2 North West Sector

The North West Sector encompasses the land generally to the west of Runway 16R/34L, north of Runway 07/25, south and east of Airport Drive and east of Cooks River.

It includes:

- The T1 International Operations Precinct
- Freight facilities
- Joint User Hydrant Installation (JUHI)
- Ground transport facilities
- Commercial development areas to the west of T1

7.3.3 North East Sector

The North East Sector encompasses the land generally to the east of Runway 16R/34L, north of Runway 07/25, south and west of Qantas Drive and south of Joyce Drive.

It includes:

- The T2 and T3 Domestic Terminals
- The Jet Base
- Freight facilities
- Ground transport facilities
- Commercial development areas along Ross Smith Avenue
- Corporate aviation
- Air Ambulance
- Maintenance facilities

7.3.4 South West Sector

The South West Sector is located to the west of Runway 16R/34L, south of Runway 07/25, east of Cooks River and north of Botany Bay. It includes:

- Remote stands north of the M5 East Motorway / M1 Motorway (General Holmes Drive)
- Airservices Australia facilities (including a fire station)
- Landside areas south of the M1 Motorway (General Holmes Drive)

7.3.5 South East Sector

The South East Sector generally includes Sydney Airport land north and south of the M1 Motorway (General Holmes Drive), east of Runway 16R/34L, south of Runway 07/25, north of Taxiway B10, and west of Mill Stream and Foreshore Road.

It includes:

- Ground transport facilities
- Commercial development
- Airservices Australia facilities (including an air traffic control tower and fire station)
- Industrial areas

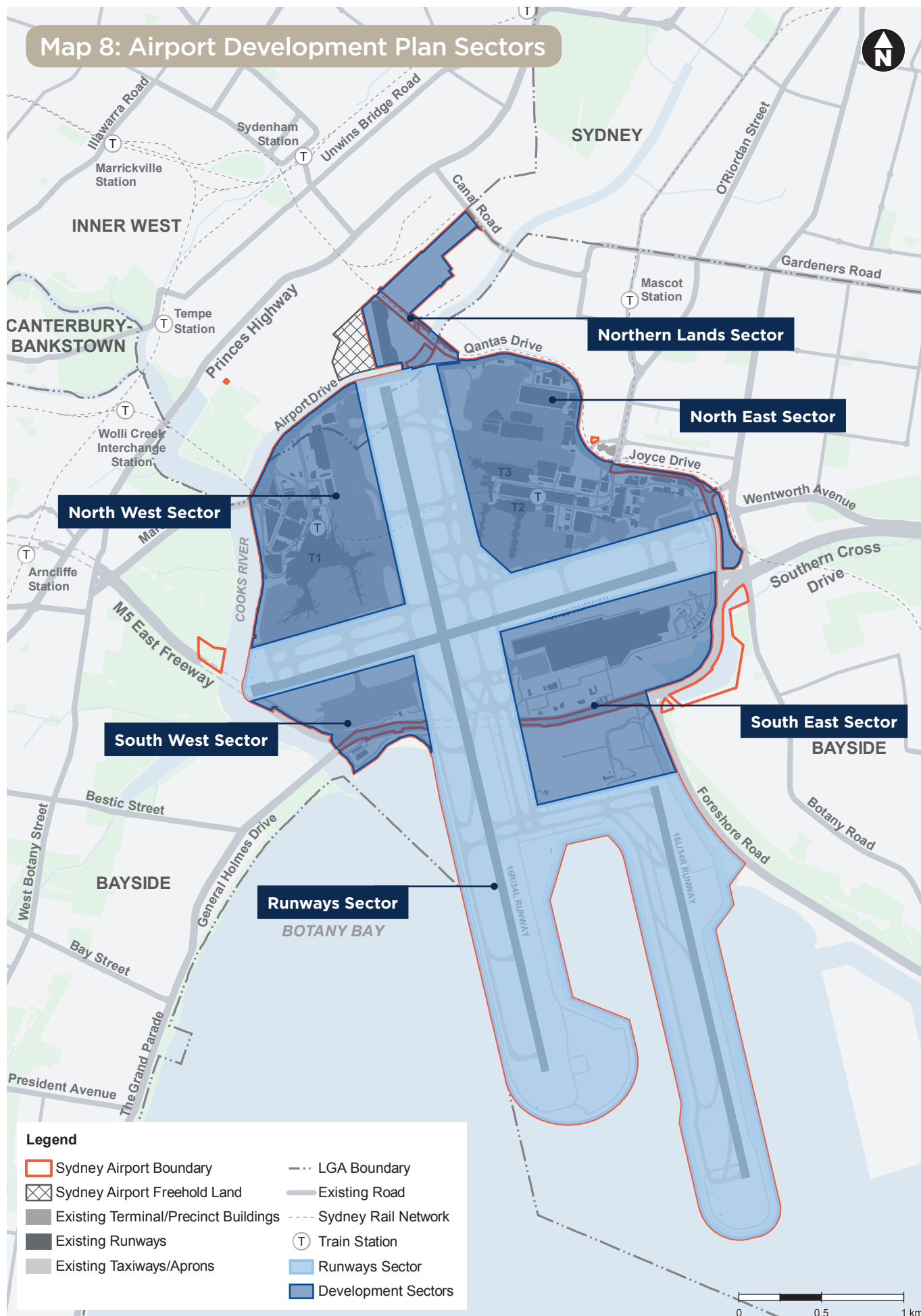
7.3.6 Northern Lands Sector

The Northern Lands Sector includes leased and freehold airport land located north of Airport Drive.

The Northern Lands Sector is largely undeveloped, with the exception of staff overflow car parking accessed from Airport Drive via the Nigel Love Bridge.

The High Intensity Approach Lighting (HIAL) for Runway 16R/34L is located within the Northern Lands Sector.

Map 8: Airport Development Plan Sectors



7.4 20-Year Airport Development Plan Summary

The following provides a summary of our 20-year development plans for each sector of Sydney Airport. As part of these developments, we will abide by all relevant Commonwealth aviation safety standards, including the National Airports Safeguarding Framework (NASF), during construction and operational phases. We will also consult with, and seek the required approvals from the Department, Airservices Australia, and the Civil Aviation Safety Authority before proceeding with construction of proposed developments.

Detailed information on the potential and/or proposed developments can be found in the following chapters:

- **8.0 Terminal Development Plan**
- **9.0 Airfield Development Plan**
- **10.0 Commercial Development Plan**
- **11.0 Ground Transport Development Plan**
- **12.0 Utilities Development Plan**

The Airport Development Plan 2039 is shown on **Map 9**. Embedded within our 20-year development plans are innovative solutions to enhance the passenger experience, improve the operations of the airport, and engage more effectively with our community. Our plans enable the roll-out of 'Smart Airport' technology to deliver a more connected passenger experience. This will ensure passengers are better informed about their journey to, from and through the airport and able to respond in real-time to what is happening in and around the airport. This will include the use of biometrics technology with facial recognition processing, providing a more seamless airport experience to passengers. Technology will allow Sydney Airport to use space and resources more efficiently and respond to unforeseen events more effectively.

7.4.1 Runways Sector

Development of taxiway improvements to reduce taxiing times for aircraft, improve passenger experience and facilitate airline operating efficiency. This includes developments to:

- Facilitate the introduction of international, domestic and regional operations in the North East Sector
- Eliminate runway crossings for arrivals/departures originating from/taxiing to the North East Sector
- Support new apron developments and operations in the South East and South West Sectors

7.4.2 North West Sector

Developments in the North West Sector, incorporating the T1 International Operations Precinct, include:

- Expansion of T1 terminal infrastructure to accommodate:
 - Additional contact gates and associated departure gate lounges
 - Additional airline lounges
 - A dedicated common use premium processing area
 - Check-in and baggage reclaim facilities
 - Security and border passenger processing facilities
 - New outbound baggage handling facility and bussing lounge
 - Passenger dwell and retail areas
- Improved terminal landside areas to improve access and enhance the customer experience
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
 - Fixed electrical ground power units (FEGPU)
 - Pre-conditioned air units (PCA)
 - Fuel
- Consolidation of air freight facilities
- Ground transport upgrades and utilities improvements
- New hotel, office and commercial developments of up to 120,000 metres square floor space
- An inter-precinct passenger transfer product
- Expansion of the JUHI facility
- Integration of sustainable technologies, design and operations to deliver environmental solutions, particularly energy and water efficiencies, and enhancements to passenger experience and comfort

7.4.3 North East Sector

Developments in the North East Sector, incorporating the T2/T3 Integrated Operations Precinct, include:

- Expansion of T2 to facilitate next generation check-in and security facilities
- Improvements to passenger processing and investment in new technology, along with refurbishment and upgrade of passenger facilities in T2 and T3 to improve the overall passenger experience
- Links between T2 and T3 for passenger and baggage handling facilities
- Facilities to cater for the processing of international passenger operations
- Extensive contact gate capacity, the majority of which are expected to be swing gates for international, domestic and regional operations
- An inter-precinct passenger transfer product
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
 - FEGPU
 - PCA
 - Fuel
- Improved landside areas to provide better access and enhance the customer experience
- Relocation and redevelopment of aircraft maintenance facilities
- Consolidation of air freight facilities
- Ground transport upgrades and utilities improvements
- New hotel, office and commercial developments of up to 120,000 metres square floor space
- Integration of sustainable technologies, design and operations to deliver environmental solutions, particularly energy and water efficiencies, and enhancements to passenger experience and comfort

7.4.4 South West Sector

Developments in the South West Sector include:

- An airside satellite pier to support the T1 International Operations Precinct, which could include:
 - Contact gates
 - Departure gate lounges
 - Airline lounges
 - Passenger dwell and retail areas
- Infrastructure to accommodate an airside shuttle bus service between the South West Sector and the North West Sector
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
 - FEGPU
 - PCA
 - Fuel

7.4.5 South East Sector

Developments in the South East Sector include:

- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
 - FEGPU
 - PCA
 - Fuel
- Subject to market demand areas to accommodate:
 - Relocated GA facilities
 - Commercial facilities
 - Car parking
 - Aircraft maintenance facilities
 - Aviation support infrastructure
- A new air traffic control tower
- Ground transport facility expansion and utilities improvements

- Development of an airside satellite pier which could include:
 - Gate lounges
 - Retail
 - Airline lounges
 - Contact stands
- Infrastructure to accommodate an airside connection between the satellite pier and terminal areas
- An inter-precinct passenger transfer product
- Consolidation of air freight facilities

7.4.6 Northern Lands Sector

Developments in the Northern Lands Sector, include:

- New airside aviation support activities including:
 - Freight
 - Catering
 - Ground support equipment (GSE) maintenance
 - Truck staging
 - Vehicle storage
- Additional landside and airside access connections and ground transport infrastructure
- New air freight facilities

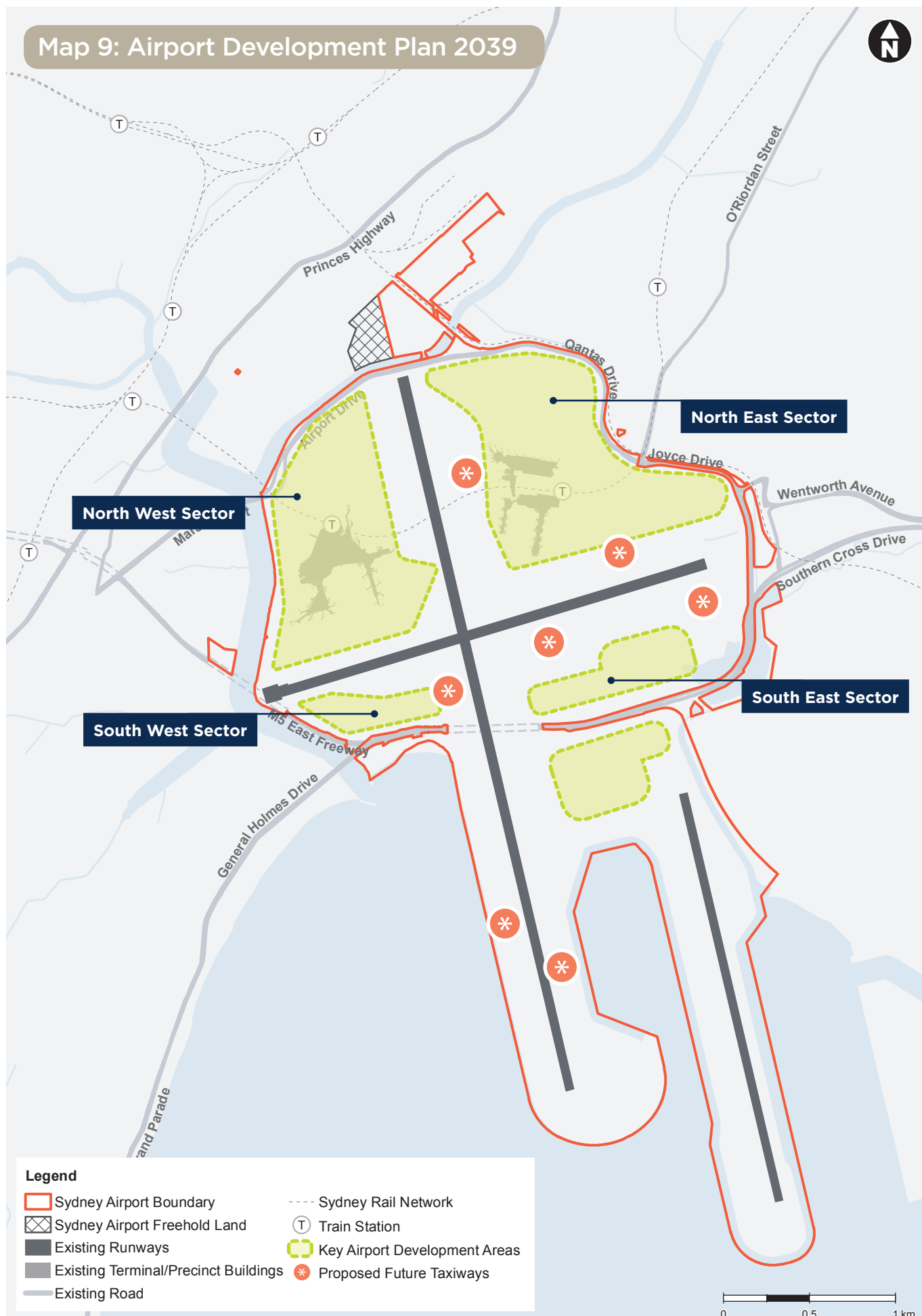
7.5 Implementation Strategy

Our plans for Sydney Airport are flexible and adaptable to adjust to changing conditions in the aviation and property industries, ground transport conditions and demands on utilities.

We will continue to work with our airline and airport business partners to monitor demand, facilitate product differentiation and enhance the customer experience. Our development plans will evolve in consultation with our stakeholders, including the local community.

As part of these developments, consideration will be given to aviation operation and safety issues, including windshear and turbulence, public safety zones, obstacle limitation surfaces, and noise and air quality both during construction and operational phases. Details of the development strategy are included in **Map 9**.

Map 9: Airport Development Plan 2039





North West Sector

T1 International Operations Precinct

- New terminal infrastructure
 - Apron and stand infrastructure
 - Ground transport and utilities improvements
 - Expansion of JUHI facility
 - Air freight facilities consolidation
 - Commercial developments of approximately 120,000m² floor space
-



North East Sector

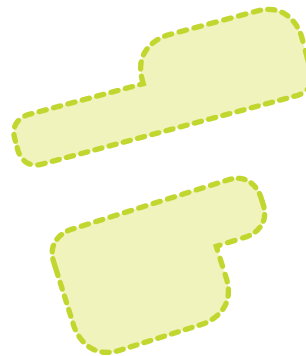
T2/T3 Integrated Operations Precinct

- New terminal infrastructure
 - Apron and stand infrastructure
 - Ground transport and utilities improvements
 - Relocation of aircraft maintenance facilities
 - Air freight facilities consolidation
 - Commercial developments of approximately 120,000m² floor space
-



South West Sector

- Satellite pier development
 - Apron and stand infrastructure
 - Airside terminal and satellite pier connections
-



South East Sector

- Apron and stand infrastructure
 - Satellite pier development
 - Airside terminal and satellite pier connections
 - General aviation facilities relocation
 - Aircraft maintenance facilities
 - Aviation support infrastructure
 - Air traffic control tower
 - Ground transport and utilities improvements
 - Air freight facilities
 - Commercial developments
-



8.0 Terminal Development Plan



8.1 Overview

The Terminal Development Plan for Master Plan 2039 provides additional capacity at Sydney Airport to meet the forecast passenger demand in 2039 and beyond. It provides flexibility in implementation and is adaptable in order to meet passenger expectations and the changing requirements of airlines. This will ensure that Sydney Airport remains Australia's premier international gateway and continues to attract global aviation business.

To achieve this, we propose integrating international, domestic and regional operations in the current T2/T3 Domestic Precinct. Our plan for a T2/T3 Integrated Operations Precinct, together with improvements to the T1 International Operations Precinct, will improve the experience of passengers, reduce transfer times and enable more effective utilisation of terminal infrastructure.

Efficiency improvements to all terminals will include the introduction of new technologies and service systems that are envisaged to enhance passenger experience, offer product differentiation and achieve operational efficiencies. This will improve passenger facilitation and choice, while reducing queues and wait times.

Security and border control facilities are likely to see ongoing technology and automation enhancements, which should improve safety, efficiency and passenger processing times in line with current and future protocols being put in place by the Commonwealth Department of Home Affairs.



Image 8-1: The luxury fashion precinct at T1 International

8.2 Key Points

The Terminal Development Plan proposes to:

- Expand international capacity in the T1 International Operations Precinct
- Integrate and expand international, domestic and regional operations in the T2/T3 Integrated Operations Precinct
- Provide new infrastructure in both the T1 and T2/T3 precincts to deliver significant additional active stands, including up to:
 - 17 additional contact stands
 - Seven additional bussed aircraft parking positions
- Optimise the use of terminal infrastructure with up to 17 swing gates that can accommodate international, domestic and regional aircraft
- Improve the door to door experience for all passengers with investment in next generation technologies, such as digital technologies, biometrics and self-service, as well as enhanced access to a multi-modal transport facility
- Ongoing development of mobile check-in and passenger assistance technologies for less mobile passengers
- Reduce inter-precinct transfers and improve passenger connectivity by integrating terminal operations
- Enhance airline efficiency by reducing minimum connection times (MCT) and improving aircraft utilisation
- Provide a sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles
- Increase the flexibility of the infrastructure to respond to changing airline business models
- Enhanced safety and security with the introduction of advanced screening technologies of passengers and bags

The Terminal Development Plan has been developed considering the customer experience as a whole and taking into account our Disability Access Facilitation Plan.



Image 8-2: New automated check-in and bag drop facilities at T1 International

8.3 Terminal Development Plan

Sydney Airport's proposed Terminal Development Plan has been developed to accommodate the projected passenger, aircraft and ground transport traffic flows over the planning period of Master Plan 2039. Our approach to future terminal development has been consistent with the following objectives:

- Provide an enhanced passenger experience
- Ensure maximum flexibility to shift with changes in the airline industry
- Create operational efficiencies for our airline partners
- Optimise the utilisation of existing and new terminal infrastructure
- Provide enhanced safety and security

The resulting Terminal Development Plan provides additional capacity in 2039 by expanding international capacity in the T1 International Operations Precinct and integrating and expanding international, domestic and regional operations in the T2/T3 Integrated Operations Precinct. This approach will provide for up to an additional:

- 17 contact stands
- Seven active bussed aircraft parking positions

In addition, our approach provides the capability within the T2/T3 Integrated Operations Precinct to service aircraft demand with swing gates that can accommodate international and domestic/regional aircraft. This provides us with the ability to easily respond to fluctuations in demand between international, domestic and regional operations, as well as improve asset utilisation.

It provides additional opportunities to efficiently increase Sydney Airport's capacity to handle the growing demand for Code E aircraft (such as A330, B787, A350 and up to B777).

Where feasible, the larger gates will also be configured to accommodate multiple smaller aircraft, so if demand presents differently, multiple Code C aircraft (such as A320 and B737) can be accommodated utilising the same infrastructure known as multiple aircraft ramp stands (MARS).

The transfer of passengers between the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct may be improved by incorporating an airside transfer corridor for autonomous vehicles. The proposed airside transfer product will have the added benefit of reducing congestion on the landside road network.

Passengers will still be able to transfer landside between precincts using the Sydney Airport T-Bus or public transport modes such as rail, bus or taxi.

The proposed terminal developments outlined in the following sections could:

- Improve capacity and flexibility with the provision of additional contact and active bussed stand capacity
- Increase the capacity and flexibility to accommodate larger Code E and multiple Code C aircraft on contact gates
- Improve the experience of passengers with the adoption of new technologies for passenger processing
- Reduce transfer times for passengers and promote the efficient use of infrastructure with the integration of international, domestic and regional passengers in the T2/T3 Integrated Operations Precinct
- Improve gate utilisation, flexibility and airline aircraft utilisation by incorporating swing gates for international/domestic/regional operations in the T2/T3 Integrated Operations Precinct
- Enhance and maximise flexibility of existing facilities and infrastructure by promoting common use principles while supporting specific product differentiation requirements from our airline partners
- Integrate sustainable technologies, design and operations that deliver environmental solutions, particularly with energy and water efficiencies

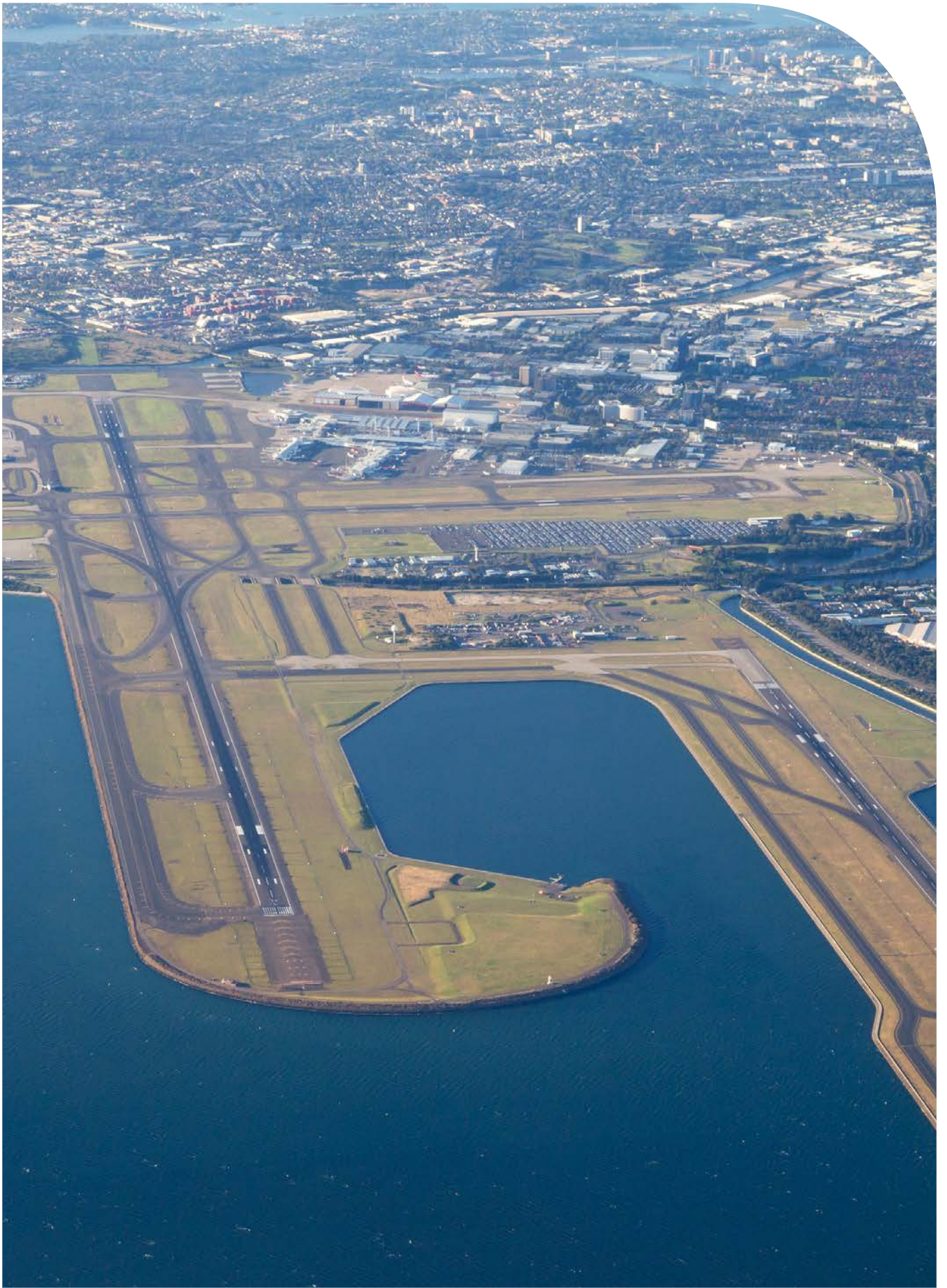


Image 8-3: Sydney Airport aerial

8.4 T1 – International Operations Precinct

The Terminal Development Plan has been prepared on the basis that only international aircraft will operate at T1. International, domestic and regional operations can be delivered at T1 but it is not foreseen within the planning period of Master Plan 2039. This differs from the approach contemplated in Master Plan 2033.

Terminal infrastructure at T1 to meet the needs of airlines and deliver improvements to passenger facilitation over the next 20 years may include:

- Reconfiguration and extension of the existing T1 Pier A to provide more contact gates
- A northern terminal extension to provide additional facilities including:
 - Immigration
 - Baggage reclaim
 - Customs and transfer facility
 - Passenger dwell capacity
 - Opportunity for common use premium processing area
 - Overnight accommodation
- A western terminal expansion to provide an additional arrivals and departures area and improved safety and passenger processing.
- A southern terminal expansion to accommodate:
 - A new bag room
 - A new bussing lounge
 - Overnight accommodation
 - Passenger processing facilities
- Development of an airside satellite pier in the South West Sector to support the T1 International Operations Precinct
- Development of MARS gates that can service multiple aircraft types
- Supporting airline needs with improved contact gate capacity to accommodate Code E and Code F aircraft, as well as larger Code E types being introduced into the market
- Improved landside terminal facilities, enhancing the passenger experience and improving access to the terminal from the various ground transport facilities
- Separate premium passenger processing with direct boarding access from airline lounges
- Improved security processing for passengers
- Next generation bag drops and border processing equipment
- More efficient passenger processing using biometrics and enhanced passenger experience
- A sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles

These developments will support aircraft utilisation and airline service delivery by accommodating airline product differentiation and increasing the number of contact gates, reducing the need to bus passengers to aircraft, particularly in peak periods.

The T1 precinct can be incrementally expanded to accommodate future demand. Sydney Airport has set out in **Map 10** development options. Future development decisions would be made in collaboration with our airline partners, subject to aviation demand and following extensive community consultation.

Map 10: T1 International Operations Precinct Terminal Development Plan 2039

The diagram shows development options for terminal infrastructure, piers and satellite piers. Future development decisions will be made in collaboration with airlines and subject to aviation demand.



A

Stage Two Pier A:

Further extension to accommodate additional contact gates, airline and departure lounges, retail, food and beverage areas

B

Stage One Pier A:

Extension to accommodate additional contact gates, airline and departure lounges, new central dwell area, retail and food and beverage areas

C

International Terminal A:

Extension to accommodate additional arrival and departure passenger processing, including an opportunity for a common use premium processing area

D

Western Terminal Expansion:

Expansion to increase the capacity and amenity of the landside departures and arrivals halls and forecourt areas

E

Southern Terminal Expansion:

Expansion to accommodate additional outbound baggage handling capacity with potential terminal and commercial facilities, new bussing facility

F

South West Sector Satellite Pier:

New airside satellite pier development with contact gates, airline and departure lounges, retail, food and beverage areas

8.4.1 Departing passengers plan

The development of T1 will allow departing passengers to directly access the terminal in weather-protected walkways from existing and new multi-modal transport facilities. This will also minimise the interface between pedestrians and vehicles.

The introduction of next generation bag drop facilities will reduce the need to provide traditional check-in counters. Further efficiencies and improved processing rates at check-in will be possible with expansion to and improvements of the baggage handling system.

From check-in to boarding, the Terminal Development Plan provides for the inclusion of new technologies at T1, such as biometrics, to improve emigration and security processing to meet future international passenger demand and improve their experience. 'Smart Airport' technology is enabling passengers to be better informed about their journey to, from and through the airport. Passengers will have access to information on optimal travel modes, levels of vehicle and people traffic, anticipated travel and processing times, and other relevant events.

All current known security requirements, such as body scanning and advanced screening technology, have been taken into account in our future plan for T1. Any future security requirements involving passenger or non-passenger screening, including enhanced inspection points, changed technology, screening facilitation or intervention rates, could result in different spatial outcomes. It is envisaged that any different spatial outcomes would be accommodated within the expanded footprint of the terminal.

Once through security, all passengers will proceed to a retail environment with an enhanced offer and dwell zones, airline lounges and gate lounges. Additional departure bussing lounges are also possible at the northern and southern ends of the terminal to support remote active stands.

The southern bussing lounge would operate as a shuttle bus service between the terminal and the proposed South West Sector satellite pier. This satellite pier would provide a passenger product with a similar experience to that provided in the current terminal-connected piers. Subject to airline demand, it could include gate lounges, retail, airline lounges and contact stands.

Airline product differentiation within T1 will be offered through the provision of dedicated departures processing facilities, which may be accessed directly from ground transport facilities. The ability for direct aircraft boarding from airline lounges would also be possible in a northern terminal expansion.



Image 8-4: The departures area of the future at T1 International

8.4.2 Arriving passengers plan

The separation of arriving and departing international passengers at T1 will continue in line with security and border control requirements. Border control facilities will be expanded and it is expected that new border control technologies, such as biometrics, will improve efficiency and reduce processing times.

Border control processing facilities are the responsibility of Australian Government agencies. We will work with the relevant agencies to accommodate their customs and quarantine processing requirements.

'Smart Airport' technology is enabling Sydney Airport to respond in real-time to what is happening in and around the airport, ensuring passengers are directed to the most optimal processing paths, and landside and airside space is used most efficiently and effectively.

The arrivals and baggage reclaim halls, including associated facilities and services, are able to be expanded with additional baggage reclaim units added to meet demand within the planning period.

Transfer facilities for passengers moving between international and domestic/regional flights are intended to remain immediately adjacent to the terminal. These will include processing through a common use transfer lounge and connecting to the T2/T3 Integrated Operations Precinct through a dedicated airside corridor. Terminating passengers will continue to have the full choice of transport modes including train, bus, taxi, rideshare, limousine, rental car and public parking facilities.

8.4.3 Intra-terminal transfer passenger plan

Intra-terminal transfer facilities (for international travellers transferring or transiting within T1) will use transit screening points within Pier B and Pier C. Facilities will be enhanced as needed to meet future requirements.



Image 8-5: Arriving at Sydney Airport's T1 International in the future

8.5 T2/T3 Integrated Operations Precinct

Over the planning period, some international operations are expected to be facilitated from an expanded T2/T3 Integrated Operations Precinct in the North East Sector of Sydney Airport. New infrastructure adjacent to the existing T2 and T3 terminals could deliver significant international and domestic/regional swing contact gate capacity.

Potential changes to terminal infrastructure in the T2/T3 precinct over the next 20 years include:

- New infrastructure to cater for the processing of international passengers
- A new T3 swing/international/domestic/regional passenger pier to the north, which can be achieved through multiple configurations
- A new T2 swing/international/domestic/regional pier to the east
- Development of a satellite pier in the South East Sector
- Development of MARS gates that can service multiple codes of aircraft
- Apron reconfiguration to cater for the greater variety of operating aircraft
- Linking the T2 and T3 terminal buildings on the western side of the precinct to facilitate transfer of domestic/regional passengers and new larger aircraft gates
- Linking the T2 and T3 terminal buildings on the eastern side of the precinct, providing passenger and baggage handling facilitation for international and domestic/regional passengers
- New transfer facilities within the expanded T2/T3 precinct
- Integration of sustainable technologies, design and operations that deliver environmental solutions, particularly energy and water efficiencies

Potential passenger facilitation improvements within the T2/T3 precinct include:

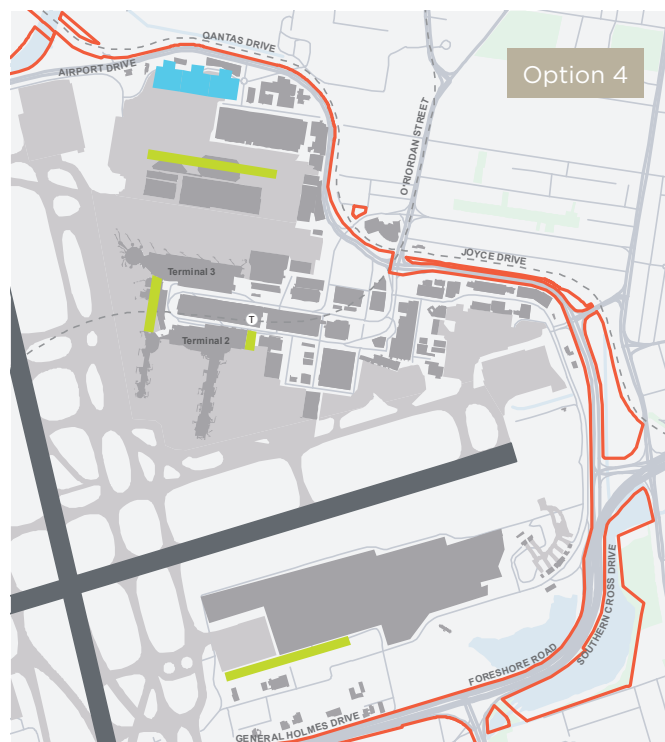
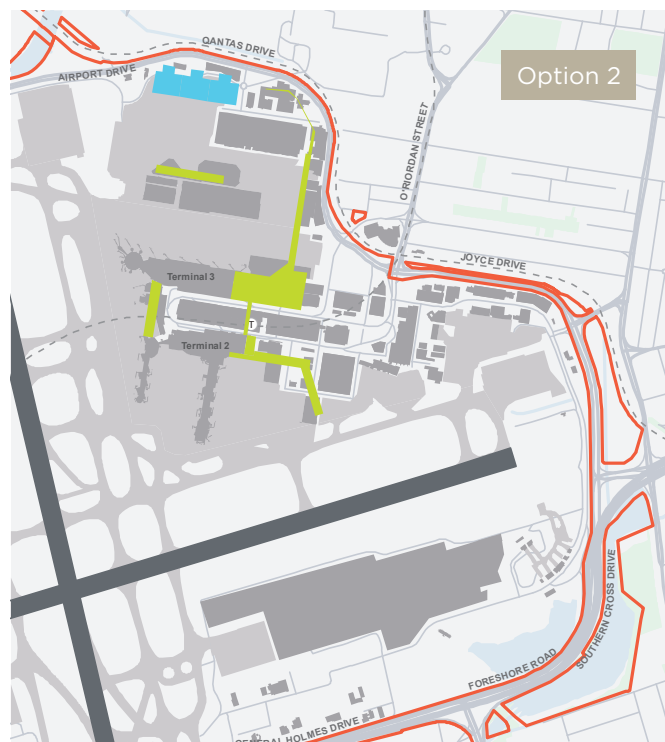
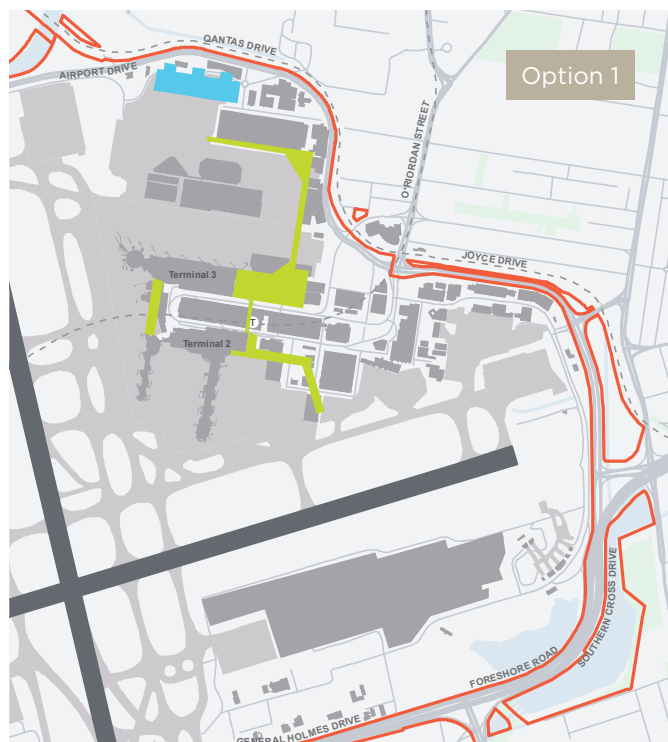
- Investment in next generation technology, and the refurbishment and upgrade of passenger facilities to improve the door to door experience of passengers
- Additional passenger and baggage processing facilities
- Increase in automated passenger facilitation through the use of biometrics throughout the terminals
- More efficient use of gates and logical flow paths for passengers
- Opportunities to share terminal infrastructure between international, domestic and regional operations
- Significantly improved transfer experience for international/domestic/regional passengers
- A sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles

These developments are anticipated to support airline aircraft utilisation and airline service delivery through opportunities for product differentiation.

There are a number of different options to expand and integrate international, domestic and regional services in the T2/T3 precinct. Sydney Airport has set out in **Map 11** four examples of development options. Future development decisions would be made in collaboration with our airline partners, subject to aviation demand and following extensive community consultation.

Map 11: T2/T3 Integrated Operations Precinct Terminal Development Plan 2039

The diagrams show some of the development options for terminal infrastructure, piers, satellite piers, hangars and engineering facilities. Future development decisions will be made in collaboration with airlines and subject to aviation demand.



Legend

- | | | | |
|---|---|--|--|
| Sydney Airport Boundary | Existing Runways | Existing Road | Maintenance Facility Upgrades |
| Existing Terminal/Precinct Buildings | Existing Taxiways/Aprons | Sydney Rail Network | Passenger Facility Upgrades |
| T Train Station | | | |

8.5.1 Departing passenger plan

The development of the T2/T3 precinct would allow departing passengers to access the terminals from:

- Existing and new roadways
- New Ground Transport Interchange
- Multiple public transport options

It is envisaged that new infrastructure for passengers would allow direct access to the terminals from a new multi-modal transport facility to supplement the current roadways.

At the departures level in the future it is envisaged that security screening requirements for international and domestic passengers will be aligned. This is expected to permit a common departure access level. International passengers will undergo a separate emigration process. New technologies, such as biometrics, will assist border control and processing, facilitating a seamless passenger experience.

To ensure passengers can transfer between terminals at the departures level, the landside and airside concourses of each terminal are proposed to be linked at the western and eastern ends.

It is envisaged that domestic and regional passengers will continue to be processed in an improved streamlined manner through T2 and T3. All currently known security requirements, such as body scanning and advanced screening technology, have been taken into account in the terminal plans. Any future security requirements involving passenger or non-passenger screening, including enhanced inspection points, changed technology, screening facilitation or intervention rates, could result in different spatial outcomes. It is envisaged that any changed spatial requirements would be accommodated within the proposed expanded footprints of the terminals.

Once through security, it is planned that all passengers will proceed to an airside retail and entertainment environment with food and beverage offerings, other services, airline lounges and gate lounges.



Image 8-6: Concept imagery of Sydney Airport's Domestic terminal retail offering

8.6 Inter-Precinct Airside Transfer Plan

8.5.2 Arriving passenger plan

The continued separation of arriving and departing international passengers will be required in order to meet security and border control requirements. Border control, customs and quarantine processing facilities are also proposed to facilitate international passenger operations. We will work with the various Australian Government agencies to deliver an efficient service.

Domestic and regional passengers will be processed through T2 and T3 utilising next generation processing equipment, with inbound security screening required for passengers transferring through the terminal from any unscreened destinations.

Baggage reclaim halls are proposed to be expanded with new baggage reclaim units being added to meet demand within the planning period for domestic operations, and new facilities developed for international operations.

Transfer facilities for passengers moving between the T2/T3 Integrated Operations Precinct and T1 International Operations Precinct are planned to be kept immediately adjacent to the terminals. Terminating passengers will continue to have the full choice of transport modes including train, bus, taxi, limousine, rental car, rideshare and public parking facilities.

8.5.3 Intra-terminal transfer passenger plan

Transfer facilities for passengers moving between international, domestic and regional flights within the T2/T3 Integrated Operations Precinct are planned to be incorporated into terminal expansions and new infrastructure with proposed new airside and landside links provided between the T2 and T3 buildings.

Currently, some airlines provide passengers with an inter-precinct transfer product. Passengers not travelling with these airlines use the Sydney Airport T-Bus or public transport modes such as rail, rideshare or taxi to travel between the precincts.

A benefit of the Terminal Development Plan is the reduction in inter-precinct transfers. The ability to transfer passengers and baggage within the same or adjacent terminal facility is considered to be the most reliable, convenient and efficient method of transfer. Accordingly, a reduction in the MCT to transfer passengers between flights will be possible.

An airside transfer product provides a reliable service as well as avoiding the need for passengers to be processed twice. The transfer product is proposed to be provided to inter-precinct transfers along a dedicated shuttle corridor, which will allow passengers to quickly and comfortably connect between precincts.

Over time, it is anticipated that this inter-precinct transfer product will utilise autonomous vehicles.

8.7 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Terminal Development Plan for Master Plan 2039:

- Commitment to achieving a minimum 4-Star Green Star Design and As-Built rating for new developments
- New developments designed to be water efficient and include water efficient fittings
- Undertaking an operational efficiency study of the terminal cooling systems to determine ways to reduce peak electricity demand
- Incorporation of water sensitive urban design in the development of landside facilities to improve local water quality and reduce burden on local infrastructure
- Preparation of a baggage handling system master plan

9.0 Airfield Development Plan



9.1 Overview

Airfield developments and enhancements are required to provide sufficient capacity to meet the projected passenger and air traffic demand at Sydney 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.

Together with Airservices Australia, we have undertaken considerable upgrades over the past five years to meet aviation demand and improve safety and operations at the airport. This includes the implementation of new air navigation systems, planning for a new ATC tower, and upgrades to approach lighting and associated infrastructure to improve aircraft operations during periods of low visibility.



Image 9-1: Our Airport Operations Team out on the field

9.2 Key Points

The Airfield Development Plan proposes improvements to airfield and aviation support infrastructure over the planning period to 2039:

- Taxiway improvements, which have been tested with fast time simulation modelling, to improve taxiing times for aircraft, enhance passenger experience and facilitate airline operating efficiency
- Taxiway developments to accommodate expected growth and facilitate integrated operations in the T2/T3 Precinct
- New apron developments across each of the precincts to accommodate aircraft stand demand in 2039, as well as aviation support infrastructure (e.g. FEGPU and PCA) to minimise impacts on the environment and community
- New active remote aircraft parking stands in the North East and South West Sectors to increase the capacity of the airport
- New remote aircraft parking in the South East Sector
- Additional storage areas for GSE and further deployment of FEGPU and PCA at aircraft parking stands
- Flexibility to accommodate new aircraft types being introduced into airline fleets
- Flexibility to respond to aviation industry changes and growth
- A new ATC tower in the South East Sector to be developed by Airservices Australia
- Expansion of the JUHI and extension of apron hydrant systems to serve new terminal infrastructure and remote stands
- Consolidation and redevelopment of freight facilities in the T1 International Operations Precinct and T2/T3 Integrated Operations Precinct
- Development of new freight facilities in the Northern Lands and South East Sectors to provide efficient and effective handling of freight
- Progressive relocation of aviation support facilities within the North East Sector and new aviation support facilities in the South East Sector



Image 9-2: The Instrument Landing System and approach lights at Sydney Airport

9.3 Runways and Taxiways

Sydney Airport has three runways with associated taxiway entries and exits:

- Main runway 16R/34L
- Parallel runway 16L/34R
- Crossing runway 07/25

Airfield improvements within the planning period are limited to taxiway and apron developments. No new runways or runway extensions are planned.

Taxiway enhancements are proposed over the next 20 years within the Runways Sector of Sydney Airport.

Table 9-1 and **Map 12** illustrates the proposed taxiway developments in the planning period.

Table 9-1: Taxiway developments

Taxiway developments	
①	Realignment of Taxiways B and C between the Runway 16R threshold and Taxiway L if required to accommodate independent Code F operation on both taxiways
②	Extension of Taxiway J east across Runway 16R/34L to meet a southern extension of Taxiway D crossing Runway 07/25 to improve access to the two terminal precincts
③	Extension of Taxiway K east between Taxiway C and Taxiway D and west across Runway 16R/34L to provide access to the new South East Sector apron
④	Creation of a Code F taxiway to access the reconfigured maintenance and engineering precinct in the North East Sector
⑤	Extending Taxiway U1 as far as Taxiway B10 to improve flows to/from Runway 16L/34R
⑥	Development of an additional entry/exit taxiway on Runway 16L/34R between Taxiways T2 and T3 for more efficient regional aircraft operations
⑦	Extension of Taxiway B to the full length of Runway 16R/34L eliminating runway crossings for arrivals/departures originating to/from the North East Sector
⑧	Development of an additional runway crossing on Runway 16R/34L between the extended Taxiway B and Taxiway A (south of Taxiway L)
⑨	Development of an eastern Rapid Exit Taxiway opposite A4 for Runway 16R arrivals heading to the North East Sector
⑩	Realignment of Taxiway G east of T2 and development of a new parallel Code C taxiway to improve aircraft circulation

Map 12: 20-year Airfield Development Plan 2039



9.4 Aprons and Parking Stands

9.4.1 Apron and parking stand demand

Sydney Airport works closely with airlines and aircraft operators to ensure that aprons are developed to meet demand. Implementation of apron and parking stands is adapted as airline demand changes.

The developments in the T1 International Operations Precinct and T2/T3 Integrated Operations Precinct will be planned with sufficient capacity to accommodate forecast growth (see **Chapter 16.0**). This includes the ability to handle Code E and Code F international aircraft in the North East Sector, which enables us to increase the airport's capacity within the planning period of Master Plan 2039 and beyond.

Swing gates at the T2/T3 Integrated Operations Precinct provide additional opportunities to efficiently increase the airport's capacity and flexibility to handle growth in Code E domestic aircraft (such as A330 and B787), as well as an improved ability to respond to fluctuations in demand between international, domestic and regional operations.

The 2039 representative busy day forecast schedule was used to generate aircraft parking and airfield demand to inform development requirements and options. The aircraft parking stand demand for each aircraft category was determined on the basis of the largest aircraft type using a particular stand over the entire busy day. Larger stands can be configured to accommodate smaller aircraft (potentially multiple smaller aircraft) and will be the subject of detailed project planning.



Image 9-3: A Boeing 787 Dreamliner parked at the stand off bays at Sydney Airport

The forecast apron and parking stand demand in 2039 is summarised in **Table 9-2**. The stand demand for each category was based on the largest aircraft type using a stand. Larger stands should be able to accommodate smaller aircraft codes subject to detailed project planning.

For the purposes of planning and to maintain future flexibility, domestic/regional Code C stands were sized to accommodate the largest code aircraft type.

The Airfield Development Plan meets this forecast apron demand by:

- Developing swing gates, which can be used in both the international and domestic peaks
- Increasing both the number and average size of aprons

We have conducted sensitivity analysis to demonstrate that the proposed apron and stand developments can respond to variations in future demand, particularly in relation to aircraft gauge. These proposals are also able to accommodate a range of airline grouping scenarios between the North West and North East Sectors.

Table 9-2: Forecast apron and parking stand demand, 2039

Category	T1	T2/T3	Freight ⁽¹⁾
Active (2)			
Code F	8	0	
Code E	27	21	1
Code C/Regional	4	55	
Subtotal	39	76	1
Layover (3)			
Code F		1	
Code E		8	
Code C/Regional		5	
Subtotal		14	0
TOTAL		129	1

- 1: This is the demand for freight stands occurring concurrently with passenger peak stand demand. Dedicated freight aircraft will operate from common use passenger stands.
- 2: Active stands are those used for actual passenger processing. They can be contact stands (i.e. those served by an aerobridge or walk-up) or passengers can be bussed to and from other locations.
- 3: Layover stands are those stands where aircraft not carrying out a short turnaround are towed and parked prior to being towed back to an active stand for departure.

9.4.2 Apron and parking stand development

Apron and stand development expansions will be required to meet forecast demand in 2039. The improvements proposed over the next 20 years are described in relation to the different sectors of Sydney Airport.

North West Sector (T1 International Operations Precinct)

- Development to the north of the existing T1 terminal building is proposed to allow for progressive expansion of Code E and Code F contact gates as demand requires
- Gradual consolidation and redevelopment of the current freight facilities

North East Sector (T2/T3 Integrated Operations Precinct)

- More Code E and Code F capable gates are proposed in the expanded precinct north of T3 and east of T2

South West Sector

- Potential progressive extension of Code C and Code E active and contact gates, as demand requires

South East Sector

- Increased remote parking south of Taxiway K to provide capacity for remote active and layover aircraft parking
- A new remote parking area and new development precinct immediately north of Taxiway B10 to provide flexibility to meet future requirements for apron and aviation support (i.e. freight, ground support equipment storage, catering and maintenance)

9.4.3 Ground support equipment

GSE includes a range of vehicles and equipment used to service aircraft between flights while on the apron. Motorised and non-motorised equipment is required while passenger and cargo loading and unloading, maintenance and other activities are carried out on the aircraft. GSE includes:

- Aircraft refuelling vehicles
- Aircraft tugs
- Aircraft waste disposal vehicles
- Baggage carts
- Belt loaders
- Bulk cargo loaders
- Buses
- Cabin service vehicles
- Catering vehicles
- Container dollies, loaders and tugs
- Ground power units
- Passenger boarding stairs

- Potable water trucks
- Tractors
- Unit load devices (ULDs)

Storage and staging of GSE at convenient locations relative to the aprons is important for efficient turnaround of aircraft. The actual area required is dependent on the number of each aircraft type served during peak periods and is provided partly on and partly off the aircraft gate area in dedicated GSE storage areas.

There are many non-airline third party ground handlers who contract to the various airlines to provide aircraft support services and who own and maintain the necessary equipment. Because of the size and nature of GSE, it is necessary to provide some on-airport aviation support facilities to ensure work can be undertaken on-airport.



Image 9-4: Our airport community in action on an A380 engine

The Airfield Development Plan provides for additional GSE storage areas and maintenance facilities to service new terminal, maintenance facilities and remote aircraft parking aprons. This includes new GSE storage areas at each new planned aircraft parking stand in combination with strategically located and dedicated remote GSE parking and storage areas. New storage and GSE maintenance facilities are possible in the South East Sector to replace facilities required to be relocated due to expansion in the North East and North West Sectors. Other satellite facilities will continue to be provided near terminals.

New technologies will continue to be investigated and initiated to provide efficiency gains and improve manual handling and energy consumption. This may include electric equipment with charging stations. The further growth and deployment of FEGPU and PCA systems across the airport will reduce the demand for GSE.

9.4.4 Business, general aviation and helicopters

The business and general aviation industry using Sydney Airport is almost exclusively limited to the premium corporate market, such as business jets, helicopters and commercial flights. Some of these aircraft types are currently unable to be accommodated at other airports in the Sydney Basin on a regular basis. It is recommended that over time these other airports be upgraded to accommodate such aircraft.

RAAF VIP flights operate through one of the fixed base operators and are irregular and low-frequency users of Sydney Airport.

As the need arises to accommodate increased passenger aircraft parking, the business and general aviation support facilities in the North East Sector will be invited to consolidate or progressively relocate to more appropriate precincts such as the South East Sector. The South East Sector could include facilities such as aircraft parking, logistics and aviation support.



Image 9-5: Helicopters parked at Sydney Airport

9.5 Airfield Modelling

Airfield simulation modelling was undertaken to test the capacity and efficiency of the airfield layout proposed in Master Plan 2039 under a busy day traffic scenario in 2039. The modelling assumptions were agreed and outcomes reviewed by Airservices Australia.

The airfield modelling study used a gate-to-gate fast time simulation model, structured around:

- The Airfield Development Plan for the airfield movement area layout in 2039
- The 2039 representative busy day forecast schedule
- Weather assumptions facilitating maximum runway capacity in parallel runway modes of operations (RMO) used during peak demand

The model was initially tested against the existing traffic and movement area configuration for calibration.

When developing the taxiway enhancement plan, consideration was given to the areas where congestion is currently observed. Where congestion could be anticipated in the vicinity of terminal precincts and associated aircraft aprons, racetrack taxiway configurations to minimise taxiing conflicts were preferred to ensure access to the terminal for inbound aircraft under the most demanding conditions.

Overall the modelling demonstrated:

- Improved capability for aircraft departure queues near runway thresholds
- Fewer taxiing delays for arriving aircraft
- Reduction in aircraft taxiing conflicts
- Capability to assist with disruption management
- Capability to accommodate all aircraft types, including Code F aircraft as required, at both terminal precincts
- Elimination of the need for jet aircraft operating from the North East Sector to cross Runway 16R/34L



Image 9-7: Taxiway traffic

9.6 Airfield Supporting Infrastructure

Satellite-assisted navigation technologies continue to be implemented at major airports around the world. On-board aircraft technologies will continue to be progressively introduced to facilitate standard instrument departures (SIDS) and standard arrival routes (STARs). Today, nearly all modern aircraft have the capability to fix their position using a range of air navigation systems, including satellite-assisted navigation technology.

Aircraft rely on a number of other inputs such as global navigation satellite systems (GNSS), other distance measuring equipment (DME) units and precision approach aids provided at Sydney Airport. Consistent with Master Plan 2033, over the past five years we have upgraded airfield supporting infrastructure to meet demand and improve safety and operations, including:

- An upgrade of the airfield to improve low visibility capability in conditions such as fog
- Upgrades of the approach lighting system for Runway 16R
- Installation of approach lighting systems for Runway 34L and Runway 34R
- Upgrade of the Runway 16R and Runway 34L instrument landing systems (ILS) to Category II
- ILS upgrades for Runway 16L and 34R
- Implementation of the ground-based augmentation system (GBAS) to supplement the current ILS equipment
- implementation of the following air navigation systems:
 - Multi-lateration surveillance system (MLAT)
 - Automatic dependent surveillance broadcast (ADS-B)
 - Advanced surface movement guidance and control system (ASMGCS)
- Removal of the Doppler VHF omni-directional range (DVOR) system and relocation of the DME facility to allow expansion of aprons and aviation supporting developments



Image 9-8: Elevated stop bar lights and guard lights to help facilitate taxiing airfield

9.6.1 Air traffic control

During the Master Plan 2039 planning period, proposed developments in the South East Sector will accommodate existing ATC tower sightlines, as well as navigational and radar aids. Airservices Australia has advised that a new ATC tower is required to be developed within the next five years. Any affected aids and associated facilities will be relocated, if required, to ensure that airfield surveillance is maintained.

Given the critical importance of ATC services to all airport users, we maintain an ongoing close dialogue with Airservices Australia on a range of issues, including:

- The impact and timing of any developments in the manoeuvring area
- Protection of potential sites for a new ATC tower and ASMGCS remote units, with appropriate sites to be made available when required

9.6.2 Air navigation

Sydney Airport, Airservices Australia and the aviation industry continue to work co-operatively on the implementation of new technologies as they are complemented by aircraft equipment and regulatory rule changes. The following technologies, which are delivering improvements to air navigation and surveillance, have been implemented for the benefit of airline and airport operations.

Navigation and landing systems

A GNSS is currently used for en-route and non-precision terminal and instrument approach navigation. GNSS approaches and departures will become more widespread to facilitate accurate aircraft tracking. In the more critical phases of flight (approach and landing), the GNSS system requires augmentation to realise the accuracy needed for guidance. These systems are referred to as GBAS or GBAS landing systems (GLS). A GBAS unit is currently operational at Sydney Airport.

Multi-lateration surveillance systems

MLAT is a surveillance system that receives and locates transponder and other transmissions radiating from aircraft on various frequencies, typically 1090MHz – the frequency used by secondary surveillance radar (including Mode S) and ADS-B transponders. All aircraft operating into Sydney Airport are equipped with transponders and nearly all are equipped with transponders capable of interrogation.

A wide area multi-lateration system (WAAM) is currently in use to supplement the terminal area radar and provide precision runway monitoring to enable simultaneous parallel runway operations to be conducted in conditions of reduced visibility.

The WAAM can be augmented to facilitate increased coverage or to facilitate developments in the vicinity of the airport that may otherwise be impossible due to sterilisation of land by on-airport radars or unacceptable reflections from radar transmissions. At Sydney Airport, MLAT receivers are also capable of receiving ADS-B transmissions. This technology enables development of land on- and off-airport, including at Port Botany and in the South East Sector.

Automatic dependent surveillance broadcast

ADS-B is a system that gives aircraft the capacity to automatically and continuously broadcast aircraft position, altitude, velocity and other data. Other aircraft and ATC can access the data on display screens without the need for radar.

Aircraft position is derived from the satellite or internal navigation systems on board the aircraft.

The ground unit is a receiver for the data, which is then integrated into the ATC system. ADS-B units are currently being used by Airservices Australia at Sydney Airport to provide surveillance on the airfield, in the terminal area airspace, as well as the airspace above 30,000 feet over the entire continent of Australia, including areas not currently provided with radar coverage.

Required navigation performance

Required navigation performance (RNP) is a statement of the navigation performance necessary for the operation of aircraft within a defined airspace. Procedures based on RNP provide for approaches to a lower minimum height than non-precision, but typically higher than ILS. Such approaches can be conducted independently of any ground based aids.

Most modern aircraft are capable of performing RNP approaches subject to procedure development and crew training. RNP approaches provide safety and operating benefits by providing pilots with a predictability of operations and further reducing reliance on ground based aids.

Such predictability delivers environmental benefits by reducing aircraft fuel burn and allowing for more flexible tracking in airspace around the airport, thus improving noise outcomes for some communities in the vicinity of the airport.

Advanced Surface Movement Guidance and Control Systems

ASMGCS has been introduced at Sydney Airport. The system comprises surface movement radar, MLAT and an ADS-B system, which in conjunction with stop bars, maximises capacity in low visibility conditions and increases airport safety in all weather conditions.



Image 9-9: The Air Traffic Control Tower at Sydney Airport, managed by Airservices Australia

9.7 Aviation Supporting Infrastructure

Aviation support activities at Sydney Airport enable the core airline business of transporting passengers and freight. Aviation support infrastructure includes:

- Supply, storage and distribution of aviation fuel
- Flight catering facilities
- Air freight facilities
- Aircraft maintenance facilities

Aircraft maintenance, freight, flight catering, GSE storage and aviation fuel facilities will continue to be accommodated on many of the existing sites at Sydney Airport where these activities occur. New developments will primarily be triggered by aviation growth and expansion of terminal and apron areas into these existing sites, leading to expansion and relocation of some aviation support infrastructure.

The Airport Development Plan will permit us to:

- Create new aircraft maintenance and engineering zones
- Create additional aircraft parking
- Increase aviation fuel storage areas
- Provide new GSE storage areas
- Provide areas for maintenance facilities
- Provide areas for additional flight catering facilities
- Provide areas for additional freight handling and transport facilities
- Upgrade the airport's capacity and distribution for utilities and services

Consistent with Master Plan 2033, the existing JUHI facility is expected to remain and be expanded on its current site.

Maintenance and engineering facilities may be upgraded in the North East and South East Sectors to accommodate new generation aircraft, which are provided for within the Airport Development Plan.

9.7.1 Aviation fuel

The JUHI facility is owned and operated by an unincorporated joint venture comprising BP, Caltex, Mobil, Qantas and Viva Energy. It is located in the northern part of the North West Sector.

The JUHI facility contains five storage tanks with a maximum capacity of 29 megalitres (ML) of aviation fuel, which currently provides up to three days' supply for the airport.

In addition to the JUHI, a number of the GA and helicopter operators at Sydney Airport have small refuelling storage facilities and equipment close to their operations.

The area surrounding Sydney Airport contains significant aviation fuel supply and storage infrastructure, with an estimated storage capacity of approximately 196 ML.

The JUHI facility at Sydney Airport is primarily fed by two independently owned pipelines:

- Viva Energy pipeline from Parramatta Terminal
- Caltex pipeline from Kurnell Terminal via Port Botany

Aviation fuel can be pumped through the Caltex pipeline from a number of separate facilities including the Caltex Kurnell facility and the Vopak storage facilities in Port Botany.

The primary source of Jet Fuel supplied to the JUHI facility is via pipeline. Jet Fuel is also supplied to the JUHI facility by Bridger.

Aviation fuel imports are currently handled through Gore Bay and Port Botany Terminals.

Aviation fuel is distributed across Sydney Airport via a number of underground pipelines from the JUHI to apron hydrant outlets adjacent to aircraft gates. 'Into-plane' dispensing is undertaken directly by the fuel companies (or their appointees) at the aircraft parking position. Bulk tanker vehicles are used for the fuelling of some aircraft where hydrant access is not available.

Additional aviation fuel capacity to meet growing demand will require a combination of:

- Upgraded supply throughput
- New storage tanks and related pumping equipment and pipework
- Extended and augmented hydrant lines to service new terminal extensions, aircraft parking configurations and remote active aprons
- Tankering operations to remote aprons where hydrant access is not available

The current JUHI site is capable of incorporating additional storage and it is planned to retain the facility in its current location in the longer term. The site has been provisioned for a further 10 ML tank supplemented with increased Bridger and tankering operations to remote aprons where hydrant access is not available.

The existing apron hydrant systems are proposed to be extended incrementally to serve the expansion of the terminal precincts and remote parking stands.

9.7.2 Flight catering facilities

Flight catering facilities are predominantly located off-airport, with two facilities located on-site (one each in the North East and South East Sectors).

The Airfield Development Plan assumes that flight catering facilities will continue to operate primarily from off-airport locations, with access to the airport via a combination of the public road system and enhanced airside security access points. However, there is potential for new facilities to be located in the Northern Lands Sector, subject to demand.



Image 9-10: Aircraft refuelling at Sydney Airport

9.7.3 Air freight facilities

Air freight is a vital economic activity and Sydney Airport handles about half of Australia's international air freight. Freight provides an important income stream for passenger airlines, which transport approximately 80 per cent of air freight in the cargo hold of passenger aircraft.

Land at Sydney Airport is at a premium and there are many competing demands, with aviation facilities and infrastructure prioritised. Currently, the airport has a number of freight facilities in the North West and North East Sectors, which service the international and domestic freight sectors. These facilities are leased/operated by a variety of companies.

The total on-airport land and building areas (warehouse and office total area) dedicated to freight are outlined in **Table 9-3**.

Table 9-3: Size of freight facilities at Sydney Airport, 2018

Terminal Precinct	Land Area (ha)	Building Area (m ²)
T1	9.2	37,823
T2/T3	4.5	25,099
TOTAL	13.7	62,922

There are also a number of off-airport freight facilities surrounding Sydney Airport, which contribute to the volume of freight traffic accessing the airport.

In order to accommodate the forecast growth in passenger numbers, it is important that we are able to provide an efficient and effective freight handling process. However, growth in passenger numbers will also require expansions to passenger terminals in both the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct. These expansions will require the consolidation and redevelopment of existing freight handling facilities.

In reviewing potential locations, together with more efficient uses of footprint and processes both on-airport and off-airport, for new freight facilities, we have adopted the following principles:

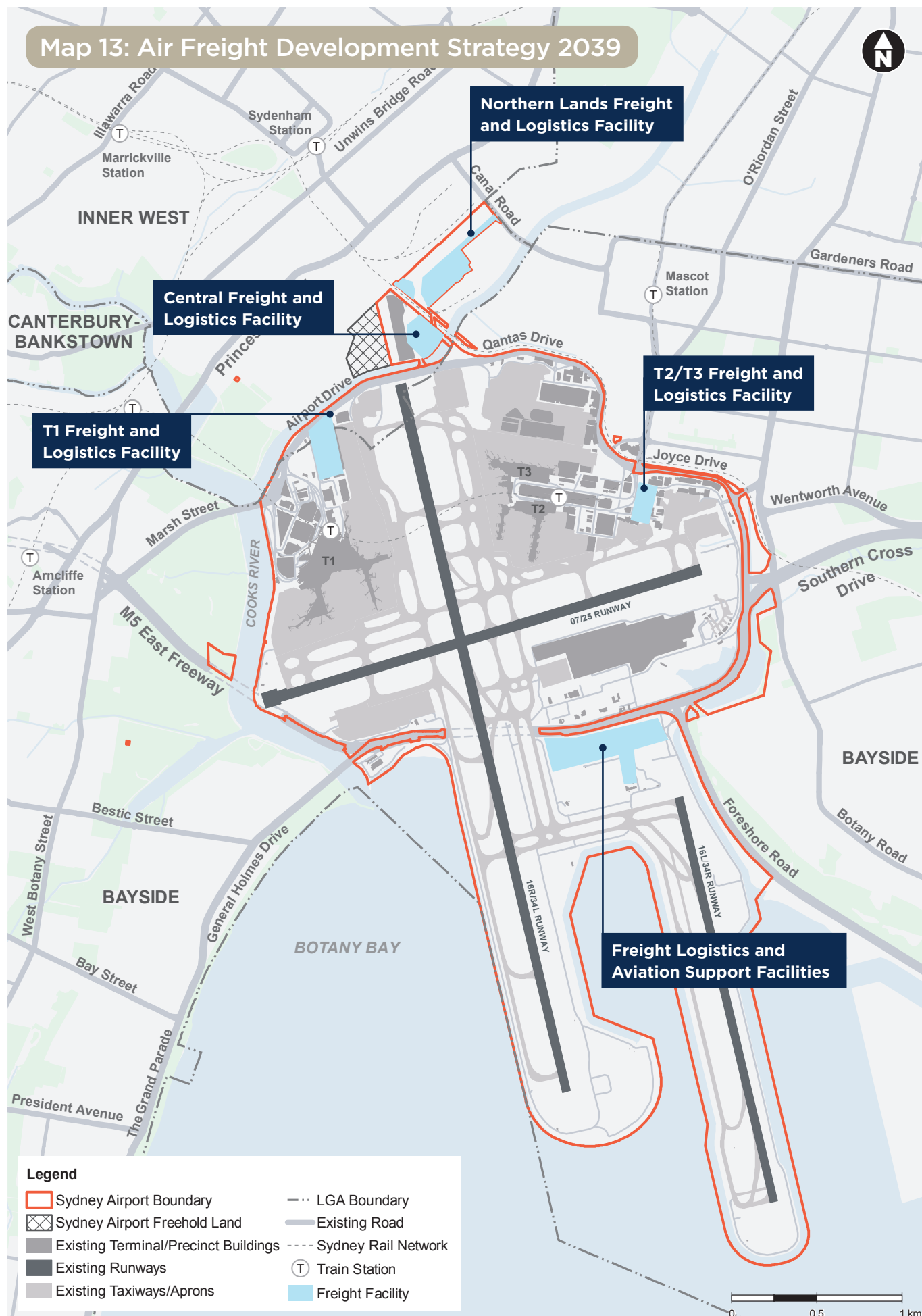
- Provide sufficient storage buffer and throughput capacity in the vicinity of passenger terminals to support growth in freight volumes (i.e. one million tonnes in 2039)
- Improve the efficiency of airport land and infrastructure used for freight
- Minimise the interface between landside freight and passenger traffic for better safety and reduced congestion

Our freight development strategy proposes to:

- Consolidate freight facilities at the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct
- Develop new freight facilities in the Northern Lands Sector
- Develop new freight and logistics facilities in the South East Sector (both north and south of General Holmes Drive)

This strategy is conceptually illustrated on **Map 13**.

Map 13: Air Freight Development Strategy 2039



9.7.4 Aircraft maintenance facilities

Given the proposals for terminal, apron and stand development to cater for forecast growth in passengers and aircraft, the Airfield Development Plan provides for:

- Apron, maintenance and engineering capacity to be developed in several locations at Sydney Airport, including relocation and reconfiguration of the Jet Base in the North East Sector
- Additional aviation support facilities in the South East Sector (both north and south of General Holmes Drive)

New aviation support facilities, to be utilised by airlines, third party service providers and their customers, may include hangars, workshops, offices and staff amenities. These new facilities could cater for three main types of aircraft maintenance activities:

- Line/station maintenance – this occurs during transits and turnarounds and can be performed at the aircraft gate
- Base maintenance – this requires ground-time in a hangar with simple access docking, or at a gate away from the terminal. Some non-routine maintenance and supplemental checks can be carried out at an aircraft parking position in favourable weather conditions. Ground-time periods can range between 20 and 36 hours
- Heavy maintenance – this requires significant ground time in a hangar with extensive docking capability. Ground time periods can range between six and 50 days, depending on the type of heavy maintenance being performed

In addition to hangars, there is a need for workshops, component stores and engine run facilities.

North East Sector

Two areas within the North East Sector currently utilised for aircraft maintenance will transition as the T2/T3 Integrated Operations Precinct is expanded to accommodate forecast passenger growth:

- Areas north of the existing T3 will remain partly available for development of new maintenance and engineering facilities on the northern perimeter of the current site. The remainder of the current site will be progressively redeveloped to meet the expanding demand for passenger aircraft infrastructure
- The current GA precinct in the eastern part of the Sector is proposed to be progressively developed for passenger aircraft infrastructure, with some fixed based operators and Air Ambulance relocating to the South East Sector

South East Sector

Land in the South East Sector will be available to provide new aviation support facilities to relocate displaced facilities and/or to meet demand for new facilities. Developments may include new maintenance facilities (typically for base maintenance), engineering and/or aviation support facilities.

Developments to cater for a range of hangar or ‘canopy’ bays are proposed and would include adjoining aircraft apron parking.

The development of aircraft aprons, maintenance or other support facilities will be planned to maintain the integrity of associated Airservices Australia facilities such as the various radars, navigation aids, fire stations and future ATC Tower requirements over the planning period.

Other existing developments, including contractor compounds, rental car, vehicle maintenance and catering facilities, may be retained in current location or relocated over time to elsewhere on the airport.

9.8 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Airfield Development Plan for Master Plan 2039:

- Continued expansion of FEGPU and PCA access and commitment to its use
- Aircraft movement efficiencies associated with adjustment and expansion of taxiways
- Operational and transport efficiencies associated with proposed freight handling facilities in the South East Sector
- Relocation and development of new freight facilities to provide significant energy and cost efficiencies



Image 9-11: Sunset on the airfield at Sydney Airport



10.0 Commercial Development Plan



10.1 Overview

The Airport Development Plan allocates the majority of the airport site for aviation activity. The remaining land at Sydney Airport is available for business activity, interim land uses, utilities and environmental conservation.

The Commercial Development Plan identifies the commercial and property developments proposed in landside areas of the airport. These developments are intended to support the efficient operation of the airport and provide facilities and services to passengers, airlines, airport partners and other airport users.

The Commercial Development Plan seeks to provide:

- On-airport commercial facilities for the aviation community including office facilities for government agencies, airlines and other airport service providers and users
- A range of convenient hotel accommodation for all passengers
- A variety of retail and food and beverage premises on-airport outside the terminals
- A range of car parking products for different market segments
- A range of rental car products

We continually seek to improve our offerings to reflect new markets and changes in market and customer expectations, while addressing customer growth requirements in a sustainable manner. Our aim is to maintain flexibility in commercial development planning in order to respond to customer needs as they arise.

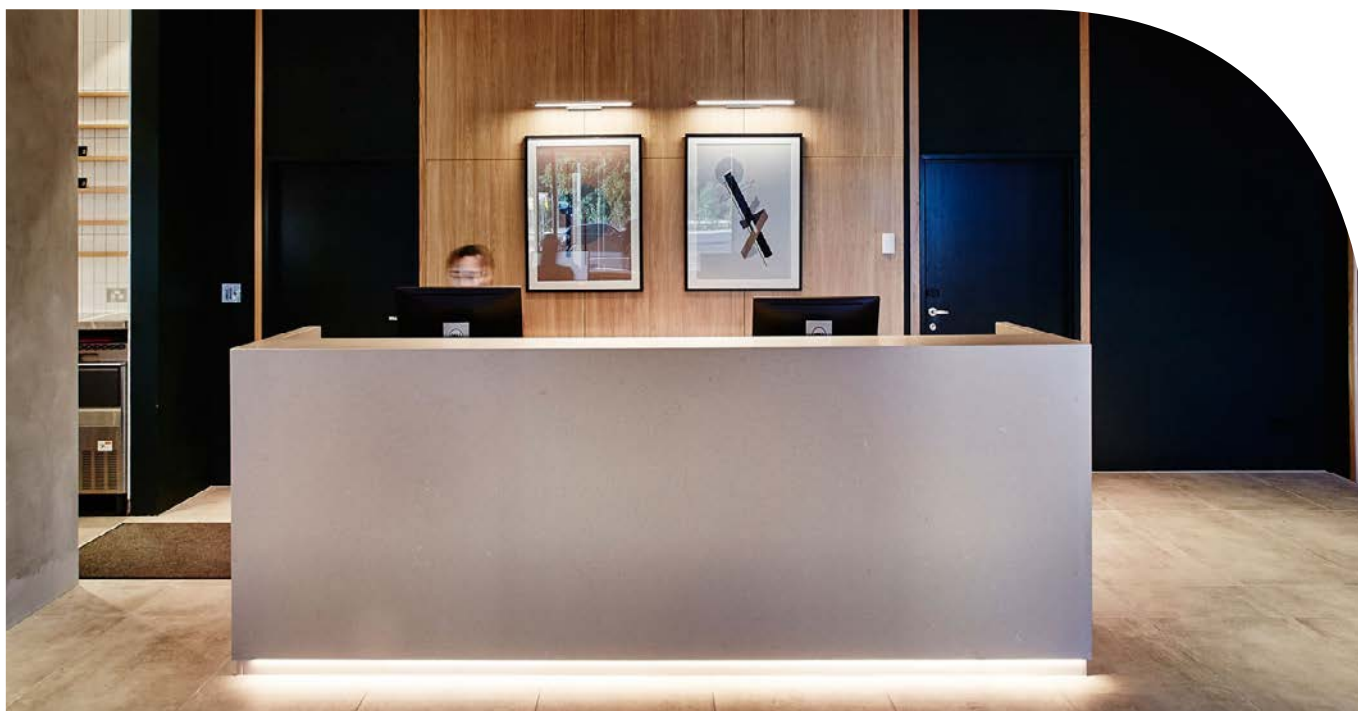


Image 10-1: Inside the Mantra Hotel at Sydney Airport

10.2 Key Points

The Commercial Development Plan for Master Plan 2039 highlights that:

- Proposed terminal and airfield developments are likely to displace some existing commercial developments
- The North West Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T1 terminal) for hotel and office commercial development
- The North East Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T2 and T3 terminals) for hotel and office commercial development
- An approved 430 room hotel at Ninth Street will be developed together with a multi-storey Ground Transport Interchange in the North East Sector
- Additional hotels covering a range of product offerings with approximately 200 to 500 rooms could be developed within the North West Sector in the next five years
- Additional hotels covering a range of product offerings with approximately 500 to 900 rooms could be developed within the North East Sector
- Up to 70,000 square metres of freight, logistics and industrial developments could be accommodated in the South East Sector
- Up to 150,000 square metres of freight, logistics and industrial developments could be accommodated in the Northern Lands Sector
- Employment levels at Sydney Airport are forecast to increase to 35,800 jobs by 2023



Image 10-2: Concept imagery of Sydney Airport's hotel development on Ninth Street, Mascot

10.3 Commercial Development Context

More than 100,000 passengers travel through Sydney Airport each day. With this level of daily activity, there are consequential demands for a range of commercial services at the airport including:

- Hotel accommodation
- Offices and serviced offices
- Meeting, conference and function facilities
- Food and beverage outlets
- Medical facilities
- Banking
- Convenience stores
- Recreation facilities
- Staff support services and child care
- Luggage services
- Vehicle services and showrooms
- Pet consignment and boarding
- IT services
- Advertising and commercial signage

The availability of these services and amenities at the airport provides convenience, saves time, simplifies commuter travel and promotes healthy lifestyle choices. Cycling end-of-trip facilities have recently been enhanced to promote active transportation by airport workers.

Our recent commercial initiatives include enhancements to consumer offerings for retail, car parking and the opening of a mid-range Mantra Hotel with 136 rooms in 2017.

With land available for commercial development limited, responsiveness and flexibility of business-to-business and business-to-consumer engagement are key to our commercial planning activities. We engage in customer research to prepare for changing needs and emerging trends, and we seek to respond to customer requests in a timely manner.



Image 10-3: Sydney Airport's North-West Sector encompassing Customs House and parking facilities

10.4 Commercial Development Strategy

Aviation activity remains the priority at Sydney Airport. Accordingly, we will pursue property leasing and development strategies that allow for delivery of the aviation needs outlined in our Terminal and Airfield Development Plans (see [Chapters 8.0 and 9.0](#)).

Terminal and airfield developments are likely to require progressive displacement of some existing functions, including some existing commercial activities. A number of activities may be relocated to alternative areas on-airport, facilitated by ongoing occupancy tenure reviews and the consideration and implementation of short or medium term alternative uses for land.

In addition, there are a number of commercial activities that can be located on land that may not be required for aviation activities until later in the planning period, or on land not required for aviation activities.

Our strategy for commercial development is to provide for a range of commercial land uses that both support the airport's primary aviation function and provide a degree of civic amenity. These commercial activities include general commercial, community, office and hotel uses. There is also growing demand from businesses or agencies that require facilities close to the airport or airside (such as administrative offices, airlines, freight and catering businesses, hotels and car parking).

Commercial developments are considered in accordance with the principle of 'highest and best' use and customer value. We will also require increased emphasis on sustainable design in all commercial developments. In particular, we will pursue 4-Star Green Star Design and As Built ratings for all new commercial development, subject to customer and tenant requirements.

10.5 Potential Commercial Development

10.5.1 Commercial development in the North West Sector

The North West Sector includes:

- The T1 International Operations Precinct
- Freight terminals
- Aviation support functions (including aviation fuel storage)
- Ground transport facilities (including multi-storey car parks)
- Hotel accommodation
- Office accommodation for Australian Government agencies, including the Australian Border Force and AFP)

Over the first five years of the planning period, we contemplate the following developments in the North West Sector:

- Further multi-storey structures could be developed, including a new P8 pick-up, drop-off facility of up to 12 levels, to accommodate car parking and other ground transport functions in response to the developing needs of the precinct and Sydney Airport's growing number of users
- Additional hotels covering a range of product offerings with approximately 200 to 500 rooms, the exact locations of which are yet to be determined
- A variety of commercial developments to complement the precinct and T1 forecourt, including offices, hotels, service facilities and advertising signage as part of the Western Terminal Expansion

Over the long term, the North West Sector (excluding the T1 terminal) can accommodate demand for up to 120,000 square metres of commercial floor space, including for further hotel and office development.

This will comprise both the existing built form and potential additions, including:

- Opportunities exist for commercial development facing the waterfront along the banks of the Cooks River, opposite the current Kogarah Golf Course
- The T1 terminal expansion may result in the relocation of existing airline, agency and service provider office accommodation and provide opportunities for hotel accommodation and commercial development

Aviation support developments in the North West Sector are expected to include some additional fuel storage facilities and some freight facility displacement, consolidation and redevelopment (refer to [Chapter 9.0 Airfield Development Plan](#)).

10.5.2 Commercial development in the North East Sector

The North East Sector includes:

- The T2/T3 Integrated Operations Precinct
- Multi-storey car parking structures in proximity to T2 and T3
- A range of aviation support activities, including:
 - Aircraft maintenance
 - Freight handling and transport facilities
 - Flight catering
 - Vehicle servicing
 - GA operations

In the first five years, we contemplate the following developments in the North East Sector:

- An approved 430 room hotel will be developed at 2 Ninth Street. This is expected to occur together with the approved Seventh Street multi-storey Ground Transport Interchange
- Further hotel accommodation choices along Ross Smith Avenue may be developed with approximately 500 to 900 rooms in total, the exact locations of which are yet to be determined

Over the longer term, planning provision has been made to meet a variety of commercial demands including offices, hotels, service and other facilities, and advertising signage in the North East Sector. Up to 120,000 square metres of commercial floor space can be accommodated in the sector (excluding T2, T3 and any potential terminal expansions).

This will comprise both the existing precinct built form and future additions.

Terminal developments may impact on existing commercial developments (including offices, freight, aircraft maintenance, catering and vehicle servicing). Where this occurs, it is expected that modernised replacement facilities will be developed.

In addition, further hotel accommodation choices along Ross Smith Avenue and incorporated into and adjacent to terminal development will likely be delivered. Approximately 500 to 900 rooms could be developed in the precinct.

10.5.3 Commercial development in the South East Sector

The South East Sector of Sydney Airport will gradually be developed for aviation activities, including aviation support, business and general aviation, freight handling and transport facilities, offices, hangars and aprons.

Airservices Australia has advised that a new ATC Tower is likely to be required within the next five years and it is anticipated that support facilities will be required.

If these developments proceed, they may displace current commercial uses that include rental car support facilities, part of the Blu Emu car park, flight catering and vehicle servicing and other general facilities. Until the aviation use of this land reserve is required, these areas will remain available for commercial development.

In the first five years, existing roadside services to the north of General Holmes Drive may require remodelling and extensions, to support anticipated revised ground access arrangements.

To the south of General Holmes Drive, aviation support facilities, including freight and logistics, are likely to be developed to absorb displaced facilities from elsewhere on the airport.

Roads and Maritime has indicated that it proposes to develop truck inspection facilities along Sydney Airport's Foreshore Road land separated from the airport by the Mill Stream stormwater drainage canal. Sydney Airport also remains interested in establishing an adjacent roadside service centre and related facilities and advertising signage areas in conjunction with any Roads and Maritime development.

Over the longer term, we have indicated that the Botany Bay and Cooks River foreshore may be used for commercial activities.

10.6 Impact on Local Employment

10.5.4 Commercial development in the Northern Lands Sector

In 2016, the Nigel Love Bridge across Alexandra Canal was completed. This bridge has enabled airport related uses, initially including vehicle storage, to be established in the Northern Lands Sector.

Development in the Northern Lands Sector is likely to be staged, subject to any Sydney Gateway connection.

Any Sydney Gateway connection may facilitate the use of land north of the Alexandra Canal for airside aviation support activities, including:

- Freight
- Catering
- GSE storage and maintenance
- Truck staging
- Vehicle storage

Within the first five years, this may include relocating activities currently undertaken elsewhere on airport land to the Northern Lands Sector. Additional access connections and ground transport infrastructure are expected to be delivered as part of developing this area.

10.5.5 Commercial development on other airport lands

It is possible that we may establish roadside services areas and advertising adjacent to transport routes on Sydney Airport land.

For the first five years of a planning period, the Airports Act requires Master Plan 2039 to specify the likely effect of proposed commercial developments on employment levels at the airport and on the local and regional economy.

In relation to the period to 2024, the direct employment levels forecast for the airport precinct are shown in **Table 10-1**. The economic impact is also shown.

10.7 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Commercial Development Plan for Master Plan 2039:

- Commitment to achieving a minimum 4-Star Green Star Design and As-Built rating for new developments (subject to tenant and customer requirements)
- New developments designed to be water efficient and include water efficient fittings
- Incorporation of water sensitive urban design in the development of landside facilities to improve local water quality and reduce burden on local infrastructure

Table 10-1: Effect on the local economy and impact on employment levels at Sydney Airport

	2019	2020	2021	2022	2023	2024
Jobs (FTE)	32,700	33,500	34,300	35,100	35,800	36,200
Economic impact (billions)	11.4	11.7	12.0	12.3	12.6	12.8

Map 14: 20-Year Commercial Development Plan 2039



11.0 Ground Transport Development Plan



11.1 Overview

Managing ground access in and around Sydney Airport is important for our customers and our local communities. Development and urbanisation in areas around the airport, together with air passenger growth, has increased demand on ground transport infrastructure in the past five years.

More people are travelling to, from and past the airport, with growth in demand from both air passengers and commuters expected to continue over the planning period of Master Plan 2039. This will place increasing pressure on:

- Our internal road network
- Surrounding roads
- The public transport network serving the airport

Our Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy contained in this chapter are designed to improve road network performance in and around Sydney Airport to 2024 and beyond, and accommodate forecast increases in ground transport demand over the planning period.

The ground transport solutions proposed at both T1 and T2/T3 recognise the potential changes in traffic volumes and patterns resulting from the opening of WestConnex and the proposed Sydney Gateway connection. We have been working collaboratively with the NSW Government on the development of ground access solutions.

WestConnex is expected to allow some non-airport traffic to bypass the airport, and will provide the opportunity for road journey times between the Sydney CBD and both terminal precincts to be more reliable.

We welcome the recent growth in rail passenger demand to/from the airport and continue to advocate for further improvements to public transport, including provision of additional and more affordable services.



Image 11-1: Passengers departing the Domestic terminal at Sydney Airport

11.2 Key Points

The Ground Transport Development Plan for Master Plan 2039:

- Builds on the improvements to the internal and external road networks undertaken in line with Master Plan 2033, which have delivered significant additional capacity and enhanced traffic flows across both the T1 and T2/T3 precincts
- Is expected to result in improved road and intersection performance in and around Sydney Airport to 2024 and beyond
- Accounts for substantial changes to the external road network, in particular WestConnex and the proposed Sydney Gateway connection
- Is expected to support the forecast increase in ground transport demand to 2039

T1 Ground Transport Improvements

At T1, the Five-Year Ground Transport Plan proposes a number of ground transport solutions, including:

- Construction of a new integrated multi-storey pick-up/drop-off facility at P8 separating internal traffic and reducing conflicts and delays. It could include:
 - Direct vehicle access from Centre Road with a potential elevated ramp access to P8 to minimise traffic conflicts
 - Direct vehicle exit onto Cooks River Avenue
 - Direct pedestrian connections to the terminal to enable a seamless customer experience
- Elevated ramp access to P6 from Arrivals Court or Departures Plaza, with exit onto Centre Road
- Subject to terminal infrastructure development, reconfiguration of P6 and P7 to incorporate a multi-modal ground transport interchange
- Upgrading Centre Road to accommodate increased vehicle movements
- Widening of Airport Drive up to four lanes in each direction between the precinct and the proposed Sydney Gateway connection
- Additional exit ramp capacity to Marsh Street and Airport Drive to improve conditions for vehicles exiting the precinct
- Reconfigured access to Link Road from the proposed Sydney Gateway connection

T2/T3 Ground Transport Improvements

At T2/T3, the Five-Year Ground Transport Plan proposes a number of ground transport solutions, including:

- Construction of the approved Ground Transport Interchange, providing additional capacity for a range of uses, including for public and private bus operations and rental car operations
- Development of improved connectivity and amenity between the Ground Transport Interchange and the two terminals (including through the existing P1, P2 and P3 car parks)
- Redevelopment of P1 to facilitate improved access to rail, taxis, rideshare, rental cars and a range of parking services
- Improved loading dock facilities for terminal development, which provide ease of access and security
- Improvements to the current road network particularly at the intersections of Sir Reginald Ansett Drive/O’Riordan Street/Joyce Drive and Seventh Street/Robey Street/Qantas Drive
- Widening of Qantas Drive up to three through lanes in each direction between the precinct and any future Sydney Gateway connection
- Continued development of new facilities for vehicle pick-up/drop-off operations

Intersection Improvements

Proposed improvements to the intersections include:

- New dedicated Qantas Drive flyover entry to the T2/T3 precinct
- Improvements to the left turn out of Seventh Street to Qantas Drive (for traffic exiting the precinct)
- Optimisation of traffic signal settings to minimise delays for all traffic
- Improvements to the left turn from Qantas Drive to Robey Street

11.3 Ground Transport Context

Continued air passenger growth at Sydney Airport has resulted in a commensurate growth in ground transport demand as more people travel to and from the airport. Air passenger growth and an associated increase in ground transport demand is expected to continue over the planning period of Master Plan 2039. This will place increasing pressure on:

- Our internal road network
- Surrounding roads
- The public transport network serving the airport

Currently, on busier days at Sydney Airport, the number of arriving and departing passengers is up to 145,000. Of these, roughly 85 percent make a landside journey to or from the airport. The remaining 15 percent transfer to another flight.

Staff movements at the airport are considerable and the number of people who travel to Sydney Airport for work on a typical working day has increased by about 20 percent since 2012. Other visitors, including those meeting and farewelling travellers, add to the daily traffic volume at the airport.

Between 2012 and 2017 the number of vehicles accessing Sydney Airport during peak periods increased at T1 and T2/T3 by more than 50 percent and 25 percent respectively.

There has also been a change in how people travel to the airport. Analysis of a recent Sydney Airport passenger survey and public transport ticket data shows that the modal share of air passengers accessing the airport by rail has grown from 16 percent in 2012 to 24 percent in 2017. Analysis of ABS Census Journey to Work data indicates that the modal share of workers accessing the airport by public transport has grown from 15 percent in 2011 to 21 percent in 2016. The current daily usage at both airport rail stations is over 33,000 trips on a busy day, which is an increase of 45 percent from 2012. The emergence and growth of ride sharing has also changed the modal share of air passengers travelling to and from the airport.

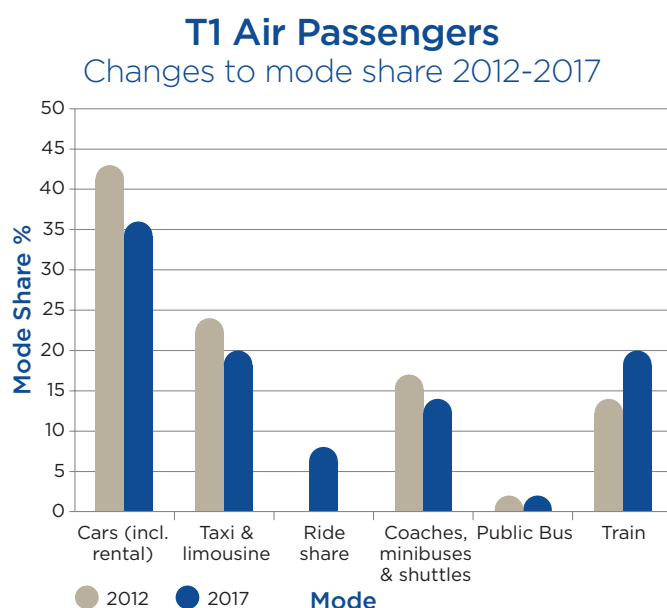


Figure 11-1: *Changes to mode share at T1 - 2012-2017

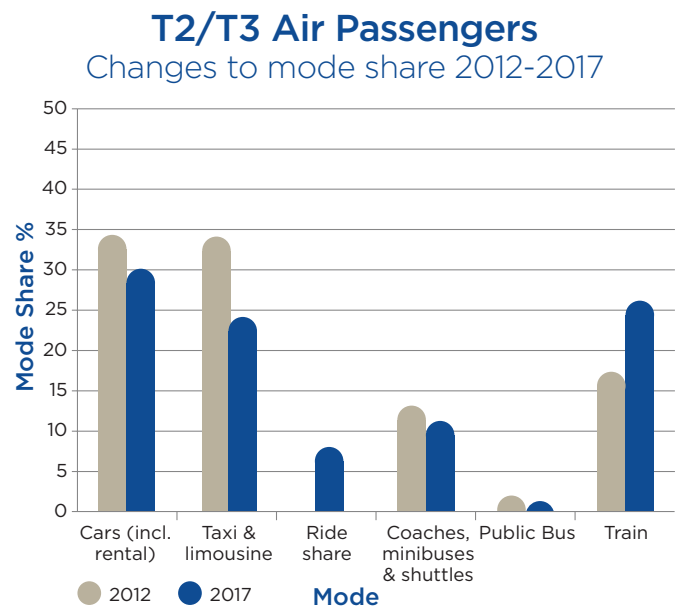


Figure 11-2: *Changes to mode share at T2/T3 - 2012-2017

*Figure 11-1 and Figure 11-2 illustrate mode shares for a representative busy day in 2012 and 2017

On a typical day, around 65 percent of the daily westbound traffic travels past the T1 precinct and around 60 percent of the daily eastbound traffic travels past the T2/T3 precinct. Recent growth in airport related traffic, general commuters and Port Botany related traffic is contributing to delays and congestion on the roads surrounding Sydney Airport. As traffic volumes continue to grow, it is important that measures are put in place to mitigate congestion and ensure reasonable journey times for our customers to and from the airport and other road users on the adjacent network.

Over the 20 year planning period of Master Plan 2039, the following key factors will have a significant impact on traffic volumes and access to Sydney Airport:

- Continued growth in air traffic and passengers
- Integration of international, domestic and regional operations at the T2/T3 precinct
- External road network changes, particularly WestConnex and the proposed Sydney Gateway connection, as well as longer term projects such as the Western Harbour Tunnel, Beaches Link and the F6 Motorway



Image 11-2: New Centre Road entry to T1 International

11.4 Existing Ground Transport Arrangements at Sydney Airport

11.4.1 Roads

Planned changes to the road network outlined in Master Plan 2033 have now been implemented at Sydney Airport. These road network enhancements focused on improving capacity and traffic flow at both the T1 and T2/T3 precincts.

The reconfiguration of the road network and other improvements at T1 have been successful in accommodating significant growth in traffic levels in the past five years and have provided a relatively free flowing traffic corridor along Centre Road. The recently opened Cooks River Road West, and removal of the signalised intersection, together with supporting enhancements to Cooks River Road, has considerably improved the exit for traffic from Departures Road, Arrivals Court and Centre Road.

Further entry improvements have been achieved through the introduction of the new Airport Drive flyover to Arrivals Court that eliminates much of the vehicle weaving movements on the approach to T1.

In the past five years there have been considerable changes to the operation of traffic flow at the T2/T3 precinct, responding to the challenge of managing competing non-airport through traffic and airport-generated traffic at the intersection of O’Riordan Street/Joyce Drive/Sir Reginald Ansett Drive/Qantas Drive. Traffic operation has been improved by the introduction of a one-way entry and exit system through the T2/T3 precinct by extending Seventh Street, which provided a new access road link for traffic exiting the precinct. In late 2017, this improved operation at T2/T3 was complemented by the introduction of a similar one-way system on O’Riordan Street and Robey Street.

Further improvements to the O’Riordan Street/Joyce Drive/Sir Reginald Ansett Drive/Qantas Drive intersection will be achieved with the completion of the current Roads and Maritime works in the area (Airport North and Airport East works).

11.4.2 Pick-up and drop-off facilities

We continue to provide pick-up and drop-off facilities close to the airport terminals for private vehicles, taxis, rideshare, coaches and mini-buses. These modes provide an important transport choice for customers accessing Sydney Airport accounting for around 75 percent of all passenger trips.

In recent times we have invested in additional parking and pick-up/drop-off facilities at both T1 and T2/T3, including:

- An overflow drop-off facility at P6 to reduce delays on Departures Plaza at T1
- An express pick-up facility at T1, with 47 dedicated spaces
- A priority pick-up facility adjacent to P7 at T1, with 64 dedicated spaces
- An express pick-up facility for T2/T3 immediately east of Seventh Street in the P3 car park, with 91 dedicated spaces
- A priority pick-up facility at T2/T3, close to the terminal exit, immediately east of Fourth Street, with 60 dedicated spaces

These investments have ensured continued efficient operations for all customers being picked up by private vehicle or rideshare.

11.4.3 Car parks

We are committed to providing adequate car parking facilities tailored for the needs of our customers – including long stay, short stay, guaranteed and valet parking. Recent improvements to the provision of car parking include:

- Four additional levels to P6 at T1
- Extension of P3 and provision of additional car park spaces at T2/T3

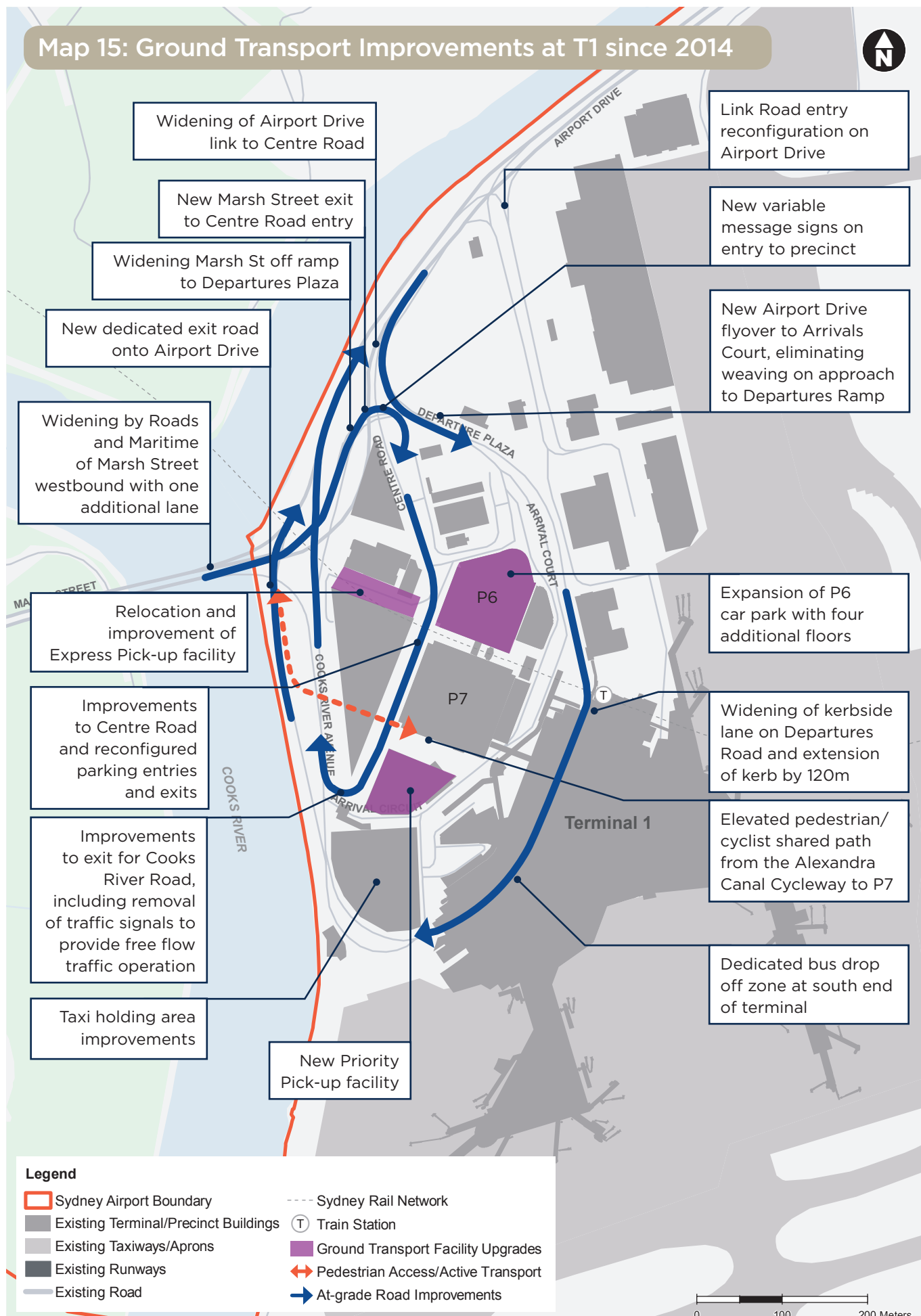
There are approximately 4,000 public car parking spaces at T1 and 4,200 public car parking spaces at T2/T3.

Additional long stay and staff car parking is provided at the Blu Emu car park in the South East Sector with approximately 4,900 public spaces and 1,000 staff spaces.

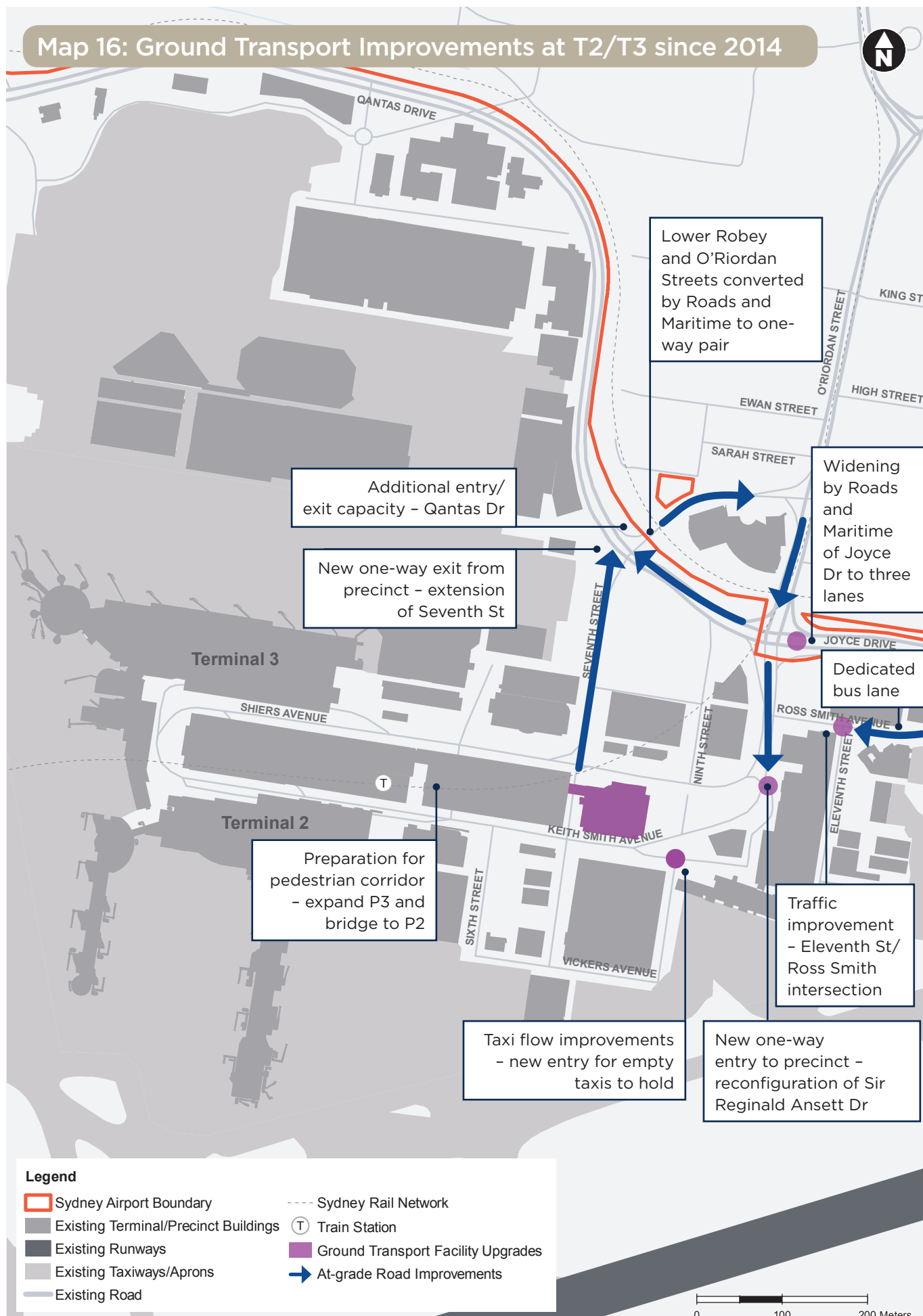


Image 11-3: The newly opened Priority Pick-up at T1 International

Map 15: Ground Transport Improvements at T1 since 2014



Map 16: Ground Transport Improvements at T2/T3 since 2014



11.4.4 Public transport

Sydney Airport continues to advocate for improved public transport to the airport, including additional rail and buses to provide improved public transport options for all airport users. We welcome the recent increase in the public transport mode share, in particular rail. Sydney Airport is located just 13 minutes by train from the Sydney CBD with trains running approximately every ten minutes during non-peak periods and every six to seven and a half minutes during the weekday AM and PM peaks on the T8 line. The NSW Government recently increased the number of train services to Sydney Airport. Upgrades to the power supply and safety aspects of the Airport line will allow for services to be increased to up to 20 services per hour.

There are a variety of bus routes servicing the airport on a regular basis (see **Figure 11-3**). The NSW Government has recently announced new and expanded bus services to the airport. This includes new bus routes 420 and night bus N20 as well expanding the existing 400 bus route to include night services.

The introduction of a bus lane on Ross Smith Avenue has improved bus access to T2/T3, especially for the Blu Emu express bus transferring staff and long-stay passengers from the Blu Emu car park. Further improvements could be achieved through additional dedicated bus priority lanes or bus priority signals on roads leading to the airport.

The approved Ground Transport Interchange between Ninth Street and Seventh Street will facilitate bus services and multi-purpose parking for T2/T3. It will provide faster and more direct access for public and private buses, and will be supported by pedestrian walkways, orientation spaces, wayfinding signage and flight information displays to provide airport users with a customer experience designed to encourage its use.

11.4.5 Active transport

Sydney Airport is committed to improving active transport infrastructure in the airport precinct. A number of initiatives to improve active transport access outlined in Master Plan 2033 have been implemented over the past five years. This includes the footbridge and cycleway connection linking the Alexandra Canal shared use path to P7 and the T1 terminal, in addition to provision of storage facilities and change rooms.

Additional infrastructure to support active transport, such as wider footpaths and additional bike racks, has been installed at T2/T3.

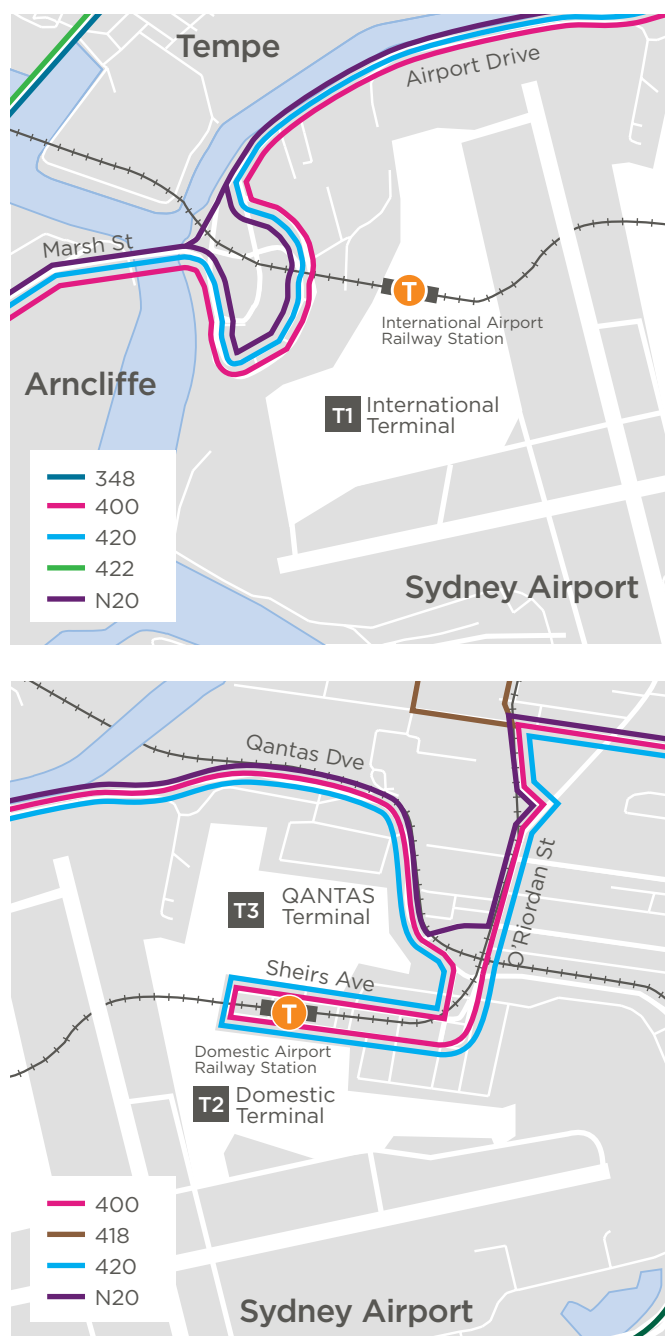


Figure 11-3: Public transport connections to T1 and T2/T3

11.5 Sydney Motorway Network

11.5.1 Working with the NSW Government

We work collaboratively with external agencies, including the NSW Government, to ensure alignment between objectives and planned projects to improve road function, capacity and journey times for all users.

11.5.2 Public transport

Discussions will continue with TfNSW on access fee arrangements for railway stations at Sydney Airport and the potential for new and improved bus and rail services to enhance public transport accessibility and affordability for our customers and employees at the airport.

The NSW Government has indicated that the rail line has the potential to provide greater long term capacity, particularly following completion of Sydney Metro City and Southwest in 2024, which will provide additional capacity on the wider Sydney Trains network (see **Figure 11-4**). This capacity, along with upgrades to power supply and safety measures outlined in Sydney's Rail Future, has the potential to allow for up to 20 trains per hour on the T8 Airport and South Line beyond 2024.

In its Future Transport Strategy 2056, the NSW Government has also indicated further high capacity "turn-up-and-go" services through Sydney Airport.



Figure 11-4: Sydney Train Network between Sydney Airport and the Sydney CBD

11.5.3 Roads

Sydney Airport is eight kilometres from the Sydney CBD and is currently accessed from the north via the Eastern Distributor and Southern Cross Drive, the M5 East Motorway from the west and General Holmes Drive from the south. Connection to the T1 precinct is provided by Airport Drive from the east and Marsh Street from the west, while access to T2/T3 is by O'Riordan Street from the north, Joyce Drive from the east and Airport Drive and Qantas Drive from the west.

The NSW Government is upgrading roads to the east, north and west of Sydney Airport to reduce congestion and improve traffic flows and access to the precinct.

Works include:

- Removing General Holmes Drive rail level crossing by constructing a road underpass
- Widening Marsh Street, Arncliffe to three lanes westbound
- Upgrading roads to the north of Sydney Airport

NSW Government road works

The NSW Government is currently constructing the WestConnex Motorway, which has the potential to significantly alter traffic patterns on the Sydney road network. The Sydney Motorway Network (shown in **Figure 11-5**) includes WestConnex. These are priority projects for the NSW Government.

WestConnex includes the following staged improvements to the motorway network:

- M4 East
- New M5
- New St Peters Interchange
- M4-M5 Link Tunnels
- M4-M5 Link Rozelle Interchange

The NSW Government has also announced studies for Sydney Gateway, the F6 Extension - Stage 1 and future Western Harbour Tunnel and Beaches Link, which would connect to WestConnex.



Figure 11-5: Sydney Motorway Network

NSW Government Sydney Gateway

Sydney Gateway is an Australian and NSW Government initiative to improve road and rail access to Sydney Airport and the Port Botany area.

Sydney Gateway will pass through Sydney Airport land to the north of the airport and create direct motorway access to the T1 and T2/T3 terminal precincts. In addition, the entrance to the T2/T3 precinct will be significantly enhanced by a new dedicated flyover from Qantas Drive to the front door of the terminals.

Sydney Gateway will reduce congestion around the airport. Widening Qantas Drive to three lanes in each direction will substantially improve the experience for people travelling to, from and past the airport. Drivers will be able to travel from Parramatta via the Sydney Motorway Network to the T2/T3 precinct and back without passing through a single traffic light.

Key facts

- Direct and equal travel times to and from the T2/T3 and T1 precincts and the Sydney Motorway Network at St Peters Interchange
- Widening of Qantas Drive to three through lanes in each direction
- New dedicated Qantas Drive flyover entry to the T2/T3 precinct
- The existing Airport Drive will become an internal airside/landside road
- General traffic will continue to be able to travel toll free between the airport precincts
- Improved access for the Northern Lands Sector

Project benefits

Sydney Gateway will help make journeys easier, faster and safer

Easier

- Enable easier journeys to and from Sydney Airport and improved connections between the terminals
- Provide new roads to Sydney Airport to help reduce congestion and cater for forecast growth in passenger and air freight
- Provide access to the airport terminals for over-height vehicles (up to 4.6m), increasing the clearance from 4.3m
- Improve the movement and support the growth of rail freight between Port Botany, freight terminals and logistic centres in Metropolitan and Western Sydney

Faster

- Will reduce travel times through improved road connections to the T1 and T2/T3 precincts
- Help reduce congestion in Mascot and Botany
- Enable faster rail trips from freight terminals to Port Botany through the network
- Improve the efficiency and increase capacity of the freight rail network to meet future demand
- Reduce travel times when used with other Sydney motorway connections:
 - Save up to 40 minutes during morning peak times travelling between Parramatta and the T2/T3 precinct
 - Save up to 41 minutes during morning peak times travelling between Dee Why and the T2/T3 precinct
 - Save up to 22 minutes during morning peak times travelling between Campbelltown and the T2/T3 precinct

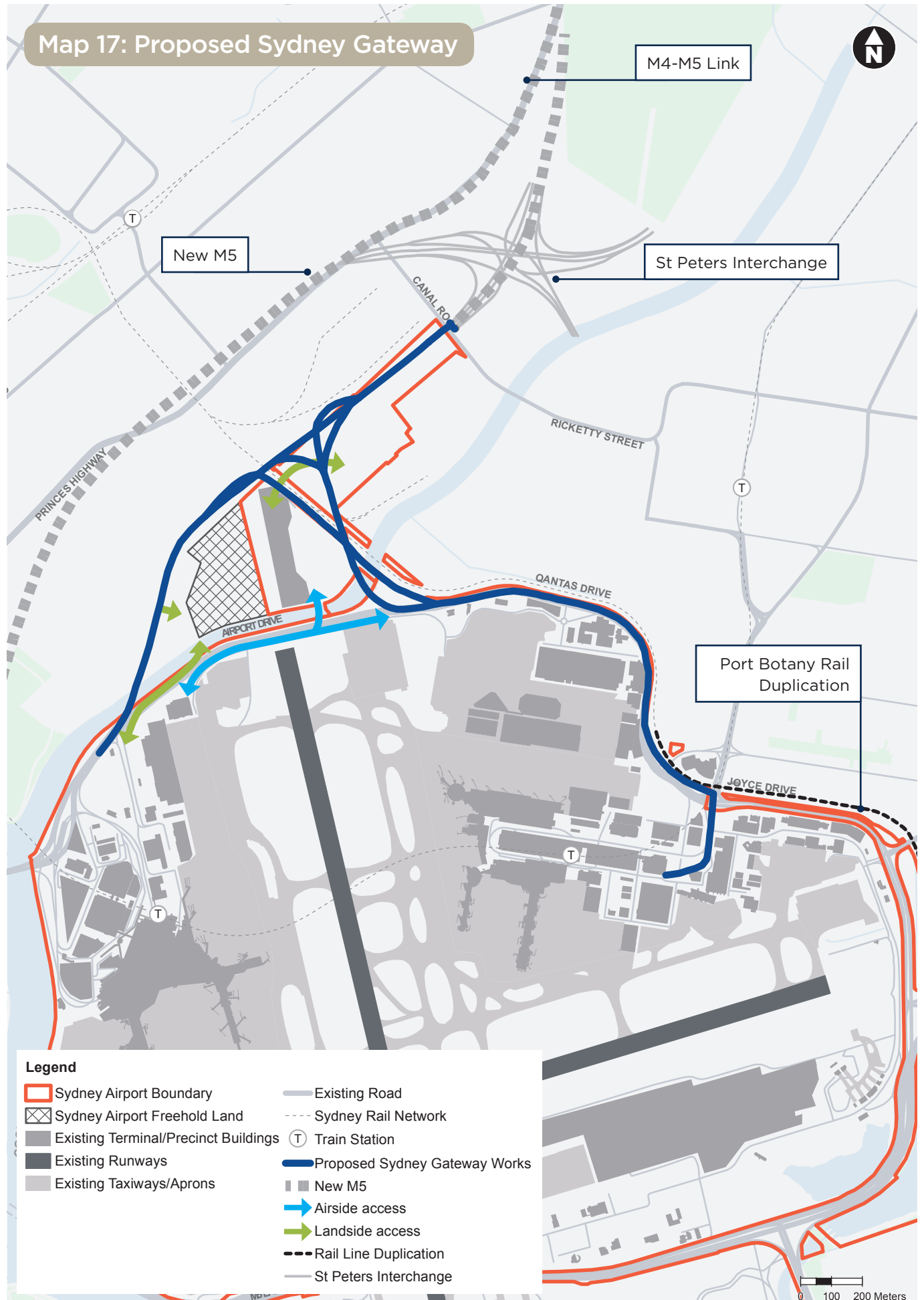
Safer

- Will take trucks off local roads in Botany and Mascot by shifting more freight from road to rail – a freight train travelling to and from Port Botany is equivalent to up to 50 trucks
- Take cars off local roads by providing new roads to the airport from the Sydney motorway network

Active transport

As the existing Alexandra Canal cycleway will be impacted by the proposed Sydney Gateway connection, Roads and Maritime has confirmed that it is a requirement for a replacement cycle connection to be provided once Sydney Gateway is operational. It will also work to ensure an active transport route is available during construction. Sydney Airport is working with Roads and Maritime and other stakeholders to determine viable options for these replacement cycle connections. These options will be assessed by Roads and Maritime as part of the environmental impact assessment process for Sydney Gateway which will include public consultation. The approved cycle connection plans will then be integrated into Sydney Airport's Five-Year Ground Transport Plan. Sydney Airport's Active Transport Forum – on which peak and local bicycle user groups, local government, Roads and Maritime and Transport for NSW are represented – will also monitor progress on this issue.

Map 17: Proposed Sydney Gateway



11.6 Forecast ground transport demand and trends

As part of the development of Master Plan 2039, we have worked collaboratively with the NSW Government to assess the transport access needs of the airport and the wider network around the airport.

AECOM, an independent specialist in demand modelling and technical ground transport solutions, has undertaken the ground transport modelling for Master Plan 2039.

11.6.1 Demand forecasts

Through engagement with the NSW Government we have established an integrated modelling framework that utilises existing NSW Government transport models for non-airport traffic, as well as our own detailed demand model that provides landside ground transport forecasts for the airport.

Projected air passenger movements were analysed by time of day to understand the distribution of peak activity at each terminal precinct for a busy day.

These estimates were determined by:

- Application of passenger lead and lag profiles (i.e. how early departing passengers arrive at the airport, and how long after landing passengers leave the airport)
- Development of a detailed modal choice model
- Estimation of vehicle occupancy

Separate estimates of vehicle movements were produced based on:

- Passenger type (international/domestic, business/leisure, arriving/departing)
- Time of travel

Staff, freight, logistics and commercial traffic were also included in the projection of vehicle movements.

In developing future year vehicle projections, we worked closely with modellers from the NSW Government. Critical to the estimates of future traffic volumes was the impact of WestConnex and the proposed Sydney Gateway connection.

Our demand model was calibrated to 2017 observed data so that it provided a clear and realistic representation of current conditions. Accordingly, the demand model provided an appropriate basis from which future year demands for 2024 (the end of the Five-Year Ground Transport Plan period) and 2039 (the end of the planning period) could be derived.

11.6.2 Mode shift

Integral to the ground transport forecasts was the adjustment to future year mode shares to account for anticipated changes in transport networks. The detailed mode choice model incorporated inputs from transport models operated by the NSW Government, which reflect future changes in the road and rail network.

Underpinning the mode choice model was an update to the airport traveller survey carried out in 2017. The survey showed three key changes in traveller behaviour since the previous survey in 2012:

- A significant increase in rail mode share
- A reduction in the proportion of taxi usage with the emergence of rideshare services
- A reduction in the proportion of private vehicle drop-offs

Consistent with these trends, the mode choice model accounted for a continuing underlying increase in rail mode share, but also reflected improved road accessibility resulting from the introduction of WestConnex and an assumed Sydney Gateway connection. Mode choice modelling assumed that the rail station access fee would remain; however, if the access fee were reduced or removed, an additional shift to rail could be expected with a likely positive impact on the performance of the road network, assuming additional rail capacity and services are provided.

11.6.3 Road traffic modelling

As part of the master planning process and the development of the Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy, we commissioned an extensive microsimulation traffic modelling study to understand current traffic challenges on the roads within the terminal precincts and adjacent to the airport, and the mitigating impact of proposed improvement solutions. Microsimulation models (i.e. PTV Vissim) and static intersection models (i.e. LinSig) were developed to assess the infrastructure improvement options and changes in traffic demand. These models were used to ensure that the final ground transport solution could effectively accommodate the forecast traffic volumes.

11.6.4 Reliability of traffic modelling

The traffic modelling methodology adopted for Master Plan 2039 uses the most recently available data and information (at the time of modelling). This includes:

- Updated air passenger forecasts
- Updated observed traveller behaviours based on a 2017 survey
- Detailed analysis of multiple datasets owned by Sydney Airport, including extensive traffic counts and taxi and car park usage
- Incorporation of proposed road network changes within and beyond the airport boundary
- Detailed demand and mode choice model by time of day
- Inputs from Road and Maritime's strategic modelling
- Four-hour AM and PM peak traffic modelling
- Calibration of the 2017 passenger demand model and traffic model to observed 2017 conditions to provide a sound base from which to undertake the future year assessments

11.7 Five-Year Ground Transport Plan (2019-2024)

Master Plan 2033 identified a number of infrastructure improvements at both the T1 and T2/T3 precincts that have been implemented and have accommodated a considerable increase in traffic at both terminals over the last five years. However, the projected increase in traffic volumes commensurate with increasing air passenger activity means that the existing infrastructure will be placed under further pressure in future years. Accordingly, this Five-year Ground Transport Plan includes a range of customer focused solutions to reduce congestion and increase the efficiency of landside operations and travel to/from Sydney Airport.

The solutions have been designed to:

- Target existing landside congestion points
- Reflect the significant potential impacts of our long term development strategy
- Complement WestConnex and the proposed Sydney Gateway connection

Within the airport precincts, the emphasis is to reduce traffic conflict points and mitigate congestion by improving end-to-end flow, rather than just moving the traffic bottleneck. Improvements will be achieved through a combination of demand management, infrastructure, technology and policy solutions.

The proposed solutions build on improvements to the internal and external road networks undertaken as part of the Five-Year Ground Transport Plan set out in Master Plan 2033.

The proposed solutions in this Five-Year Ground Transport Plan are designed to result in improved road and intersection performance in and around Sydney Airport to 2024 and beyond.

11.7.1 Sustainable transport and movement

As part of our commitment to achieving a 4-Star Green Star Communities rating, we have developed a customer focussed ground transport plan targeting the following objectives:

- Reducing the dependence on single occupant or purpose vehicle transport for travel, by promoting active movement within the community and the use of public transport
- Creating efficient pedestrian, bicycle and vehicle linkages internally and connections to surrounding urban development (particularly to and from public transport stops, community services and major traffic generators)
- Reducing the physical barriers for pedestrians within the landside areas of the airport
- Improving connections to public transport nodes
- Accommodating and demonstrating consistency with future public transport options/proposals and continuing to advocate for more affordable public transport to the airport



Image 11-4: The Cooks River Avenue exit from T1 International

11.7.2 T1 International Operations Precinct

Recent changes to ground access at T1 have improved the efficiency of traffic operation in the precinct; however, areas of congestion frequently occur during peak periods on the Airport Drive and Marsh Street approaches to the precinct. In the future, with increasing air passenger activity, further problems are likely to occur on the exits from the T1 precinct.

Accordingly, the Five-Year Ground Transport Plan proposes a series of changes to the road network to make it easier to enter, move through and exit the T1 precinct. Ground transport improvements at T1 are illustrated in **Map 18**.

The primary point of congestion on the Departures Plaza is caused by increasing demand for kerbside drop-off at the terminal, a location where it is not feasible to build additional capacity to accommodate increased activity. Congestion will be reduced through initiatives that separate internal traffic and reduce conflicts and delays. This may include relocation of some drop-off facilities/products to alternative locations within the precinct.

We propose to construct a new integrated pick-up/drop-off facility at P8 south of the existing P7 car park, which would not only increase capacity for vehicular drop-off but would also include a direct pedestrian connection to the terminal through a dedicated pedestrian walkway. The separation of passenger drop-off traffic between the existing kerbside on Departures Plaza and the new P8 would significantly reduce congestion on the approaches to T1 from Airport Drive and Marsh Street.

Subject to terminal infrastructure development, P6 and P7 could be reconfigured to provide a multi-modal ground transport interchange at ground level for public bus services plus shuttle bus, coach and inter-terminal transfer buses. Additional drop off capacity could be provided at Level 2 of P6 with access and egress ramp connections.

Centre Road is proposed to be upgraded to accommodate increased vehicle activity through the precinct, which would include additional traffic lanes and potential elevated ramp access to the new P8 pick-up/drop-off facility. Complementing the Centre Road upgrade would be the construction of a grade separated pedestrian walkway designed to provide a safe and direct connection from the existing express pick-up area through the P7 car park to the terminal, providing a seamless customer experience.

Increased traffic through the precinct will place additional burden on the limited outbound capacity to Marsh Street and Airport Drive. It is proposed that the exit ramps to Marsh Street and Airport Drive be widened to two lanes, each with improvements at the merge point with the external network.

Further improvements could be achieved by providing an additional lane on Cooks River Road between Centre Road and the recirculation lane back into T1, to prevent recirculating traffic causing unnecessary congestion for traffic exiting the precinct.

The existing city-bound exit from the express pick-up area onto Cooks River Road would be closed, with the traffic directed to use the main Centre Road exit. This would further improve the efficiency of traffic exiting the precinct by reducing weaving and merging on Cooks River Road.

There is likely to be an increase in non-airport traffic along Qantas Drive and Airport Drive, which will require those sections to be widened from the current two lanes to up to four lanes in each direction. This is consistent with the planned upgrade identified in the Master Plan 2033. This upgrade will also complement the proposed Sydney Gateway connection.

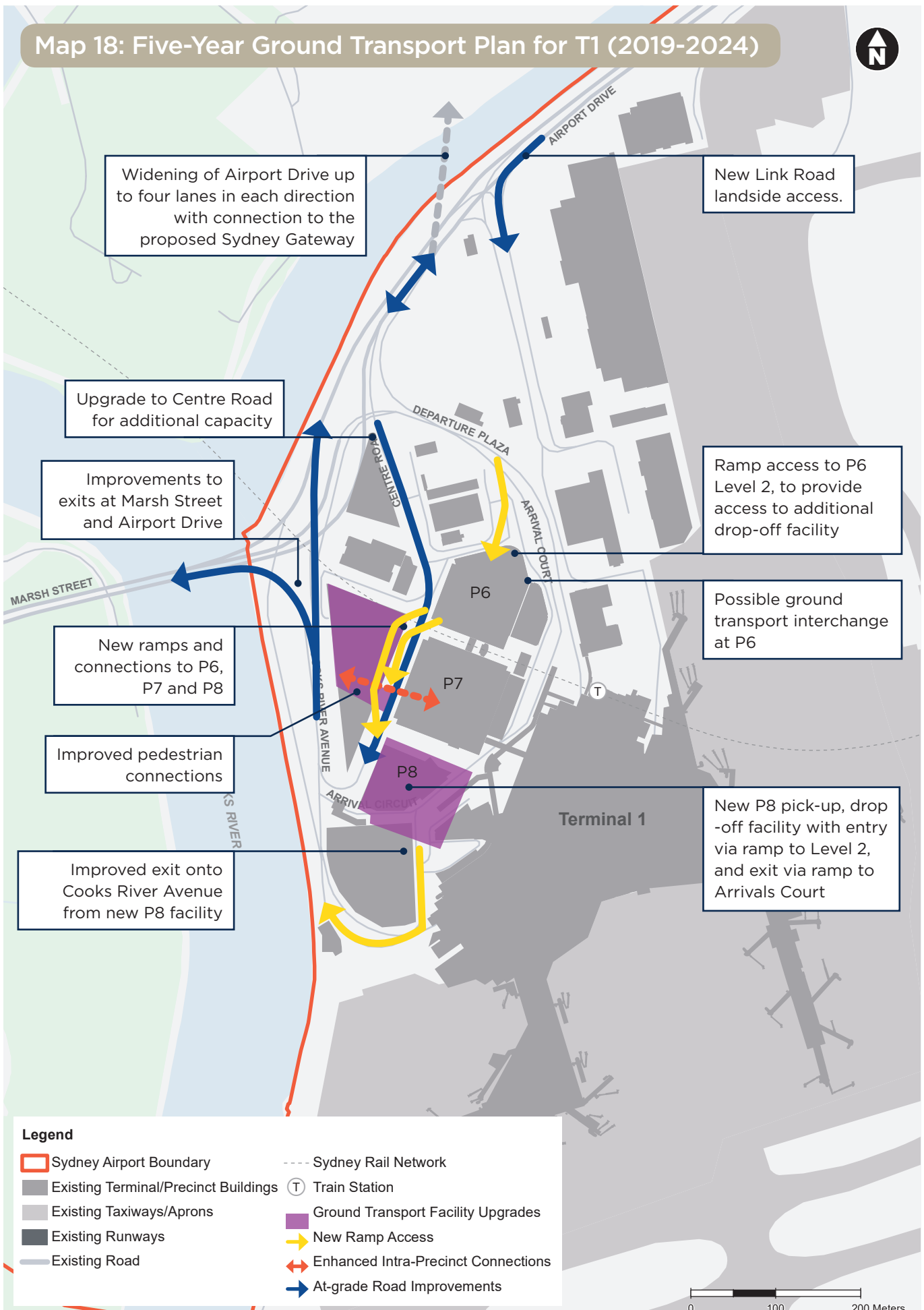
Other improvements to ground transport operation at T1 could include:

- Introduction of a Landside Operational Management System
- An integrated platform that will provide a centralised operational system to:
 - Proactively manage landside transport services and assets
 - Aid decision support
 - Facilitate smart communications to make customer journeys easier
- Additional landside technology initiatives including modern variable message signs to improve wayfinding and driver information
- Improvements to signage for public transport facilities
- Introduction of licence plate recognition technology to minimise delays at entry and exits

Sydney Gateway

Sydney Gateway will pass through Sydney Airport land to the north of the airport with connection points to existing Airport Drive near Link Road and to existing Qantas Drive near Lancastrian Road. It will create direct motorway access to the T1 and T2/T3 terminal precincts and complement Sydney Airport's planned infrastructure improvements.

Map 18: Five-Year Ground Transport Plan for T1 (2019-2024)



11.7.3 T2/T3 Integrated Operations Precinct

The primary challenge at T2/T3 is the interaction between airport traffic and non-airport through-traffic at the intersections with entry/exit roads to the precinct. Continued growth in non-airport traffic along with continued growth in air passengers and associated ground transport movements has resulted in a continued strain on road infrastructure around the T2/T3 precinct.

Traffic operations at the T2/T3 precinct have been comprehensively improved since the approval of Master Plan 2033, including the introduction of a one-way system of traffic both on our internal road network and on the immediate external road network (by the NSW Government).

The entry and exit intersections at the T2/T3 precinct are likely to experience increased demand in future years, with increased traffic volumes forecast/anticipated from the westerly direction as a result of WestConnex.

In the Five-Year Ground Transport Plan we will continue to explore opportunities to improve the performance of these intersections, with a view to reducing delays and improving reliability for travel to and from the T2/T3 precinct.

Sydney Airport is exploring upgrade measures that will improve operational efficiency at the precinct entry and exit intersections, including grade separation of some key movements to improve operational efficiency by reducing conflicting traffic movements. We will continue to work closely with the NSW Government to ensure the transport network is consistent with the road network proposals identified in the Future Transport Strategy 2056. Sydney Airport's planned infrastructure improvements will complement the proposed Sydney Gateway connection.

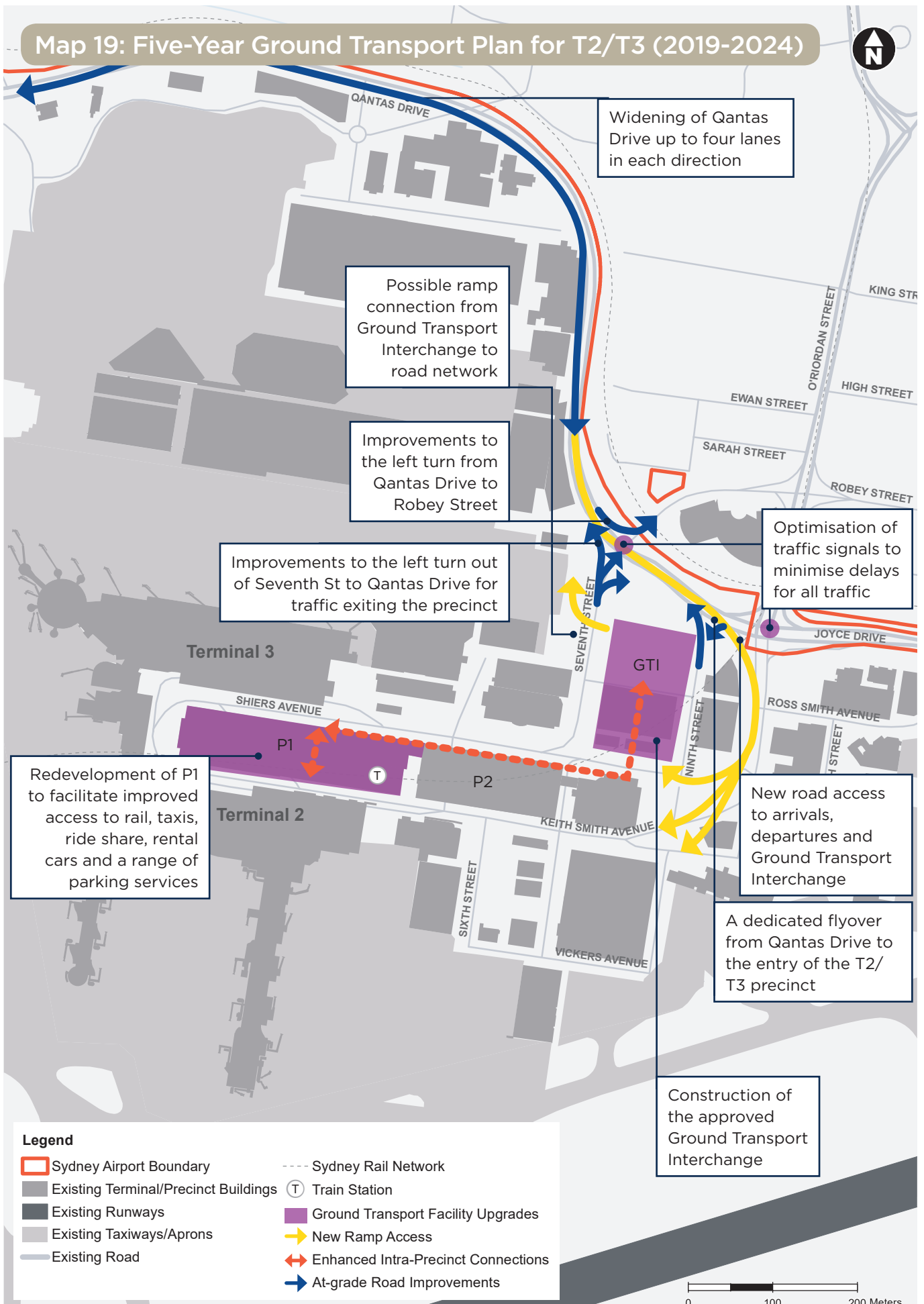
Proposed improvements in the Five-Year Ground Transport Plan are illustrated in **Map 19** and are designed to reduce conflicting traffic movements at the entry and exit of the T2/T3 precinct including:

- Improvements to the left turn out of Seventh Street to Qantas Drive (for traffic exiting the precinct)
- As part of the proposed Sydney Gateway, a dedicated flyover from Qantas Drive to the entry of the T2/T3 precinct
- Optimisation of traffic signal settings to minimise delays for all traffic
- Improvements to the left turn to accommodate the heavy traffic flow from Qantas Drive to Robey Street

Other improvement measures at T2/T3 in Master Plan 2039 include:

- Construction of the approved Ground Transport Interchange between Ninth Street and Seventh Street, which would:
 - Allow for additional and re-routed public and private buses to easily access and exit the T2/T3 precinct
 - Accommodate the provision of additional public bus services to/from the airport
 - Provide additional capacity for a range of uses including rental car operators, valet and limousine storage and general parking
- Development of improved pedestrian connectivity and amenity between the Ground Transport Interchange and the two terminals (including through the existing car parks)
- Improvement to the operation of the Ross Smith Avenue intersection with Sir Reginald Ansett Drive
- Development of new and enhancement of existing pick-up and drop-off facilities
- Improvements to signage for public transport facilities to assist with wayfinding to/from the Ground Transport Interchange and the rail station
- Improved signage and driver information to ensure that passengers, visitors and the public have simple, direct and clearly signposted routes to car parks and pick-up/drop-off areas

Map 19: Five-Year Ground Transport Plan for T2/T3 (2019-2024)



11.7.4 Active transport

Further improvements are identified in the Five-Year Ground Transport Plan outlined in this Master Plan 2039, including measures to improve access to and connectivity of the active transport network at Sydney Airport. We are investigating potential inter-terminal and sub-regional links with TfNSW and local councils, which will improve access to the airport precinct from surrounding transport nodes and major centres.

Improved pedestrian connections at both terminal precincts have been outlined in the Five-Year Ground Transport Plan. Additionally, improved signage and public information will assist with pedestrian wayfinding in both terminal precincts.

11.7.5 Northern Lands and South East Sectors

To facilitate access to the Northern Lands for the planned aviation support precinct (including freight and logistics facilities) and revised car parking arrangements (potentially for staff and/or pick-up and drop-off), new landside and secure airside bridges may be provided to link this precinct.

These links are anticipated to be provided as part of the proposed Sydney Gateway connection. Sydney Gateway will pass through Sydney Airport land to the north of the airport with connection points to existing Airport Drive near Link Road and to existing Qantas Drive near Lancastrian Road. New airside and landside links to the Northern Lands Sector will be facilitated with new roads and a bridge over Alexandra Canal, Airport Drive and the existing railway.

In the South East Sector, it is proposed to develop a bridged airside and landside road connection across General Holmes Drive to improve access between the South East Sectors of the airport for improved operational connectivity.



Image 11-6: New bike storage facilities at the T1 International terminal

11.8 20-Year Ground Transport Strategy

As part of our longer term vision for Sydney Airport, we will continue to work closely with the NSW Government to develop a number of road and ground transport upgrades within the airport precincts and the surrounding road network.

This will involve ongoing assessment of the impact of NSW Government commitments to future transport schemes including road schemes – such as the F6 Motorway, the Western Harbour Tunnel and Beaches Link – and public transport improvements such as extensions to the rail network. Moreover, the creation of an integrated international, domestic and regional terminal at the T2/T3 precinct will alter patterns of ground transport demand at both T1 and T2/T3.

11.8.1 T1 International Operations Precinct

The long term strategy for T1 is dependent on two fundamental changes that have been outlined in **Chapter 8.0 Terminal Development Plan**:

1. Integration of some international, domestic and regional airline operations at T2/T3
2. Possible closure of Departures Plaza and Arrivals Court for the expansion of T1

Closure of Departures Plaza and Arrivals Court to traffic will necessitate important changes to traffic operation within T1. The 20-Year Strategy includes the following proposed initiatives:

- Continued focus on P8 as a pick-up/drop-off facility
- Provision of additional public drop-off capacity at existing facilities (for example at P6, Level 2)
- Provision of additional car park capacity through the vertical expansion of existing car parks (for example at P7 or the Express pick-up area)
- Proposed elevated ramp access to new and existing facilities

The closure of Departures Plaza and Arrivals Court may mean that access roads need to be realigned to provide access to car parks and multi-storey pick-up/drop-off facilities; however, this measure will improve traffic flow efficiency by centralising ground transport facilities within each structure and reducing the volume of circulating traffic on the precinct's road network.

Closure of the existing road links will improve pedestrian amenity by creating a pedestrian-only zone between the multi-modal ground transport facility, pick-up/drop-off areas, car parking areas and the terminal, in addition to the continued provision of safe pedestrian walkways from the express pick-up area.

11.8.2 T2/T3 Integrated Operations Precinct

The potential integration of international, domestic and regional operations at T2/T3 is forecast to result in a more efficient distribution of traffic in the T2/T3 precinct, as domestic and international peak departure and arrival times are complementary. The number of transferring passengers between T1 and T2/T3 would reduce, with increased transfer activity within T2/T3.

Nevertheless, changes are envisaged to accommodate the growth to 2039. While the existing 'horseshoe' roadway is expected to continue to operate in 2039, the 20-Year Ground Transport Strategy includes the following improvements:

- Consideration of further grade separation at the entrance and exit of the T2/T3 precinct
- Provision of increased on-site car parking facilities to cater for increased demand. Possible locations include Sir Reginald Ansett Drive and Ninth Street and facilities remote from the terminal in the South East Sector
- Operation of a dedicated transfer product connecting the South East Sector facilities with the T2/T3 precinct

To improve the efficiency of traffic movements, sections of the existing multi-storey car parks may be replaced with a multi-modal transport facility incorporating:

- Rail
- Taxis
- Ride sharing
- Rental cars
- Limousines
- Valet
- Premium parking
- General parking

Passenger pedestrian amenity for circulation and wayfinding would be improved by providing centralised taxi holding and pick-up facilities at the arrivals level and reducing the need for taxis to circulate on precinct roads.



Image 11-7: Arriving via train to Sydney Airport's Domestic terminal

11.9 Sustainability Initiatives to 2039

11.8.3 Northern Lands and South East Sectors

The Northern Lands Sector is expected to operate as outlined in the Five-Year Ground Transport Plan above, with improved landside and airside connectivity between the Northern Lands Sector and other sectors of the airport site.

In the South East Sector, the expansion of the remote vehicle facilities will require improved access to the local area. We will work closely with the NSW Government and other stakeholders to explore opportunities for providing improved access capacity to the South East Sector, as well as ensuring optimal traffic operation for non-airport and Port Botany traffic.

These improvements may include:

- Grade separation of additional movements at the intersection of General Holmes Drive and Foreshore Road
- Upgrade to the intersection of General Holmes Drive and access to the existing South East Sector to provide an additional entry and exit point

The following sustainability initiatives have been embedded within the Ground Transport Development Plan for Master Plan 2039:

- As part of our commitment to achieving a 4-Star Green Star Communities rating, we are undertaking a people-focused transport assessment
- Continued implementation and expansion of the electric bus network and electric GSE to reduce carbon emissions
- Commitment to investing in options to improve active transport and sustainable transport alternatives across the airport
- Commitment to working with the NSW Government to increase bus and train services to and from the airport
- Identifying and adopting opportunities for vehicle demand management along terminal access roads
- Managing landside developments to manage vehicle congestion and investing in initiatives to optimise existing infrastructure
- Continued implementation of the Ground Transport Development Plan including establishment of the T2/T3 Ground Transport Interchange



12.0 Utilities Development Plan



12.1 Overview

We own and maintain an extensive network of utilities to supply the various developments across Sydney Airport with power, water, sewer, natural gas, telecommunications and stormwater. We work closely with the various external utility authorities to ensure that these essential services are available in sufficient quantity and reliability to support the operation of the airport.

Substantial investments have been made in our utilities networks in recent years, aligned with our objectives to:

- Continue to support projected growth at the airport
- Improve the reliability and redundancy of the utility networks
- Improve the sustainability of the supply arrangements

Demand management and investigation of alternative supply arrangements will play a key role in ensuring that the utility networks are able to efficiently and sustainably support the growth projected at the airport. We have implemented a range of such initiatives in recent years including expansion of the current recycled water facility, installation of rooftop solar and implementation of the energy and water savings action plans.



Image 12-1: The solar panel installation at Sydney Airport's T1 International terminal car park

12.2 Key Points

Utility networks at Sydney Airport will continue to be expanded 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:

- Upgrade to the key electrical feeds
- Increase in recycled water treatment capacity
- Trunk drainage improvements
- Expansion of networks to supply new areas of development

New utilities infrastructure will be provided to the South West Sector and the Northern Ponds area of the North East Sector to facilitate aviation operations, including:

- FEGPU
- PCA



Image 12-2: The chilled water system used for air conditioning at Sydney Airport

12.3 Electrical Network

Sydney Airport is connected to the external electrical grid by Ausgrid at two locations. These external points of supply, in the North West and North East Sectors, feed an internal reticulation network that we own and maintain. The external supply comprises a number of diverse feeders, which provide a high level of redundancy for the lead-in supply.

In addition to the mains electrical networks, Sydney Airport has a back-up power supply in accordance with Civil Aviation Safety Authority (CASA) and International Civil Aviation Organization (ICAO) requirements, to ensure supply for essential aviation facilities and operations is maintained in the event of a mains outage.

Substantial works have been undertaken to improve the capacity, reliability and redundancy within the electrical network including:

- Reconfiguration of reticulation networks to eliminate single points of failure
- Replacement and/or retirement of aged equipment
- Expansion of the reticulation network, particularly to the South East Sector and Northern Lands Sector

12.3.1 Energy sustainability

We have recently made substantial investments in sustainability and the management of energy usage. As part of our commitment to energy savings and efficiency initiatives, we became Airport Carbon Accredited by the Airports Council International (ACI) in 2014 and now have Level 3 certification. This is part of a broader commitment to improving our energy efficiency, as documented in our *Energy and Carbon Strategy 2013+* and *Energy Savings and Carbon Reduction Plan*.

Specific recent investments into demand side management, installation of energy efficient equipment and alternative generation sources include:

- 560 kilowatt (kW) roof top solar installation at the P6 car park at T1
- Installation of solar hot water in T1
- Installation of new energy efficient chillers at T1
- Installation of new lighting in the P2 car park reducing energy usage by 30 percent
- A tri-generation plant at T3, which is currently being commissioned and which may supply electricity to T3 once operational

As part of ongoing development of the electrical networks to support growth, we will continue to implement demand side management options and to monitor the feasibility of expanding the current alternative supply options.

12.3.2 New electricity infrastructure

As development occurs across the airport, the electricity network will continue to be reinforced and expanded to meet increasing demand.

We regularly consult with Ausgrid to ensure that projected growth in electrical demand can continue to be supported from the external grid. Ausgrid has advised that the lead-in supply to the North East Sector will need to be upgraded to meet the projected demand and maintain required levels of redundancy. This upgrade is currently planned to occur in 2019.

In addition to the lead-in supply capacity, the internal electrical network will continue to be reinforced to ensure that growth can be supported while maintaining the required reliability and redundancy of supply. Network augmentation requirements are based on detailed planning of network growth, including consideration of the role that demand side management and sustainability initiatives will play.

Key considerations for the development of the electrical network include:

- Upgrade to the North East Sector lead-in supply and zone substation transformers
- Upgrade to the North West Sector zone substation transformers
- Ongoing replacement and retirement of aged equipment
- Improved interconnectivity between sectors to enhance redundancy
- Augmentation of the reticulation network capacity to supply proposed developments
- Alignment of the electrical network development with broader sustainability initiatives, such as expansion of ground power and preconditioned air to aircraft parking positions
- Resilience planning to respond to network outages

12.4 Water Supply

Sydney Airport is supplied with potable water from the external Sydney Water network at multiple locations at the perimeter of the site. Within the North West and North East Sectors, this external supply is used to feed a Sydney Airport owned and operated potable water network comprising storage tanks, pump sets and a reticulation pipe network. Within other parts of the airport, developments are typically supplied directly from the Sydney Water network.

In addition to our potable water network, we operate a recycled water treatment plant in the North West Sector, which supplies non-potable water for toilet flushing and air conditioning cooling towers throughout the T1 International Operations Precinct. This reduces our reliance on the potable water network.

To ensure the efficiency and reliability of our water supply networks, we have recently undertaken studies into the operation and condition of these assets to target future investment in the infrastructure.

12.4.1 Water sustainability

We have implemented a Water Savings Action Plan and are committed to reducing the total water consumed per passenger. Reductions in water usage have been achieved through a range of water conservation and reuse options, including installation of water efficient fittings, leak detection and implementation of alternative supply arrangements.

As part of our commitment to improving the sustainability of the airport, the capacity of the North West Sector recycled water treatment plant has recently been upgraded to a capacity of 960,000 litres per day (from 750,000 litres per day). This upgraded capacity is capable of meeting more than 60 percent of the overall airport demand within the T1 precinct.

Sustainability will play a key role in the efficient development of the water networks to meet the increase in demand as the airport grows, particularly by ensuring that new developments are water efficient and consider water recycling. We will continue to monitor the feasibility of further expanding the North West Sector recycled water treatment plant capacity and introducing recycled water treatment capacity into other areas of the airport.



Image 12-3: The drinking water system at Sydney Airport

12.4.2 New water infrastructure

We regularly consult with Sydney Water to ensure that the projected growth in potable water demand at Sydney Airport can continue to be supported from the external network. In addition to ensuring that the external supply is sufficient to meet the growth in demand, to enhance water supply reliability, a minimum of two diverse points of connection to the external Sydney Water network is being pursued for the North West and North East Sectors.

While water savings initiatives and ongoing expansion of the recycled water production capacity will partially offset demand growth for potable water, it is anticipated that the internal potable water network will continue to require augmentation to ensure that growth can be supported while maintaining the required reliability and redundancy of supply.

Development of the water supply networks will include consideration of:

- Increasing the recycled water capacity as demand for non-potable water increases
- Upgrading the supply arrangement to the North East and North West Sectors, including improving reliability
- Providing an additional lead-in water supply to the North West Sector to improve redundancy
- Increasing the storage capacity within the North East and North West Sectors
- Potential additional or augmented connection to the South East Sector
- Continued investment in the network to improve reliability and efficiency
- Expanding the reticulation network to support development where supplies are limited

12.5 Stormwater

Sydney Airport is bounded by water bodies on all sides, including:

- Alexandra Canal to the north
- Engine and Mill Ponds and Mill Stream to the east
- Botany Bay to the south
- Cooks River to the west

These water bodies are typically tidal adjacent to the airport, and each comprises a substantial upstream catchment. Significant increases in water levels occur during flood events.

Sydney Airport has 11 main internal sub-catchments, with all stormwater from the site ultimately discharging into Botany Bay. The airport site is relatively self-contained with only very small external areas contributing to runoff in the airport catchment.

We own and maintain extensive stormwater drainage networks located across the site, which incorporate a range of water quality controls including:

- Gross pollutant traps
- On-going water quality monitoring
- Flame traps on aprons
- Emergency shut-off valves for spill containment and spill response

We are currently undertaking a flood study to improve our understanding of the performance of the stormwater network and the level of flood protection provided. This study will be used to assess proposed development, identify network improvements required and inform resilience planning.

Increased rainfall intensity and elevated sea levels resulting from climate change will affect the performance of the stormwater drainage networks and level of flood protection provided on the airport. We are undertaking studies into the potential influence of climate change on Sydney Airport assets, which will inform our investment in stormwater infrastructure and resilience planning.

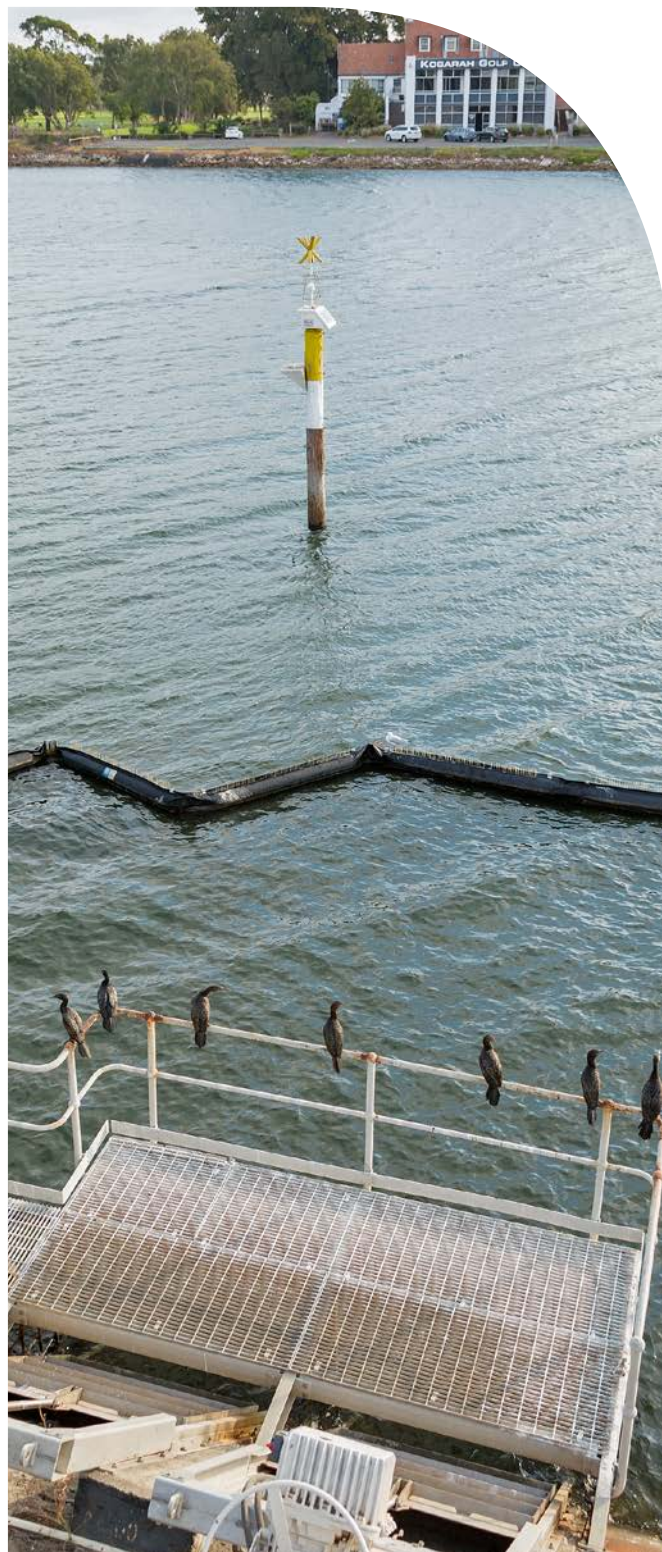


Image 12-5: The flood gate in Cooks River, part of the airport's stormwater system

12.5.1 New stormwater infrastructure

Development of new facilities and aircraft parking positions will require the augmentation of existing, or installation of additional, stormwater systems as required. As much of the site on which development is proposed already comprises impervious surfaces, it is unlikely that proposed development will increase the amount of stormwater discharge from the site. However, as part of each development, the requirement for mitigation measures for water quantity and quality will be assessed to ensure no adverse off-site impact.

The potential role of water sensitive urban design and rainwater harvesting will be considered as part of sustainability initiatives for future developments. This will allow Sydney Airport to meet the following water cycle commitments:

- All water used in public open spaces and public realm areas will be supplied from alternative sources
- All existing terminal and airport buildings will have access to alternative water sources
- The quantity of key pollutants discharged to stormwater is reduced when compared to untreated stormwater (refer to **Chapter 14.0 Environment and Environment Strategy 2019-2024**)

Proposed developments will be required to achieve minimum flood immunity criteria by establishing appropriate floor levels and associated infrastructure. In addition, where existing flooding issues are identified through analysis of flood modelling, the feasibility of implementing infrastructure works to mitigate these issues will be assessed.

12.6 Sewerage

We operate an internal sewerage network comprising a range of gravity mains and pump stations that ultimately connect to the external Sydney Water network at multiple locations. The local Sydney Water network discharges to the Southern and Western Suburbs Ocean Outfall Sewer, which traverses the southern sectors of the airport, ultimately extending to the Malabar Waste Water Treatment Plant (WWTP).

A substantial proportion of the sewage discharged from the North West Sector is diverted to the Sydney Airport-operated recycled water treatment plant prior to discharging to the external Sydney Water network. Recent augmentation of our sewerage network has focused on improving the reliability and redundancy of the network, including the refurbishment of the critical pump station serving the North East Sector. Major pumping stations are provided with emergency storage and redundant electrical supplies to ensure that operations can be maintained during network outages.

12.6.1 Recycled water

A recycled water treatment plant diverts a large proportion of the sewage generated within the North West Sector away from the external sewerage network. Approximately 50 percent of the sewage discharged from the North West Sector is recycled, reducing the load on the external network and the volume of effluent discharged to the WWTP.

The reduction in intensity of water usage achieved through proposed demand management measures and the Water Savings Action Plan will similarly reduce the volume of sewage discharged from the airport and ultimately requiring treatment and disposal.

12.7 Natural Gas

12.6.2 New sewerage infrastructure

Growth across Sydney Airport will require the augmentation of the existing gravity mains, and an increase in the capacity of the existing sewerage pump stations, associated emergency storage and rising mains. This will include ongoing engagement with Sydney Water to ensure that the external network is capable of supporting the projected growth.

Key considerations for the development of the sewerage network will include:

- Reconfiguration of the network and external discharge arrangements to facilitate the connection of any additional development within the North East Sector
- Minor extensions of the reticulation network and diversions of small sections of network to facilitate new development footprints
- Installation of a new sewage pumping station within the South East Sector to enable connection to the external Sydney Water network

Sydney Airport is supplied with natural gas by Jemena through high pressure mains to facilities in the North East, North West and South West Sectors. The gas supply does not currently extend into the other airport sectors.

The external natural gas supply is used to supply the tri-generation facility currently being commissioned at T3. While there are no plans to expand the provision of tri-generation, we will continue to monitor the role of tri-generation in meeting the increasing demand for electricity at the airport.

12.7.1 New natural gas infrastructure

The natural gas network will be expanded as required to support demand growth across the airport. We regularly consult with Jemena who has advised that projected demand growth can be supported where economical to do so.



Image 12-6: The airport's gas infrastructure

Map 20: Utilities Development Plan 2039



12.8 Communications

We are rolling out a new campus communications network and core network to improve resilience and enhance technology services throughout the airport.

Optical fibre communications networks are installed across Sydney Airport, to facilitate the use of the Airport Management System, including critical operational and security functions. A second secure optical fibre network has been installed to the airside areas of the airport for airfield lighting control and monitoring. This network interfaces with operational equipment including transmission meters and security systems.

These networks are supplemented by Airservices Australia's communication systems associated with its navigational aids.

We manage the installation of telecommunications including cabling (i.e. voice, video and data), mobile telephone and wireless technology infrastructure across the airport, and provide commercial access to third parties on the external network.

12.8.1 New communications infrastructure

The existing and planned communication networks, including NBN, are proposed to be extended into new developments as these are constructed. In addition, we will continue to support the incorporation of emerging technologies as part of the growth of the communication infrastructure networks at Sydney Airport.

12.9 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Utilities Development Plan for Master Plan 2039:

- Expand the capacity of the recycled water treatment plant at T1 following evaluation of projected passenger growth to gauge demand
- Provide recycled water to T2 and T3 through development of a new recycled water treatment plant subject to feasibility investigations
- Installation of smart metering throughout new terminal developments to enable better understanding of energy usage patterns
- Opportunity to install solar PV systems on new precinct buildings subject to feasibility studies



Section 3

Airport Planning Framework







13.0 Land Use Plan



13.1 Overview

The Land Use Plan in Master Plan 2039 has been prepared to provide the community, and all levels of Government with an understanding of future activities that could be located on different parts of the airport site. It has been prepared in accordance with section 70(2) of the Airports Act.

The Land Use Plan establishes a framework to guide future development of Sydney Airport, but does not lock in the future development outcomes. It must provide a degree of certainty for stakeholders and flexibility to allow investment and development decisions to be able to respond to changing economic conditions and market demands.

The Land Use Plan is generally consistent with Master Plan 2033; however there have been modifications to land use zones to reflect changes to the Airport Development Plan.

The land use zones identify a range of land uses and developments that are permissible in each of the six sectors of the airport. Objectives are provided to guide proponents, the airport and the Airport Building Controller (ABC) of the specific requirements for development in each zone.

13.2 Key Points

Land Uses at Sydney Airport are divided into eight zones:

- AD1 – Aviation Activity and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support
- AD4 – Utilities Reservation
- AD5 – Aviation Reservation
- BD1 – Business Development
- BD2 – Enviro-Business Park
- EC1 – Environmental Conservation

The Land Use Plan has many similarities to that set out in Master Plan 2033. Key changes include:

- Land zoned AD3 in the North East Sector, and part of the land in the North West Sector is proposed to be rezoned from AD3 - Airport Logistics and Support to AD2 - Airport Terminal and Support Services
- Land in the South East Sector is proposed to be rezoned from AD1 - Aviation Activity and Aviation Support Facilities to AD3 - Airport Logistics and Support and AD5 - Aviation Reservation
- Additional uses are proposed in the AD1, AD2, AD3 and BD2 zones to provide for greater flexibility of operations in accordance with the Airport Development Plan



Image 13-1: An exterior view of Sydney Airport's T1 International

13.3 Land Use Zones

Land use zones at Sydney Airport identify the desired and permissible land uses within the different sectors of the Airport. Each zone (shown on [Map 21](#)) has a list of objectives and permissible uses considered to be appropriate for that zone.

The area of Sydney Airport land located within each zone is provided in [Table 13-1](#).

Table 13-1: Area of Sydney Airport by Land Use Zoning

Land Use Zone	Approximate Area (ha)
AD1 - Aviation Activity and Aviation Support Facilities	558
AD2 - Airport Terminal and Support Services	190
AD3 - Airport Logistics and Support	47
AD4 - Utilities Reservation	0.1
AD5 - Aviation Reservation	39
BD1 - Business Development	30
BD2 - Enviro-Business Park	12
EC1 - Environmental Conservation	23
Sydney Airport Freehold Land	7
Total	907

13.3.1 Land Use Planning Framework

Section 71(6) of the Airports Act and Regulation 5.02(2) of the *Airports Regulations 1997* indicate that the Land Use Plan should where possible describe land use, zoning and development proposals in a master plan in equivalent details and using terminology consistent with NSW planning, zoning and development law. The Standard Instrument - Principal Local Environmental Plan (Standard Instrument LEP) provides the template for all LEPs in NSW, which prescribe the land use zones, and their permitted uses, for all local government areas in the State.

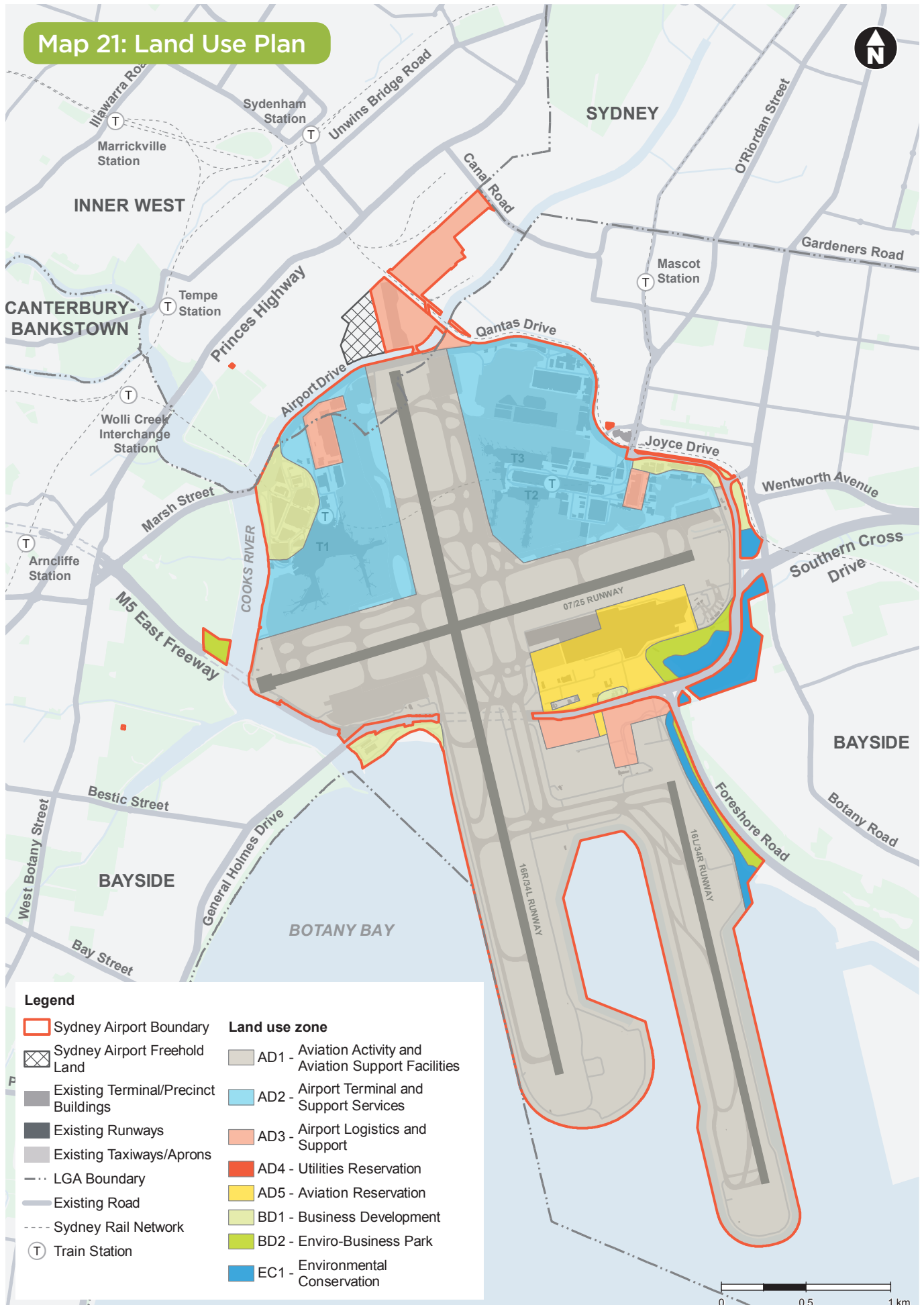
Therefore, where possible, the definitions, terminology and controls from the Standard Instrument LEP have been used for the Land Use Plan, recognising that there are uses proposed to be permitted which are not defined in the Standard Instrument LEP. Consistency with the NSW planning framework, including the Standard Instrument LEP, is detailed in [Appendix E](#).

Proposed development on the airport site is required to be permissible within the relevant zone and must have regard to the objectives of that zone.

Where there are inconsistencies between a current land use on the airport site and the permissible land uses specified for the zone, the current land uses may continue. Redevelopment of this use (including within the curtilage of the current use) shall be regarded as an existing and additional permissible form of development on those sites. This is addressed in more detail in [Appendix E](#).

For the freehold land holdings not subject to the Airports Act, which are approximately seven hectares in area, the NSW planning system applies, including zoning, permitted uses and assessment requirements in the Marrickville LEP (dated 2011).

Map 21: Land Use Plan



13.3.2 AD1 – Aviation Activity and Aviation Support Facilities

The AD1 - Aviation Activity and Aviation Support Facilities zone primarily caters for aviation activities to meet aviation requirements currently and over the planning period. This zone is located in the Runways, South East, and South West Sectors.

Aviation activity, airfield operations and air freight volumes provide the fundamental basis for the planning of airport facilities. In this regard, the Air Traffic Forecasts (see [Chapter 6.0](#)) and Airfield Development Plan (see [Chapter 9.0](#)) have significant influence on the land area required to be reserved for aviation activities and aviation support facilities. Approximately 558 hectares of land (representing 62 percent of the total area of Sydney Airport), is designated as AD1 to meet these operational requirements.

“Transfer corridor”, an existing defined term, has been added to the list of permissible uses in this zone as it is a use complementary to other uses in the zone. Refer to [Table 13-2](#) for the AD1 zone’s objectives and a full list of permissible uses in the zone.

Table 13-2: AD1 – Aviation Activity and Aviation Support Facilities

Objectives	Permissible Uses with Consent	
1. Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function.	Advertisement	Public administration building
2. Provide for aviation activities and aviation support facilities.	Advertising structure	Research station
3. Facilitate compatible and ancillary functions within the zone, provided that development does not render the land permanently unfit for aviation activities.	Aircraft maintenance facility	Road
4. Coordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities.	Airside passenger holding facility	Service station
5. Ensure heritage items are appropriately considered and managed.	Aviation activity	Signage
	Aviation support facility	Takeaway food and drink premises
	Car park	Temporary structure
	Food and drink premises	Transfer corridor
	Freight handling and transport facility	Transport depot
	Liquid fuel depot and distribution facility	Utility undertaking
	Navigational aids	Warehouse and distribution centre
	Office premises	Works depot
	Parking space	
	Passenger transport facility	

13.3.3 AD2 – Airport Terminal and Support Services

The AD2 - Airport Terminal and Support Services zone applies to land in the North West and North East Sectors, specifically the:

- T1 International Operations Precinct
- T2/T3 Integrated Operations Precinct

Growth of international, domestic and regional air traffic will require ongoing upgrade and expansion of the passenger terminals and support activities (including landside access, car parking and utilities).

To accommodate the forecast growth in passengers, Master Plan 2039 proposes changes to the terminals and associated facilities (refer to **Chapters 6.0 Air Traffic Forecasts** and **8.0 Terminal Development Plan**). Accordingly, approximately 190 hectares has been designated as AD2 (about 21 percent of Sydney Airport).

This includes the proposed expansion of AD2 to incorporate part of the existing AD3 - Airport Logistics zone in both the North West and North East Sectors. This will provide flexibility for future developments, while still allowing current activities.

To support existing uses incorporated into the AD2 zone, it is proposed to include two additional permitted uses:

- Aircraft maintenance facility
- Transport depot

Developments to facilitate the provision of goods and services to meet the quality and standards that international, domestic and regional travellers have come to reasonably expect from a world-class airport, including restaurants, retail premises and take away food and drink premises are also permissible in this zone.

Refer to **Table 13-3** for the AD2 zone's objectives and a full list of permissible uses in the zone.

Table 13-3: AD2 – Airport Terminal and Support Services

Objectives	Permissible Uses with Consent	
1. Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function.	Advertisement	Office premises
	Advertising structure	Parking space
	Aircraft maintenance facility	Passenger transport facility
2. Facilitate development of contemporary passenger terminals and related facilities for the handling, transfer and processing of passengers that are capable of meeting the standards expected by international, domestic and regional travellers, as well as supporting the needs of Sydney Airport's workforce.	Amusement centre	Public administration building
	Aviation activity	Restaurant
	Aviation support facility	Recreational facility (indoor)
	Business premises	Retail premises
	Car park	Road
	Child care centre	Service station
	Convenience store	Shop
3. Provide for aviation activities and support facilities.	Entertainment facility	Signage
	Food and drink premises	Takeaway food and drink premises
4. Facilitate compatible and ancillary functions within the zone provided that development does not render the land permanently unfit for aviation activities.	Freight handling and transport facility	Temporary structure
	Function centre	Terminal
	Health Service facility (excluding hospital)	Tourist or visitor accommodation
5. Encourage employment opportunities.	Hotel or motel accommodation	Transfer corridor
	Kiosk	Transport depot
6. Ensure heritage items are appropriately considered and managed.	Liquid fuel depot and distribution facility	Utility undertaking
	Medical centre	Vehicle sales or hire premises
	Mixed use development	Warehouse and distribution centre
	Navigational aids	Works depot

13.3.4 AD3 – Airport Logistics and Support

The AD3 – Airport Logistics and Support zone applies to land earmarked for existing and potential future airport logistics and freight development within the North West, North East, South East and Northern Lands Sectors. Sydney Airport handles about half of Australia's international airfreight. To accommodate and support projected growth in airfreight, it is proposed that significant areas of AD3 zoning be allocated.

The Northern Lands Sector accounts for approximately 27 hectares, which is 57 percent of the total area of the AD3 zone. Part of the Northern Lands Sector will be used for the proposed Sydney Gateway connection, which will provide direct motorway access to the T1 and T2/T3 terminal precincts from St Peters Interchange.

Sydney Gateway will pass through Sydney Airport land to the north of the airport with connection points to existing Airport Drive near Link Road and to existing Qantas Drive near Lancastrian Road. New airside and landside links to the Northern Lands Sector will be facilitated with new roads and a bridge over Alexandra canal, Airport Drive and the existing railway.

These new airside and landside links will unlock opportunities for future freight development in this Sector as contemplated in the air freight development strategy.

Development to facilitate freight logistics operations as well as other ancillary uses identified in **Table 13-4** is permissible in this zone, including office space which is ancillary to any of the identified permissible uses.

Table 13-4: AD3 – Airport Logistics and Support

Objectives	Permissible Uses with Consent	
1. Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function.	Advertisement Advertising structure Aircraft maintenance facility Animal boarding or training establishment Aviation activity Aviation support facility Business premises Car park Freight handling and transport facility Hotel or motel accommodation, excluding any areas in the PSZ Industrial retail outlet Industry Light industry Liquid fuel depot and distribution facility Mixed use development Navigational aids Office premises, excluding any areas in the PSZ	Parking space Passenger transport facility Public administration building Research station Road Self-storage units Service station Signage Storage premises Takeaway food and drink premises Temporary structure Tourist or visitor accommodation, excluding any areas in the PSZ Transfer corridor Transport depot Utility undertaking Vehicle sales or hire premises Warehouse and distribution centre Wholesale supplies Works depot
2. Facilitate the development of freight services and airport logistics (and ancillary office space).		
3. Facilitate compatible and ancillary functions within the zone provided that development does not render the land permanently unfit for aviation activities.		
4. Ensure development is compatible, where practicable, with surrounding land uses in this area.		
5. Ensure heritage items are appropriately considered and managed.		

13.3.5 AD4 – Utilities Reservation

The AD4 – Utilities Reservation zone applies to three small portions of land (approximately 1,470 square metres in total) that are separated from the main Sydney Airport site, as shown on **Map 21**:

- One parcel adjoining the North East Sector
- One parcel near the Princes Highway, north west of the North West sector
- One parcel in Barton Park, south west of the M5 East Motorway

This zone reflects the current usage of the land. Development consistent with the provision of infrastructure, and the softening of the visual impact of such works, is permissible with consent in this zone, as outlined in **Table 13-5**.

Table 13-5: AD4 - Utilities Reservation

Objectives	Permissible Uses with Consent
1. Accommodate special uses off the airport site that are consistent and compatible with surrounding development and land use zones.	Advertisement Advertising structure Recreation areas
2. Ensure heritage items are appropriately considered and managed.	Road Utility undertaking

13.3.6 AD5 – Aviation Reservation

The AD5 – Aviation Reservation zone is reserved both for future aviation activities and aviation support facilities. Land will be incrementally released for aviation purposes over the next 20 years as required. However, until such time as the land is required for aviation activities or aviation support facilities, Master Plan 2039 will facilitate the highest and best use of the land.

The area designated for this purpose (approximately 39 hectares) has been informed by the operational requirements of the airport for the planning period, and represents four percent of the total airport site area.

There are a number of commercial activities that can be located on that land in the interim. We will pursue development strategies that allow for the necessary controls to ensure delivery of the aviation needs detailed throughout Master Plan 2039. This includes ongoing tenure reviews and the consideration and implementation of temporary and alternative uses.

Permissible uses within the zone are outlined in **Table 13-6**. The non-aviation land uses identified in this zone are essentially land uses that are permitted with consent on a short to medium-term basis.

Assessment requirements

Before development approval is granted within the AD5 zone for a use that is for non-aviation purposes, the consent authority must consider whether:

- The development of the kind being proposed will render the land unfit for aviation purposes
- Appropriate provisions are in place to ensure that the land can be vacated as it becomes needed for aviation activities or aviation support facilities

Such measures are to be documented in an application for development approval.

Table 13-6: AD5 – Aviation Reservation

Objectives	Permissible Uses with Consent	
1. Protect the long-term viability and operational efficiency of Sydney Airport for its primary function.	Advertisement Advertising structure Aircraft maintenance facility	Office premises, excluding any areas in the PSZ Parking space
2. Co-ordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities.	Animal boarding or training establishment Aviation activity Aviation support facility	Passenger transport facility Public administration building Research station
3. Integrate compatible aviation, business and industrial activities in accessible locations.	Business premises Car park Convenience store	Restaurant Recreational facility (indoor) Retail premises
4. Facilitate the development of freight services and airport logistics (and ancillary office space).	Educational establishment, excluding any areas in the PSZ Food and drink premises Freight handling and transport facility	Road Self-storage units Service station Shop
5. Encourage appropriate employment opportunities in accessible locations.	Health Service facility (excluding hospital)	Signage Storage premises
6. Ensure that development will not render the land permanently unfit for aviation activities or aviation support facilities when it is required for these purposes.	Hotel or motel accommodation, excluding any areas in the PSZ Industrial retail outlet Industry Kiosk	Takeaway food and drink premises Temporary structure Tourist or visitor accommodation, excluding any areas in the PSZ
7. To ensure heritage items are appropriately considered and managed.	Landscape and garden supplies Light industry Liquid fuel depot and distribution facility Medical centre Mixed use development Navigational aids	Transfer corridor Transport depot Utility undertaking Vehicle sales and hire premises Warehouse and distribution centre Wholesale supplies Works depot

13.3.7 BD1 – Business Development

The BD1 – Business Development zone is dedicated to on-site business development, and applies to land within the North West, North East, South East and South West sectors of Sydney Airport where good access is available to the on-airport and external road network.

The operational requirements of Sydney Airport over the planning period of Master Plan 2039 have been adequately provided for in our Land Use Plan (refer to [Map 21](#)). Six locations totalling approximately 30 hectares in area, occurring primarily on the periphery of Sydney Airport, have been identified as surplus to aviation requirements.

This land has been reserved for the purpose of business development to:

- Provide employment opportunities in accessible locations
- Support the local workforce
- Locate suitable businesses along significant corridors

In designating this land for the purposes of business development, regard has been given to ground access issues contained in [Chapter 11.0 Ground Transport Development Plan](#). Generally, it is envisaged that development within the BD1 zone will be accessed via our internal road network, with existing access and egress points utilised where possible.

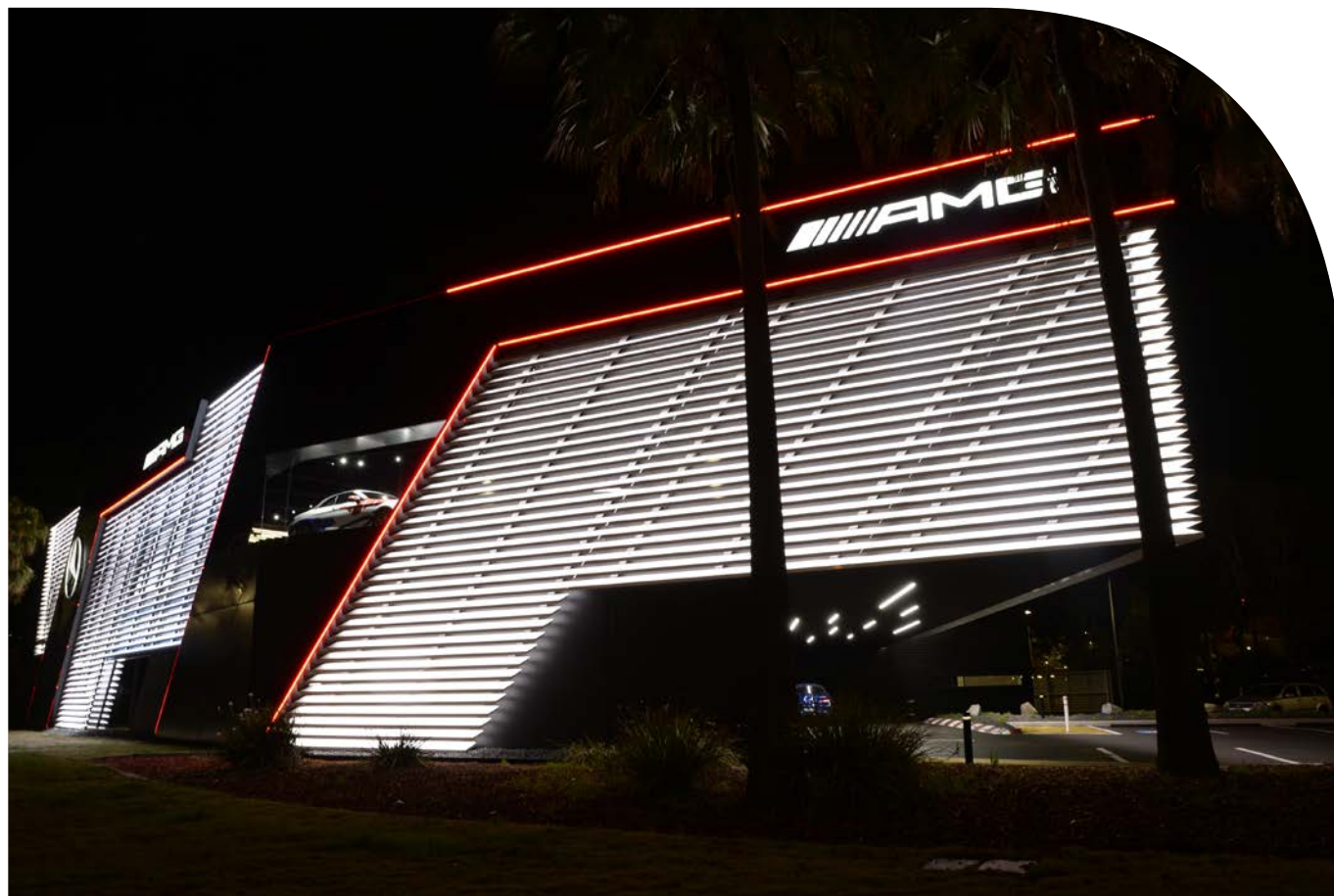


Image 13-2: The world-first AMG Performance Centre in the airport precinct.

The development of these areas for business purposes and resulting floor space will be restricted by operational aviation requirements in conjunction with physical constraints associated with development. Such constraints include:

- Air navigation services requirements
- Obstacle limitation surface (OLS) requirements
- Building height
- Building separation
- Landscaping
- Internal circulation areas and parking
- Access and egress points

Refer to **Table 13-7** for the BD1 zone's objectives and a full list of permissible uses in the zone.

Assessment Requirements

Before development approval can be granted within the BD1 zone, the consent authority must consider whether the development of the kind being proposed will not adversely impact on any aviation activity or aviation support facility, either existing or proposed during the planning period.

Table 13-7: BD1 – Business Development zone

Objectives	Permissible Uses with Consent	
1. Enable a mix of business, retail and industrial uses in locations that are close to and that support the functioning of the Airport.	Advertisement Advertising structure Aviation activity Aviation support facility	Parking space Passenger transport facility Public administration building Recreation Facility (indoor)
2. Integrate suitable and compatible land uses in accessible locations so as to maximise public transport patronage and encourage active transport.	Bulky goods premises Business premises Car park Child care centre Convenience store Educational establishment Entertainment facility Food and drink premises Freight handling and transport facility Function centre	Research station Restaurant Retail premises Road Self-storage units Service station Shop Signage Storage premises Takeaway food and drink premises
3. Encourage employment opportunities and promote businesses along main roads.	Health Service facility (excluding hospital) Hotel or motel accommodation Industrial retail outlet Industry Kiosk Landscape and garden supplies Light industry Marina Medical centre Mixed use development Office premises	Temporary structure Tourist or visitor accommodation Transfer corridor Transport depot Utility undertaking Vehicle sales and hire premises Warehouse and distribution centre Wholesale supplies
4. Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce.		
5. Ensure heritage items are appropriately considered and managed.		
6. Maximise, where possible, the use of existing access and egress points to the on-airport road network.		

13.3.8 BD2 – Enviro-Business Park

The BD2 – Enviro-Business Park zone caters for environmentally sensitive business uses on land:

- Adjacent to and on the western side of Cooks River in the North West Sector
- Within sections of the environmentally significant Mill and Engine Ponds in the South East Sector
- Adjacent to Mill Stream in the South East Sector

The BD2 zone has an approximate area of 12 hectares, which represents approximately 1.3 percent of the area of Sydney Airport.

Development permitted in this zone is of a kind that is able to be consistent with the sensitivities of the environmental values of the land in this zone and on adjacent land. Development permissible in this zone must have no more than a minor impact on the environment, and requires a range of measures to ensure impacts on the locality are either avoided, reduced or minimised.

When any development is operational, it must not pose a significant risk to the health of the immediately adjoining biophysical environment. Any proposed development will be required to comply with the **Environment Strategy 2019-2024**.

The development of these areas for enviro-business purposes will be restricted by operational aviation requirements in conjunction with biophysical constraints associated with development.

Such constraints include:

- Air navigation services requirements
- OLS requirements
- Building height
- Building separation
- Landscaping
- Internal circulation areas and parking
- Access and egress points

It is proposed that 'Road' be added to the list of uses permitted with consent in this zone, as these are considered to be consistent with the uses anticipated within this zone, and meet the objectives of the zone.

Refer to **Table 13-8** for the BD2 zone's objectives and a full list of permissible uses in the zone.

Assessment requirements

Before development approval is granted within the BD2 zone, the consent authority must be satisfied that the development being proposed will not adversely affect Sydney Airport land or environmentally sensitive areas. The design, construction and operation of such developments will need to consider the proximity of the sensitive areas and investigate the incorporation of appropriate mitigating strategies, such as the provision of setbacks and reserves.

Table 13-8: BD2 – Enviro-Business Park

Objectives	Permissible Uses with Consent
1. Provide for a limited range of sustainable development, particularly for business purposes, that will not compromise the ecological, cultural or scientific value of this land or adjacent land including the Mill and Engine Ponds and the Mill Stream.	Advertisement Advertising structure Animal boarding or training establishment Business premises Child care centre
2. Ensure buildings achieve design excellence having particular regard to the surrounding natural and built environment and the associated sensitivities.	Earthworks or engineering works Environmental facility Environmental protection works Food and drink premises
3. Encourage appropriate employment opportunities in accessible locations.	Office premises Parking space
4. Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce.	Recreation area Road Service station
5. Incorporate appropriate environmental management principles and controls into development proposals.	Sewage reticulation system Signage Takeaway food and drink premises
6. Ensure heritage items are appropriately considered and managed.	Utility undertaking Vehicle sales and hire premises

13.3.9 EC1 – Environmental Conservation

The EC1 – Environmental Conservation zone applies to land with environmental value within and adjoining the eastern part of the airport site, including the Engine Ponds, Mill Pond and Mill Stream. These waterways form part of the Botany Wetland System and the wider aquatic environment of Botany Bay.

The EC1 zone represents more than 23 hectares (2.5 percent) of the total airport site area.

As a result of the presence of the parallel runway in conjunction with tidal influences, the Mill Stream requires ongoing maintenance to control the accumulation of sediment and facilitate natural flow and flushing processes. Refer to **Table 13-9** for the EC1 zone's objectives and a full list of permissible uses in the zone.

Table 13-9: EC1 – Environmental Conservation

Objectives	Permissible Uses with Consent
<ol style="list-style-type: none">1. Protect the ecological and scenic values of the waterways in this area.2. Maintain the health and natural flows of the waterways.3. Enable maintenance dredging of the Mill Stream and related activities to maintain water depths and to ensure sediment accumulation is managed and controlled.4. Ensure heritage items are appropriately considered and managed.	<p>Advertisement Advertising structure Environmental protection works Kiosk Parking space Recreation area Road Signage Utility undertaking Waterway and foreshore management activities</p>

Assessment requirements

For the purposes of the EC1 zone, advertisements and advertising structures are to be erected only along the roadside.

Before development approval is granted within this zone, the consent authority must first be satisfied that the development of the kind being proposed will not adversely impact on neighbouring environmentally sensitive areas. The design, construction and operation of such developments will need to consider the proximity to the sensitive areas and investigate the incorporation of appropriate mitigating strategies, such as the provision of setbacks and reserves.



Image 13-3: Pied Stilts at Sydney Airport's wetlands.

13.4 Sensitive Developments

Under section 71A of the Airports Act, a draft or final master plan must identify any sensitive developments, which are defined below:

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 preschool*
- d. *a primary, secondary, tertiary or other educational institution*
- e. *a hospital*

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 inhouse training to staff of an organisation conducting operations at the airport*

No sensitive developments are planned to be located at Sydney Airport.

13.5 Consistency with NSW Planning Schemes

The Airports Act outlines that the objectives and proposed development within a draft or final master plan must address the extent of consistency with NSW planning schemes (section 71(6)). If the draft or final master plan is not consistent with these schemes, there must be justifications for such inconsistencies.

NSW legislation relating to land use planning, the relevant planning schemes subject to that legislation, and consistencies of Master Plan 2039 with these schemes is discussed in this section.

13.5.1 Environmental Planning and Assessment Act

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and associated Regulations is the legislative instrument for land use planning in NSW.

Specifically in relation to Master Plan 2039, Parts 3 to 5 of the EP&A Act outline the preparation of environmental planning instruments (including State Environmental Planning Policies, and LEPs), development assessment, and environmental assessment procedures.

The objectives for Master Plan 2039 (refer to [Chapter 2.0 Vision for Sydney Airport](#)) are consistent with the objectives of the EP&A Act, which include encouraging:

- Proper management of natural and artificial resources for the purposes of promoting both the social and economic welfare of the community, and a better environment
- Promotion and co-ordination of the orderly and economic use and development of land
- Protection of the environment, including the protection and conservation of native animals and plants

13.5.2 Regional Planning Strategies

Sydney Airport is identified in the Greater Sydney Region Plan and the Eastern City District Plan, both of which have been prepared under the EP&A Act to guide the future planning of Sydney. These plans acknowledge that the airport is an important economic driver for the Sydney region, and the nation as a whole, and that protection of the site for its ongoing use as an airport, including its role facilitating freight, is critical. This includes ensuring land uses permitted around the airport site are complementary and will not threaten the viability of the operations at the airport.

13.5.3 State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) provide planning controls for areas and/or types of development that are considered to be of State and regional significance to NSW. SEPPs are administered by the Minister for Planning as statutory environmental planning instruments that require consideration in the development assessment and environmental assessment process.

Master Plan 2039 has given regard to the SEPPs (including Sydney Regional Environmental Plans now deemed to be SEPPs) that would apply to Sydney Airport if it were governed by NSW legislation (refer to [Appendix E](#)).

Master Plan 2039, including proposed land uses and the process for gaining approval for development at Sydney Airport, are generally consistent with the provisions of these SEPPs.

13.5.4 Local Environmental Plans

LEPs are required to be prepared for all local government areas (LGAs) within NSW. They identify:

- Zones for land covered by an LEP
- Types of development that are allowed in each zone
- Development standards and controls for the consideration of development on land covered by the LEP

Sydney Airport is located within two local government areas: Bayside Council and Inner West Council. These councils were created in 2016 following council amalgamations in NSW. As the LEPs for each of the amalgamated councils have yet to be revised to reflect the amalgamated council boundaries, the existing LEPs remain in place.

The LEPs that include land within the Airport site are:

- Botany Bay LEP (2013)
- Marrickville LEP (2011)
- Rockdale LEP (2011)

A summary of each LEP is included in [Appendix E](#).

13.6 Land Use Zones for Land Not Subject to the Airports Act

There are two parcels of land located within the Northern Lands Sector owned by Sydney Airport and used for airport operations, which are not subject to the Airports Act (not being Commonwealth-owned land).

These parcels of land are subject to the NSW planning system. **Table 13-10** identifies these parcels of land and their land use zone according to the relevant environmental planning instrument.

13.7 On-Airport Development Approval Process

To ensure that the future development of Sydney Airport is undertaken in a manner that is sustainable and minimises environmental impacts, a rigorous development assessment process has been established to enable us to comply with our obligations under the *Airports (Building Control) Regulations 1996*.

All development proposals are subject to a planning and environmental impact assessment carried out or overseen by us. This process ensures that the Master Plan 2039, **Environment Strategy 2019-2024**, Airports Act and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are considered before granting a development approval.

If the assessment indicates that a proposed development is likely to have a significant environmental impact or affects an area identified as environmentally significant in the Environment Strategy, a Major Development Plan (MDP) must be prepared.

Table 13-10: Land not subject to the Airports Act

Location	Relevant environmental planning instrument	Zoning	Area (Approximate)	Use
Land within the Northern Lands Sector (two parcels of land)	Marrickville LEP 2011	IN1 General Industrial	7.0 ha	Proposed for freight and logistics similar to AD3 zone in Master Plan 2039

13.7.1 Major Airport Development

Major Airport Development is defined in Section 89 of the Airports Act. This includes (but is not limited to) the following forms of development:

- Constructing a new runway or extending the length of a runway
- Constructing a new taxiway or extending the length of a taxiway where the construction significantly increases the capacity of the airport and exceeds \$25 million
- Constructing a new building wholly or principally for use as a passenger terminal, where the building's gross floor space is greater than 500 square metres
- Constructing a new building wholly or principally for use as a passenger terminal, where the extension of the building's gross floor space is by more than 10 percent
- Constructing a new building where the building is not wholly or principally for use as a passenger terminal and the cost of construction exceeds \$25 million
- Development that is likely to have significant environmental or ecological impact
- Development of a kind that is likely to have significant impact on the local or regional community

For developments identified in Section 89, an MDP is to be prepared and is to include an environmental impact assessment to consider all potential impacts of the proposed development on the environment.

13.7.2 General development assessment

The *Airports (Building Control) Regulations 1996* require that carrying out a building activity, as defined in Section 98 of the Airports Act (described as a development in the Master Plan 2039), must have our written consent. Our written consent is based on a management process through which the following issues are identified and addressed:

- Stakeholder impact identification
- Infrastructure impacts
- Environmental impacts and management
- Current and future adjoining development interfaces
- Property and legal risk issues

In accordance with the Airports Act and *Airports (Building Control) Regulation 1996*, our written consent must also be accompanied by the consent of the ABC before works commence.

The Development Approval process is outlined in [Appendix E](#).



14.0 Environment



14.1 Overview

All major airports inevitably have some effect on the environment and local communities. Aircraft and ground-based noise and air emissions are a concern for local communities. Airport operations and development can either directly or indirectly generate carbon emissions and waste, consume water and energy, and affect local waterways, wildlife, biodiversity and heritage values.

Minimising these environmental impacts is essential for Sydney Airport to operate sustainably. Environmental management at the airport focuses on a cooperative, proactive approach with regulatory agencies, airport stakeholders and business partners working together to ensure that potential impacts of airport operations are avoided or minimised. We are committed to working with others to ensure that aviation plays its role in protecting the environment.

The industry's challenge is to retain the many positive economic and social benefits that aviation provides, including providing the global economy with the benefits of fast, reliable, safe and efficient connectivity, while reducing or eliminating its negative environmental impacts through the introduction of technological, operational and efficiency advances.

An objective for Master Plan 2039 is to continually improve environmental performance at Sydney Airport over the planning period in order to:

- Reduce the carbon footprint of the airport
- Ensure the airport is resilient to climate change
- Conserve items of natural, indigenous or heritage value
- Protect environmentally significant areas

The details of what we are intending to achieve in the first five years of the planning period are provided in the separate **Environment Strategy 2019-2024**, which is an addendum to Master Plan 2039.

14.2 Key Points

- Sydney Airport continues to work with the broader aviation community to ensure the airport operates in a way that is environmentally, socially and economically responsible
- In 2016, we achieved Level 3 Airport Carbon Accreditation. The airport has successfully reduced carbon emissions per passenger by over 27 percent (compared to a 2010 baseline) and is targeting a 50 percent reduction in emissions per passenger by 2025
- We have implemented a number of carbon reduction measures including:
 - Introduction of six new electric buses
 - Upgrade of terminal and apron lighting systems
 - Numerous demand management initiatives such as equipment upgrades and replacement
- As part of our commitment to addressing climate change, we have invested in on-site solar
- We are planning to invest in further carbon reduction opportunities, and renewable energy as part of Master Plan 2039, playing an active part in supporting the transition to a low-carbon economy
- A Climate Adaptation Plan has been developed to better inform decisions for ensuring a resilient airport
- The increasing number of quieter and more fuel-efficient next generation aircraft flying to Sydney Airport has resulted in lower air and greenhouse gas emissions and lower ground-based noise emissions per movement.
- We are working to minimise air quality and ground-based noise impacts associated with the airport operations, including initiatives such as:
 - Installation of FEGPU and PCA at all new terminal gates and remote apron aircraft stands
 - Continuation of background noise monitoring, modelling of new significant sources of noise and installation of a new air quality monitoring station
- A number of water saving initiatives have been implemented to minimise water usage, including expansion of the T1 recycled water treatment plant, which has kept potable water use per passenger at historically low levels
- A Heritage Management Plan has been prepared which recognises the:
 - Pressures on existing heritage items associated with continued growth of the airport
 - Need to conserve important heritage elements and to implement a strategic and holistic interpretation of the airport's history
- Major road and ground access improvements will include measures to increase pedestrian, cycling and sustainable transport connections to and from the airport
- Additional train services to the airport will make it more convenient to access for both passengers and staff
- A sustainable approach will be taken with development envisaged in Master Plan 2039, integrating innovative design features that deliver smarter environmental solutions while enhancing the passenger experience
- We have achieved a 4-Star Communities rating for Master Plan 2039 under the GBCA.

14.3 Environment within Master Plan 2039

Master Plan 2039 considers a 20-year planning period, as required by the Airports Act. As such, environment matters and management have been considered in the context of this timeframe, with more detail found in the separate [Environment Strategy 2019-2024](#), which is an addendum to Master Plan 2039.

This approach has been adopted to ensure that the Airport Development Plan takes a longer term view of development impacts on the environment. We are committed to ensuring that there is a continuous improvement in environmental management at the airport over the next 20 years.

A number of environmental achievements have and are being delivered to minimise the airport's effect on the environment and to ensure that the airport operates sustainably. These achievements will be built on through the implementation of new initiatives over the next five years.

In addition, to ensure that the future development of the airport is undertaken in a manner that is sustainable and minimises impacts on the environment, a rigorous development assessment process has been established to enable us to comply with our obligations under legislation and also meet our corporate objectives, which include a number of sustainability commitments (see [Chapter 4.0 Sustainability](#) for further detail). Environmental management initiatives have been developed to align with our achievement of a 4-Star Green Star Communities Rating.

14.3.1 Legislative requirements for environment

The legislative framework governing environmental management at the airport includes the:

- Airports Act
- *Airports Regulations 1997*
- *Airports (Environment Protection) Regulations 1997*
- EPBC Act

The Airports Act requires an airport master plan to specify a range of environmental matters including:

- An Environment Strategy [Section 71(2)(h)]
- Assessment of environmental issues that might reasonably be expected to be associated with the implementation of an airport master plan [Section 71(2)(f)]
- Plans for dealing with these environmental issues, including plans for ameliorating or preventing environmental impacts [Section 71(2)(g)]

DIRDC is the regulatory authority responsible for administering legislation at Sydney Airport. An Airport Environment Officer (AEO) has been appointed by DIRDC to oversee the implementation of environmental aspects of the legislation at the airport. As the airport lessee company, we also have a role in governing environmental management of airport tenants.

The Sydney Airport Environment Policy and the [Environment Strategy 2019-2024](#) are key documents for ensuring that the forecast growth and development of the airport envisaged in Master Plan 2039 are undertaken in an environmentally responsible manner.

14.3.2 Our environmental responsibilities

In accordance with the Sydney Airport Environment Policy, we recognise our responsibility in managing the airport in a sustainable manner. We are committed to the environmental principles of:

- Environmental protection
- Addressing climate change and sustainability
- Knowledge and awareness
- Continual improvement
- Community and stakeholder involvement
- Pollution control
- Compliance
- Systematic management

14.4 Environmental Management Framework

Environmental management at Sydney Airport is driven by a number of mechanisms including:

- Legislation
- Lease agreements
- International and Australian standards and programs
- Aviation industry standards
- Our vision, values and policies

In accordance with the principles of AS/NZS ISO 14001, we have an Environmental Management System (EMS). The cornerstone of the EMS is the Environment Strategy, which provides strategic policies, objectives and targets for environmental management of the airport within the EMS framework.

14.5 Summary of Environmental Achievements

Since Master Plan 2033 was approved in 2014, and in accordance with the *Sydney Airport Environment Strategy 2013-2018*, we have implemented many environmental initiatives. [Table 14-1](#) provides a summary of some of the key achievements during this time period. A more comprehensive list of achievements is provided in the [Environment Strategy 2019-2024](#).



Image 14-1: Wetlands at Sydney Airport

Table 14-1: Summary of environmental achievements, 2013 to 2018

Summary of recent environmental achievements

Environmental aspect	Initiative/achievement
 Sustainability and environmental management	<p>Sydney Airport has prepared the 2017 Sustainability Report which outlines our sustainability strategy that underpins the airport's strategic vision and establishes a number of targets and indicators for evaluating performance and driving continuous improvement.</p> <p>Sydney Airport has entered into partnerships with Conservation Volunteers Australia, Qantas and schools within Sydney and regional NSW to deliver sponsorships and innovative environmental education programs.</p>
 Climate change mitigation and adaptation	<p>Sydney Airport has introduced six new electric buses to replace diesel buses. The new electric buses will deliver carbon emission reductions, improve local air quality, lower noise levels and reduce waste fluids.</p> <p>Sydney Airport has developed a new Energy Savings and Carbon Reduction Plan including a detailed review of airport operations to identify existing and potential carbon reduction opportunities. Sydney Airport has investigated and/or implemented a number of energy savings measures in accordance with this plan including introduction of electric buses and development of a solar energy project. Between 2010 and 2017 Sydney Airport has delivered a reduction in carbon emissions per passenger of 27.2 percent.</p> <p>Sydney Airport implemented a Climate Risk Assessment and Adaptation Plan, which aims to evaluate strategies to manage climate change and sea level rise, and to ensure that risks are being appropriately managed on an ongoing basis. A flood study and lightning protection study are currently being undertaken under the Adaptation Plan.</p> <p>In 2016, Sydney Airport achieved and has since maintained Level 3 Airport Carbon Accreditation and continues to work to reduce its carbon footprint. Airport Carbon Accreditation is an internationally recognised certification system designed to recognise participating airports' efforts to manage and reduce their carbon emissions. Sydney Airport achieved its original carbon reduction target of 25 percent per passenger, well ahead of the target date of 2020.</p>
 Air quality	<p>In 2018, Sydney Airport has installed and commissioned a new air quality monitoring station and has commenced air quality monitoring on the airport site.</p> <p>Sydney Airport continues to facilitate discussions with Airservices and other key stakeholders on ways to minimise aircraft taxiing times, idling times and engine usage.</p> <p>Sydney Airport has installed a number of new facilities for the charging of electric GSE. Working in partnership with airlines and ground handlers, a number of charging units have been installed to provide power for electric tugs and other GSE. Sydney Airport has also introduced six new electric buses to replace diesel buses.</p>

Environmental aspect

Initiative/achievement



Ground-based noise

A number of noise impact assessments have been prepared for major development projects which include consideration of key noise sources from operations at the airport. Project specific noise management measures have been developed to mitigate noise impacts.

In 2016, Sydney Airport undertook noise monitoring in residential areas surrounding the airport which will provide a baseline for future noise assessments.

All T1 and T2 contact positions with aerobridges are now fitted with FEGPU and all T1 contact positions are fitted with PCA. Sydney Airport is currently developing a program to increase airline usage of FEGPU and PCA.



Ground transport

Sydney Airport is currently implementing major road and ground access improvements to the T1 and T2/T3 precincts. The works include measures to increase pedestrian, cycling and public transport connections to and from the airport which will have flow-on environmental benefits.

Sydney Airport continues to advocate for improvements to public and sustainable transport modes. In 2017, Transport for NSW provided an additional 200 train services per week to the airport, decreasing wait times and making it more convenient for staff and passengers to travel by train.



Water quality and water use

Sydney Airport has prepared a (draft) Stormwater Quality Management Plan which aims to improve the quality of stormwater leaving the airport site. Sydney Airport completes biannual stormwater monitoring on the airport.

The operation of the T1 Recycled Water Treatment Plant and implementation of a number of water savings measures has helped to realise a significant reduction in potable water use per passenger during the past decade. Potable water use for Sydney Airport remains at historically low levels.



Biodiversity

Sydney Airport developed a Wetland Management Plan and continued implementation of the Wetlands Enhancement Program which aims to improve the quality and function of the Sydney Airport Wetlands, which are a valuable asset for the airport, the local community and the environment. This includes carp control, weed control, native fish restocking and maintenance of revegetation works.

Surveys were undertaken to determine the presence of Green and Golden Bell Frog and Long-Nosed Bandicoot within the airport site, but none were identified.

On-going monitoring of wildlife (birds and bats) and periodic feral animal control was carried out within the airport site.

Environmental aspect

Initiative/achievement



Heritage

Sydney Airport has developed a Heritage Interpretation Strategy to assist in mitigating the heritage impacts associated with on-going development within the airport site. Under the strategy Sydney Airport has constructed a community facility for plane spotting enthusiasts (Sheps Mound) and is developing an on-line experience centre to recognise and celebrate the airport's heritage.

Sydney Airport has completed detailed archival recordings of all identified heritage elements within the airport site that have been impacted by development. The recordings were undertaken in accordance with applicable heritage guidelines.

Sydney Airport has prepared a (draft) Plan of Management to guide the ongoing management of the figs trees located near the Engine Pond.



Waste and resource recovery

Sydney Airport engaged specialist waste consultants to undertake a detailed waste audit and assessment across the airport. The review identified opportunities for improvement in recycling, recovery and waste minimisation. Sydney Airport is preparing an action plan to implement the findings of the review.

In 2015, Sydney Airport's waste contract was reviewed and the target for post collection recycling was increased from 25 percent to 30 percent. Sydney Airport recycling data continues to indicate that an increasing proportion of Sydney Airport's waste is being recycled rather than ending up as landfill.



Soil and land management

Sydney Airport has developed an Environment Protection Plan and implemented a proactive integrity testing program of its USTs and ASTs on the airport to ensure the early identification of any leaks and prevent the potential for soil and/or ground water contamination.

Sydney Airport has implemented a proactive groundwater monitoring program. Groundwater monitoring wells have been installed in the vicinity of all USTs, with ongoing groundwater monitoring to ensure the early detection of any leaks.

Sydney Airport continues to manage known and suspected contaminated sites in accordance with regulatory requirements and the contaminated sites strategy.

14.6 Key environmental matters for Sydney Airport

14.6.1 Overview

Key environmental matters associated with Sydney Airport's operations include:

- Climate change mitigation and adaptation
- Air quality
- Ground-based noise
- Water quality and water use
- Biodiversity
- Heritage
- Waste and resource recovery
- Soil and land management

For each of the key environmental issues, consideration has been given to the legislative requirements, current management practices and strategy for addressing such issues in the 20-year planning period of Master Plan 2039.

Specific details for each key environmental matter, including our five-year implementation strategy, are discussed in detail in the [Environment Strategy 2019-2024](#).

Other parts of Master Plan 2039 of relevance to environmental management include:

- [Chapter 4.0 Sustainability](#)
- [Chapter 7.0 Development Plan Overview](#)
- [Chapter 11.0 Ground Transport Development Plan](#)
- [Chapter 12.0 Utilities Development Plan](#)
- [Chapter 15.0 Aircraft Noise](#)

14.6.2 Climate change mitigation and adaptation

The Intergovernmental Panel on Climate Change Fifth Assessment Report¹ states with high confidence that Australia is already experiencing impacts from recent climate change, including a greater frequency and severity of extreme weather events. In the future, Sydney is expected to experience:

- An increase in frequency, intensity and duration of:
 - Extreme rain and flooding events
 - Extreme heat events
- An increase in time spent in:
 - Drought
 - Severe bushfire weather
- Rising sea levels and an increase in the impacts of coastal flooding events

In responding to climate change, there are two broad response strategies to which we are contributing:

- Mitigation of carbon emissions to reduce the rate of climate change
- Adaptation of infrastructure, systems and organisations to reduce the impacts of climate change

Carbon emissions

Most carbon dioxide emissions associated with aviation are as a result of in-flight emissions from aircraft. As well as emitting carbon dioxide, aircraft contribute to climate change by the formation of condensation trails and emission of nitrogen oxides that form ozone, a greenhouse gas, when emitted at cruise altitudes.

The best estimate of aviation's impact on climate change, given by IATA, is about three percent of the contribution from human activities. However, with airline travel becoming more popular in Australia and around the world, this contribution could possibly reach five percent by 2050.²

IATA recognises the need to address the global challenge of climate change and has adopted a set of ambitious targets to mitigate carbon dioxide emissions from air transport:

- An average improvement in fuel efficiency of 1.5 percent per year from 2009 to 2020
- A cap on net aviation carbon dioxide emissions from 2020 (carbon-neutral growth)
- A reduction in net aviation carbon dioxide emissions of 50 percent by 2050, relative to 2005 levels

¹ IPCC, *Climate Change 2014: Synthesis Report*, 2014.

² IATA and Carbon Offsetting Scheme for International Aviation, *Climate Change Targets*, 2009.

The aviation industry's challenge is to retain the many positive economic and social benefits that aviation provides while reducing its negative environmental impacts. Signing of the Global Aviation Industry Commitment to Action on Climate Change by aviation industry leaders was an important demonstration of the aviation industry's worldwide commitment to introducing technological, operational and efficiency advances that will reduce its contribution to climate change.

Energy and carbon strategy

As a signatory to the Global Aviation Commitment to Action on Climate Change, Sydney Airport has recently committed to a target of being carbon neutral by 2025.

In 2016, we achieved and have since maintained a Level 3 Airport Carbon Accreditation, which is an internationally recognised certification system designed to assess and recognise participating airports' efforts to manage and reduce their carbon emissions. As part of the accreditation process, Scope 1, 2 and 3 emissions from operation of the airport were calculated. The 2017 Scope 1 and 2 emissions results are summarised in the [Environment Strategy 2019-2024](#).

By 2017, we had exceeded our goal of reducing emissions per passenger by 25 percent by 2020, achieving over 27 percent reduction on the 2010 baseline, as shown in [Figure 14-1](#).

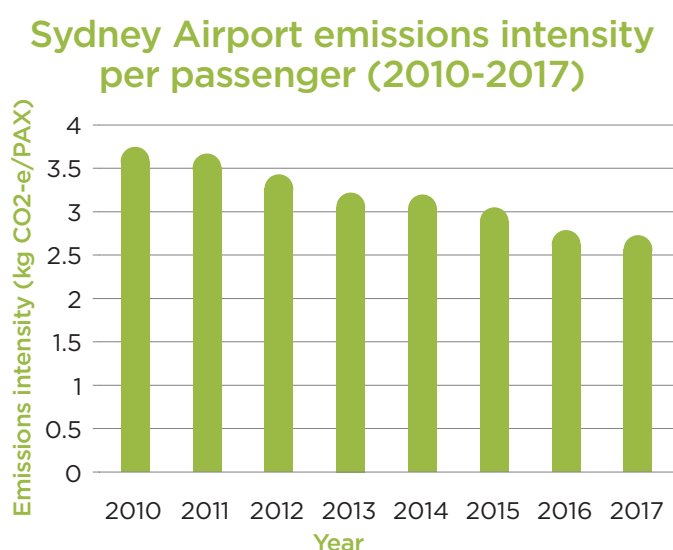


Figure 14-1: Sydney Airport emissions intensity per passenger, 2010 to 2017

A number of factors contributed to this achievement, including:

- Stable energy consumption (as a result of implementation of efficiency projects and improved energy management strategies), despite unprecedented growth in airport facilities
- Fuel switching initiatives, replacing diesel buses with electric buses
- Increased passenger numbers
- Reduction in the grid electricity emissions factor

A new target has been established, which is to achieve a 50 percent reduction in emissions per passenger by 2025. We continue to work on actions to reduce the carbon footprint of the airport.

In 2017, an Energy Savings and Carbon Reduction Plan was developed, which complements our Energy and Carbon Strategy and identifies new energy saving, greenhouse gas emission reduction and energy efficiency opportunities.

As electricity and natural gas consumption are the major sources of Scope 1 and 2 carbon emissions, they are a major focus in the Energy Savings and Carbon Reduction Plan. We will continue to develop and research further sustainable, cost effective energy initiatives, including the use of additional renewable energy such as solar.

Scope 3 emissions are divided into categories depending on the ability of an airport to control, guide or influence emissions. Surface access to the airport by staff and passengers is a major source of Scope 3 emissions; this issue is addressed in [Chapter 11.0 Ground Transport Development Plan](#).

Climate adaptation

The Sydney Airport Climate Risk Assessment and Adaptation Plan (Adaptation Plan) was completed in 2016. Key risks were identified as follows:

- Pressure on external utilities (electricity, water and sewerage) leading to supply interruptions and/or increased costs
- Operational disruptions from airfield flooding, surface failures, subsidence and drainage issues in extreme rainfall events
- Inundation of critical systems, buildings and infrastructure leading to operational disruptions
- Inundation of access roads to the airport not controlled by the airport

A flood study is currently underway to better understand the specific risk of inundation at the airport. This will include hydrologic modelling of future climate change scenarios and will also consider the potential impacts of major projects currently planned or under construction in the vicinity of the airport. This study will inform specific actions needed to minimise flood risk from extreme rainfall events and coastal flooding.

Climate change and energy use – Our 20-Year Response

We will continue to manage carbon emissions and the potential impacts of climate change by implementing the strategies and initiatives summarised below:

- Drive improved performance through the setting of targets to reduce carbon intensity and energy use
- Continue to identify and implement cost effective energy efficiency and saving opportunities
- Invest in renewable energy and new technology that improves environmental efficiency
- Participate in appropriate accreditation and rating schemes which provide the framework and mechanisms to guide and achieve sustainable development and initiatives
- Implement the Adaptation Plan, ensuring this Plan evolves in response to new science, new global, Australian or aviation policies and new information such as the flood study currently underway
- Work with business partners and service providers to identify airfield efficiency opportunities, to better manage airport wide carbon emissions
- Embrace new technology, e.g. electric vehicles, automated vehicles



Image 14-2: A wind sock located airside at the airport

14.6.3 Air quality

Our objective for air quality is to minimise air emissions from ground-based airport operations and activities.

The types of activity that result in air pollutant emissions at airports are identified in the *National Pollutant Inventory Emission Estimation Techniques for Airports*³. These activities generate emissions via fuel combustion or evaporation. Ground-based activities that generate emissions at Sydney Airport include:

- Aircraft main engines
- Aircraft auxiliary power units (APUs)
- Aircraft ground support equipment and other airside vehicles
- Tests on aircraft engines and APUs
- Landside road traffic, including parking facilities
- Heat-generating plant
- Emergency power generators
- Fuel storage and distribution
- Solvent use during aircraft maintenance
- Fire training

Other contributors to overall emissions in the area surrounding the airport include major roads and motorways, Port Botany (from container ship, rail and heavy truck movements) as well as petrochemical and heavy industries located in the Randwick-Botany Industrial Complex.

The Australian National Pollutant Inventory (NPI) provides information on air pollutant emissions within the Sydney-Wollongong-Newcastle airshed from industrial and mobile sources for 2015/16. As shown in **Table 14-2** the emissions from the airport in 2016 were compared with the NPI data for the airshed in 2015/16. Emissions from the airport represent less than one percent of total emissions within the airshed.

Table 14-2: Sydney Airport emissions compared with emissions in Greater Sydney, Newcastle and Wollongong

Pollutant	Emissions in Sydney-Wollongong-Newcastle (NPI data for 2015/16) (tonnes per year)	Emissions from Sydney Airport in 2016 ^(a) (tonnes per year)	Emissions from Sydney Airport in 2016 (% of NPI for airshed)
CO	670,000	2,942	0.44
NOx	710,000	3,553	0.50
PM10	960,000	251	0.03
SO2	970,000	94	0.01
VOC	99,000	463	0.47

Sources:

(a) NPI: www.npi.gov.au

Air pollutants of concern for the airport include:

- Carbon monoxide (CO)
- Volatile organic compounds (VOC)
- Oxides of nitrogen (NOx)
- Oxides of sulphur (SOx)
- Particulate matter (PM10 and PM2.5)

A summary of predicted emissions of these pollutants to air from the different types of activity at Sydney Airport (based on modelling for the years 2016, 2024 and 2039) is shown in **Figure 14-2**.

In addition to the quantification of air emissions, we also undertake facility-wide atmospheric dispersion modelling of our operations. This work has been completed using the US Federal Aviation Administration's (FAA) Aviation Environmental Design Tool (AEDT). AEDT is a modelling tool that allows us to understand the contribution of our activities to local air quality. This analysis is used to inform key priorities for air quality management, and focus our air quality monitoring program to provide a targeted understanding of the influence of our operations on ambient air quality.

We are committed to reducing emissions associated with ground-based airport activities and to improving local air quality. We are actively supporting the introduction of quieter and more fuel-efficient next generation aircraft by investing in upgrades to the airfield and terminal infrastructure.

Fuel efficiency of aircraft has significantly improved over recent decades, resulting in lower air and greenhouse gas emissions. Fuel efficiency is expected to improve further with the introduction of next generation aircraft such as the A380, B787 and A350 XWB.

We have implemented a number of air quality improvement measures outlined in Environment Strategy 2013-2018, including fitting terminal gates and some remote apron aircraft stands with FEGPU, PCA and introducing six new electric buses to replace diesel buses. We also actively support increased use of sustainable transport modes such as public transport and active transport to minimise airport traffic related emissions.

As part of our commitment to improving local air quality, we have recently installed a new air quality monitoring station and have commenced air quality monitoring within the airport boundary.

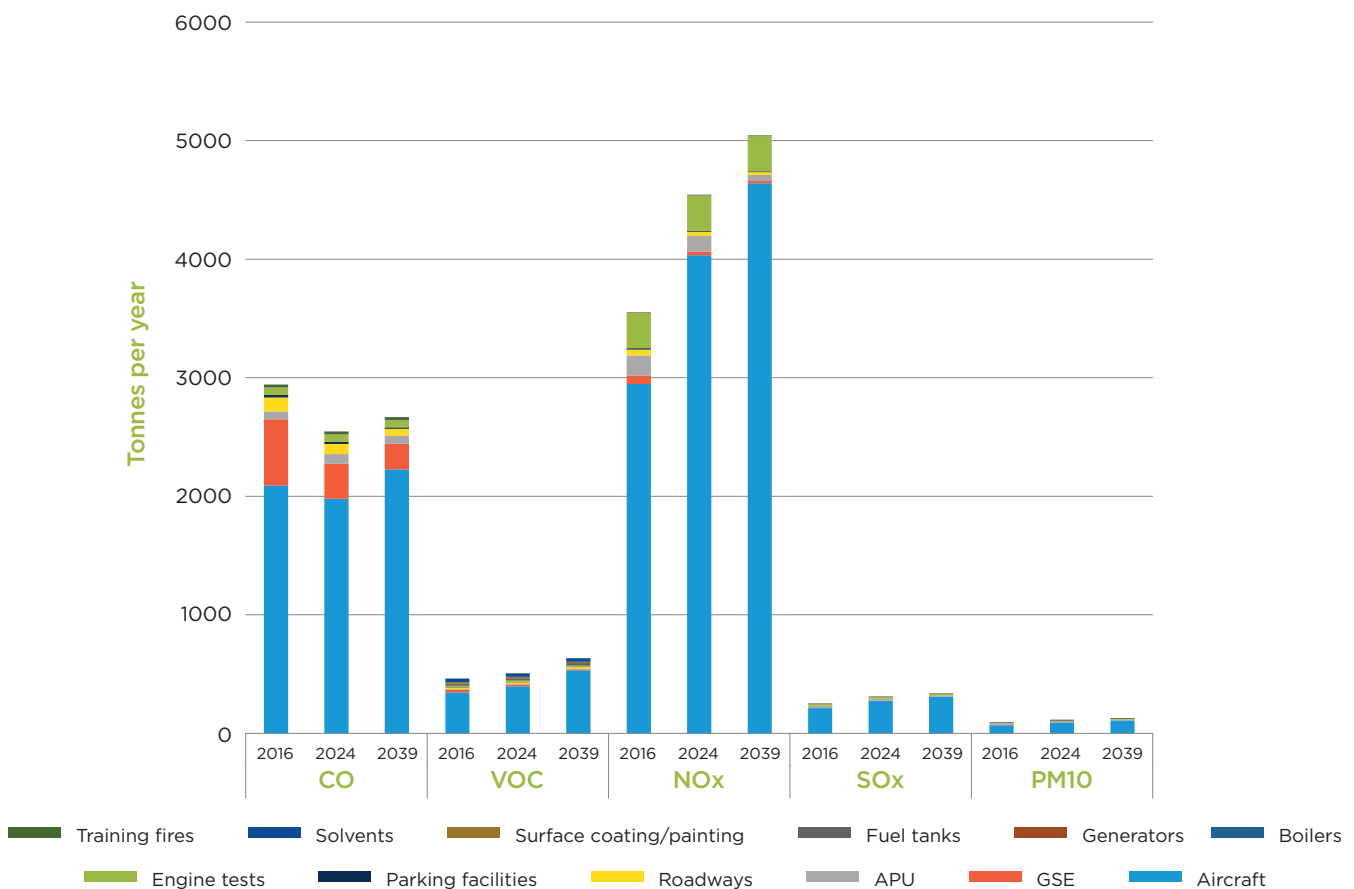


Figure 14-2: Predicted emissions to air from Sydney Airport's operations (2016, 2024 and 2039)

Air Quality – Our 20-Year Response

Impacts on local air quality may occur as a result of proposed new developments, particularly those that facilitate new and additional aircraft operating areas such as hangars, gates and aprons.

We will continue to manage and reduce potential impacts on air quality by implementing the following strategies and initiatives:

- Monitor and measure air quality through the onsite monitoring station
- Develop an airport wide air quality management strategy
- Provide infrastructure that facilitates quieter and more efficient next generation aircraft
- Ensure FEGPU and PCA is provided at all new gates and at remote aircraft stands
- Work with airlines to reduce the use of APUs and diesel fuelled equipment
- Work with our business partners and service providers to identify airfield efficiency opportunities to minimise emissions to air
- Investigate the best approach to provide infrastructure and utilities to support electrification of GSE and vehicles across operations
- Ensure that potential air quality impacts are assessed and managed for the construction and operational phases of development proposals
- Implement the tenant management strategy and ensure tenants include air quality management in their Environmental Management Plans (EMPs)
- Encourage staff and passengers travelling to and from the airport to use public transport or other sustainable modes of transport
- Actively engage with aircraft manufacturers and research bodies to gain an improved understanding of aircraft emissions and the options available to reduce emissions

14.6.4 Ground-based noise

Noise from ground-based activities at Sydney Airport is managed separately from noise from in-flight aircraft operations. The *Airports (Environment Protection) Regulations 1997* provide guidelines for ground based noise. Aircraft noise is discussed in [Chapter 15.0 Aircraft Noise](#).

Ground-based noise is generated from a number of sources on the airport including:

- Road traffic
- Construction and development activities
- Operation of audible alarm and warning systems
- Operation of plant and equipment
- Taxiing aircraft
- Ground running of aircraft engines
- Operation of aircraft APUs

Engine ground running, which is an essential part of aircraft operations and maintenance, is regulated by a policy that includes a comprehensive set of operational rules designed to maintain safety levels, comply with relevant standards and practices, and minimise noise impacts on areas surrounding the airport site boundaries. We are committed to implementing those rules and minimising complaints from ground-based noise.

The increasing number of next generation aircraft flying to Sydney during the planning period is expected to reduce the need for high-power engine ground runs. It is considered that this will help minimise ground-based noise impacts on areas around Sydney Airport.

Ground-based noise from developments at the airport, such as new or expanded aircraft aprons or ground access improvements, is assessed during the development approval process. Where appropriate, management measures are proposed to mitigate potential noise impacts. Noise impacts associated with construction activities are also assessed during the development approval process. In recent years we have completed updated noise monitoring of background noise in residential areas surrounding the airport site which will be used to provide a baseline for future noise assessments.

Over the past five years, we have implemented a number of measures to reduce ground-based noise. All T1 and T2 contact positions with aerobridges are now fitted with FEGPU. PCA is also fitted to contact positions at T1. FEGPU and PCA are a quieter alternative to APUs, which are a known source of ground-based aircraft noise. We continue to encourage increased airline usage of FEGPU and PCA.

Areas of new residential and mixed use development have occurred or are proposed in areas surrounding the airport site, such as at Mascot, Wolli Creek, Arncliffe and Cooks Cove. The encroachment of residential development has the potential to reduce the criteria for ground-based noise at the airport, resulting in increased mitigation and/or a restriction on future allowable ground-based noise sources.

We will continue to monitor residential development in areas surrounding the airport and will liaise with the NSW Government and local councils to advocate that these developments only occur in suitable locations and achieve appropriate standards for noise insulation.



Image 14-4: Completing ground-based noise monitoring at Sydney Airport

Ground Based Noise – Our 20-Year Response

New developments have the potential to increase the level of ground-based noise at the airport, particularly developments that facilitate new aircraft operating areas such as hangars, terminal gates and aprons. Ground transport and construction noise may also result in impacts beyond the boundary of the airport.

We will manage and reduce potential impacts associated with ground-based noise by implementing the strategies and initiatives summarised below:

- Review the proposed hangar, terminal, aircraft bay and apron layouts (particularly in the North East and South East sectors of the airport) to ensure that noise reduction strategies are considered at the planning and design stage
- Develop a tool to enable cumulative ground-based noise modelling for the airport site to better manage the overall noise footprint of the airport to be determined and to inform noise management strategies
- Monitor residential developments proposed in the vicinity of the airport site to ensure that they will not unreasonably compromise the ongoing operations of the airport
- Liaise with the NSW Government and local councils to ensure developments in the vicinity of the airport achieve appropriate standards for noise insulation
- Continue to undertake regular monitoring of ground-based noise sources at the airport
- Provide infrastructure that facilitates cleaner, quieter and more efficient next generation aircraft
- Ensure FEGPU and PCA is provided at all new gates and at remote aircraft stands
- Continue to work with airlines to reduce the use of APU's and diesel fuelled equipment
- Continue to ensure that ground-based noise is assessed and managed for the construction and operational phases of development proposals
- Carry out ground-based operational noise modelling for major developments impacting airport operations, assess noise predictions against relevant criteria and develop appropriate noise management measures

14.6.5 Water quality and water use

Water quality

Sydney Airport is surrounded by waterways. Activities on the airport that have the potential to impact on the water quality of surrounding waterways include:

- Spills from aircraft servicing and maintenance
- Refuelling and washing activities
- Stormwater run-off from areas of construction and maintenance activities
- Bulk liquids and hazardous materials storage
- Fire training exercises
- Runway de-rubberisation
- Vehicle traffic to and from the airport
- Litter disposal
- Sewerage systems and pumping stations

To minimise the impact of airport operations on surface water quality in adjacent waterways, we work closely with airport tenants, operators and contractors to manage activities that have the potential to impact on water quality and continue to identify opportunities to improve water quality.

We have a number of mechanisms in place to manage water quality. These include:

- Passive filtration systems such as swales and vegetated garden beds to absorb pollutants and decrease runoff volumes
- Gross pollutant traps
- Detention basins to allow settlement of sediments and other pollutants before exiting the system
- Two dedicated spill response vehicles
- Provision of spill control kits on all aircraft parking aprons
- Pollution control flame traps on all aprons where aircraft refuelling or maintenance takes place
- Emergency stop gates on stormwater discharge points, particularly from aircraft refuelling areas
- Spill response and emergency response procedures

We regularly monitor the quality of water leaving the airport through stormwater channels and runoff to ensure stormwater management measures are treating stormwater as designed, and to monitor discharge to Cooks River, Alexandra Canal, Mill Stream and Botany Bay.

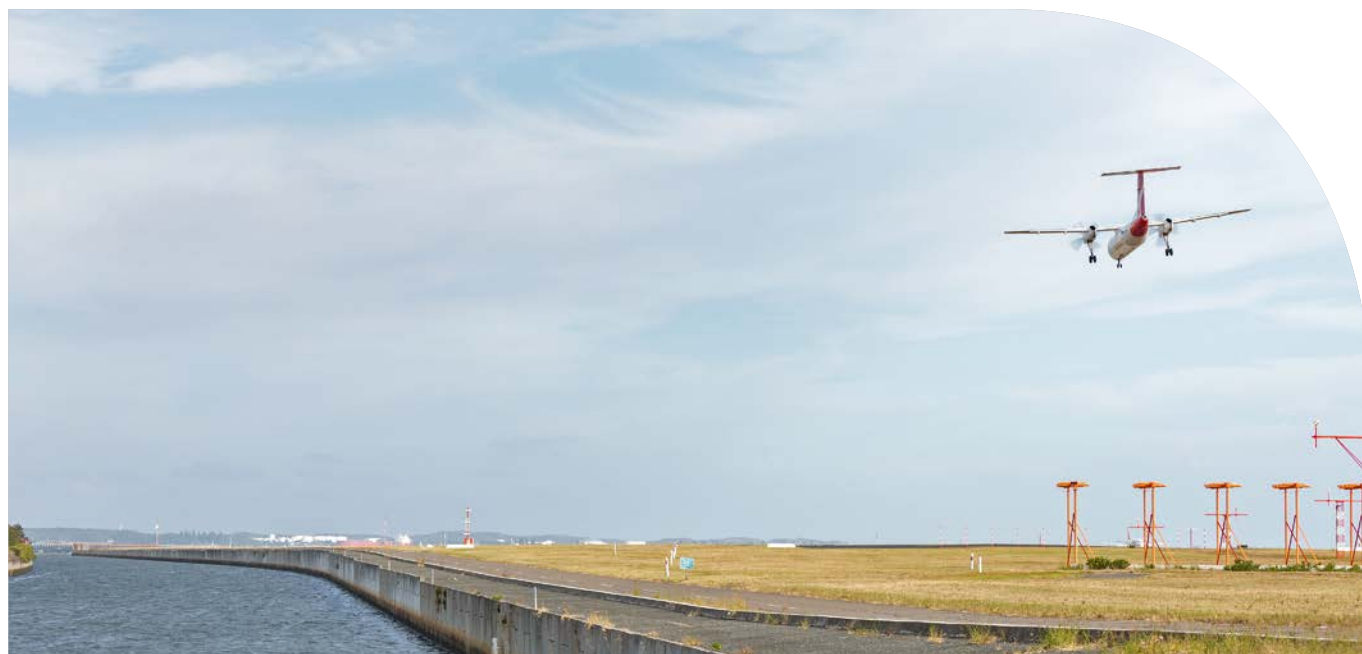


Image 14-5: Mill Stream at Sydney Airport

Water use

We are a major water user for NSW. Water use at the airport includes:

- Restroom and toilet facilities within the terminals
- Cooling towers (for air conditioning)
- Construction and maintenance activities
- Vehicle washing facilities
- Retail outlets

Sustainable water use and security/reliability of water supply are a priority, and we are committed to securing alternative non-potable water supplies across the airport where feasible and to reducing the total water consumed per passenger.

The T1 recycled water treatment plant was upgraded in 2017. Operation of the recycled water treatment plant has helped realise a significant reduction in potable water use per passenger during the past decade. The plant has a capacity of 960,000 litres a day and is delivering savings up to 600,000 litres of recycled water a day.

In addition to the recycled water treatment plant a number of water saving initiatives implemented over recent years include:

- Installation of water saving fittings in T1
- Replacement of a number of valves to stop water leaks and overflows
- Replacement of a number of pumps to reduce energy and water consumption
- Implementation of a new strategy to match supply with peak demand periods, which will result in reduced energy and water consumption
- Introduction of an after-hours toilet inspection program for the early identification and rectification of leaks

As a result of the upgraded recycled water treatment plant and the water savings initiatives listed above, potable water use per passenger remains at historically low levels.

Water quality and use – Our 20-Year Response

Continued growth of the airport as proposed in Master Plan 2039 will have implications for water use, stormwater, and the water quality of surrounding waterways.

We will improve the efficiency of water use and manage potential impacts on stormwater, groundwater and the water quality of surrounding waterways, by implementing the initiatives summarised below:

- Investigate the feasibility of developing a new recycled water treatment plant to provide recycled water to the T2/T3 precinct
- Investigate the feasibility of further expanding the capacity of the recycled water treatment plant in the North West Sector of the airport site to address increased demand for non-potable water
- Continue to implement cost effective water efficiency and saving opportunities
- Consider introducing water sensitive urban design and rainwater harvesting into new developments within the airport site as appropriate
- Consider the impacts associated with climate change (increased rainfall intensities and elevated sea levels) on the performance of the stormwater drainage network and level of flood protection at the airport site, and use this information to inform the design of proposed developments and associated stormwater infrastructure
- Continue to ensure that stormwater quality is considered for the construction and operational phases of development proposals
- Continue to develop, implement and review our management plans including the Stormwater Quality Management Plan and Wetland Management Plan
- Incorporate design features to reduce contaminant loads in stormwater such as gross pollutant traps and interceptors

14.6.6 Biodiversity

The natural environment and biodiversity of Sydney Airport and its surroundings has been significantly altered by development of the area. The majority of the land is now hardstand with few areas of native vegetation. While significant fauna habitats are limited, the Sydney Airport Wetlands, vegetated pockets and grassed areas provide an opportunity for a number of species to occur on the airport site including birds, reptiles, amphibian species, mammals and fish.

Previous surveys have been undertaken across the airport site for the Green and Golden Bell Frog and Long-Nosed Bandicoot, but no sightings were recorded. A number of fig trees located across the airport site may provide limited foraging habitat for the Grey-headed Flying-fox.

Several studies have documented the biodiversity values of the airport, with the most recent site wide assessment carried out in 2018.

The key area of natural biodiversity value for the airport is the Sydney Airport Wetlands – part of the Botany Wetlands – comprising:

- Engine Pond East
- Engine Pond West
- Mill Pond
- Mill Stream

This important environmental and historical resource is listed in the Directory of Important Wetlands in Australia and is considered an environmentally significant area under the Airports Act. We implement a management plan for the Sydney Airport Wetlands. The plan guides how we manage the wetlands to preserve and, where possible, enhance this area of the airport.



Image 14-6: Our environment team conducting water quality testing at Sydney Airport's wetlands

The ongoing implementation of our wetland enhancement program aims to increase the numbers of native fish species and, more generally, improve the quality and ecological function of the wetlands themselves. Initiatives completed under the program include:

- Installation of a fish ladder to enable fish passage from Botany Bay upstream into the wetlands, via the pond weir
- Installation of a gross pollutant trap to improve the quality of stormwater runoff into the ponds
- Exotic fish (carp) removal programs
- Revegetation works at Engine Pond East
- Native fish release programs
- Terrestrial and aquatic weeding

The presence of wildlife on or in the immediate vicinity of the airport site can create a hazard to aircraft operations. We regularly monitor fauna and implement management measures as required to maintain aircraft safety. Feral animal control for species such as foxes and rabbits is also carried out across the airport site periodically.

We work to ensure our biodiversity objectives are consistent and balanced with objectives for aviation safety.

Biodiversity – Our 20-Year Response

Development proposals within the South East Sector have the potential to affect the biodiversity values of this area. The main impacts are associated with the proximity of proposed development to the Sydney Airport Wetlands, which are identified as an environmentally significant area, and the proximity to areas frequented by protected species.

We will manage and reduce potential impacts on the ecology and biodiversity of the airport and its surrounds by implementing the initiatives and strategies summarised below:

- Ensure that appropriate measures and/or buffer zones are incorporated into development proposals, including those within the vicinity of land zoned for environmental conservation (EC1) and areas identified as environmentally significant
- Continue to seek opportunities to improve the health of the Sydney Airport Wetlands and other surrounding waterways, as appropriate
- In line with our green star commitments, identify opportunities to improve the 'liveability' of the airport environs by making the Sydney Airport Wetlands more accessible to the community
- Continue to identify new, and build on existing, partnerships that deliver positive biodiversity outcomes for the airport and surrounding environment
- Develop a strategy for providing planting within or in the vicinity of the airport site to compensate for vegetation removed during on-going development of the airport site
- Ensure that potential biodiversity impacts are considered as part of the assessment of development proposals, and managed appropriately
- Continue to develop, implement and review management plans including the Stormwater Quality Management Plan, and Wetland Management Plan

14.6.7 Heritage

Sydney Airport is one of the world's oldest continually operating airports. However, for at least sixty millennia before the airport came into being, thousands of generations of Aboriginal people lived on our ancient continent and across today's coastal area of Sydney, including on and around the site of today's Sydney Airport⁴.

The coastal area of Sydney we know today was very different 20,000 years ago. At that time, during the last Ice Age, Botany Bay itself did not exist and the coastline was situated up to 20 kilometres to the east of where it lies today. The area in and around the bay, including today's airport site, was a vast wetland, fed by waters flowing down the Cooks and Georges Rivers. Aboriginal people lived during and successfully adapted to a period of rapid change to the environment and landscape.

European settlement and colonisation changed everything for the Aboriginal people of coastal Sydney. Aboriginal people continued to live across the coastal area well into the 19th century, including family groups living at Elizabeth Bay, Rose Bay, Camp Cove, Botany, La Perouse and Kurnell, as well as along the Georges and Cooks Rivers. The descendants of many of these families live in these areas to this day and the airport site is close to Indigenous communities in La Perouse and Redfern.

This coastal area is rich in natural, cultural and historical significance. We acknowledge the special significance that land in this area holds for Indigenous people and have invested in programs to protect it, including zoning for environmental conservation and initiatives such as our Sydney Airport Wetlands enhancement program.

Sydney Airport continues to work with both the La Perouse Local Aboriginal Land Council and the Metropolitan Local Aboriginal Land Council on initiatives such as the development of our first Reconciliation Action Plan.

The airport site is also host to a number of other significant pieces of Sydney's industrial and water supply infrastructure, the ruins of which are still located on the airport site today.

The airport's layout, runways and other built, landscape and archaeological elements are the product of a century of development on the site, as well as early colonial farming and the industrial development of Sydney.

We recognise the non-indigenous heritage values associated with the site of today's Sydney Airport. These heritage values are associated with the airport as a whole and are embodied in the location, form and function of its individual elements. This includes the arrangement of streets, buildings and runways, and the ways in which these attributes reflect the airport's history of change and growth.

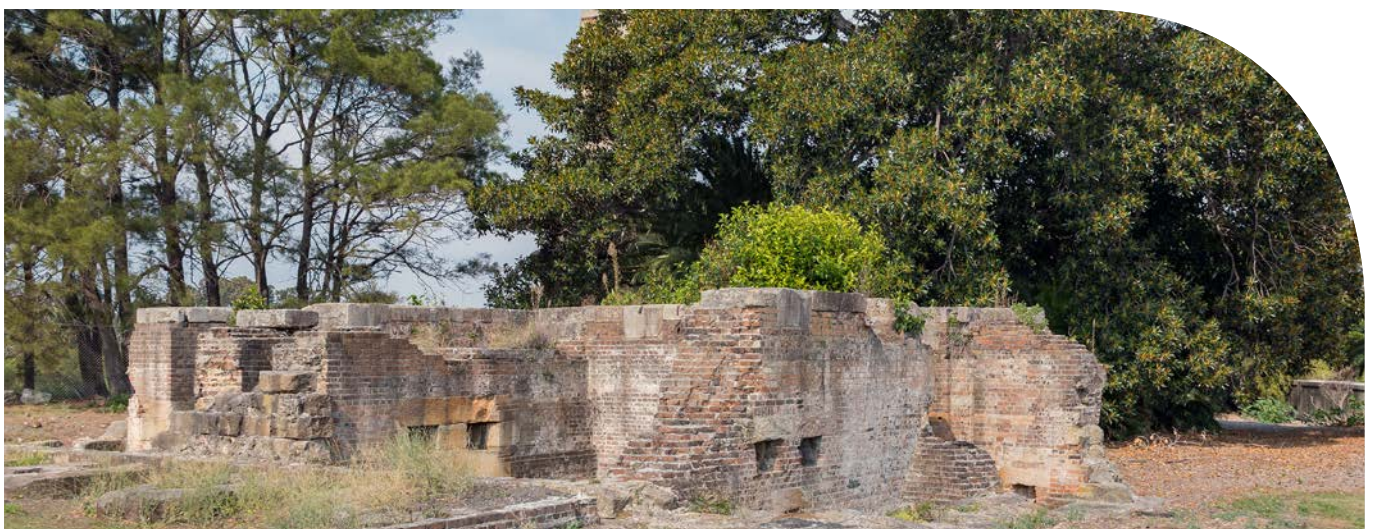


Image 14-7: Botany Water Pumping Station ruins which supplied water to Sydney from 1859 to 1885

⁴ Paul Irish, *Hidden In Plain View - The Aboriginal Pople of Coastal Sydney*, 2017

Map 22: Environmentally Significant Areas



We implement a Heritage Management Plan, updated in 2018, to protect heritage values. The plan balances heritage conservation with the need for Australia's busiest airport to continue to develop to meet the growing needs of airlines and passengers. Where potential impacts on heritage are identified, we undertake heritage impact assessments and implement strategies to manage and mitigate those impacts.

Three heritage items have previously been identified as environmentally significant areas under the Airports Act and are also recognised as significant in the Heritage Management Plan (refer to [Map 22](#))

- The location and form of Keith Smith Avenue (horseshoe-shaped). It has historical significance as a key remnant of the early airport and has dictated the form of the T2/T3 precinct since its construction in 1930
- The location and function of the main north-south and east-west runways. The runways form a cruciform over the full extent of the airport site. Both runways were originally constructed between 1947 and 1955, during the first phase of the post-World War II redevelopment
- Sydney Airport Wetlands (incorporating Engine Ponds East and West, Mill Pond and Mill Stream)

Retention and protection of these items is important in ensuring that the heritage significance of the airport and the history of the airport site can be interpreted in a meaningful manner, despite ongoing development and growth of the airport. The Heritage Management Plan also identifies a number of other items of heritage significance including:

- A number of buildings in the Jet Base and T2/T3 precinct
- The Lauriston Park Estate street layout
- The Wimble's Ink Factory
- The fourth and fifth control towers
- The Southern and Western Suburbs Ocean Outfall Sewer
- Sewage pumping station 38
- Engine Ponds (Sydney Airport Wetlands)
- The Botany Bay pumping station and chimney ruins
- Building 60 (old control tower)

To help meet the objectives of the Heritage Management Plan, we have developed a Heritage Interpretation Strategy. The strategy employs a range of interpretative devices such as artworks, installations, inlays, interior finishes, signage and place naming.

Heritage – Our 20-Year Response

Proposed developments within Master Plan 2039, particularly within the North East Sector, will have significant impacts on a number of heritage significant structures including buildings and hangars within the Jet Base, the Wimble's Ink Factory, the Lauriston Park Estate street layout and hangars such as Hangar 3 and 13. Airservices Australia are also proposing changes on the airport site that will impact the fourth and fifth control towers.

Subject to airport operational and development requirements, some important heritage elements within the airport will, wherever possible, be retained and enhanced such as the Sydney Airport Wetlands and the Botany Water Pumping Station and chimney ruins. In addition, Sydney Airport will pursue opportunities for the airport's history and significance to be interpreted as part of new development.

We will ensure potential impacts on heritage values associated with the airport are managed and reduced by implementing the initiatives summarised below:

- Conserve the significant places of the airport, in line with the Heritage Management Plan
- Actively conserve heritage elements listed as Environmentally Significant under the Airports Act
- Deliver and continually build upon the online experience centre, to tell the history of the airport site, detail its significance and its aviation history
- Integrate heritage interpretation devices into new and existing Sydney Airport facilities, through delivery of an interpretation strategy
- Ensure that heritage items of recognised significance are recorded to an appropriate archival standard
- Establish an archive of historical records of the history of Sydney Airport and the site
- Implement the management plan for the fig trees and the Sydney Airport Wetlands, located in the South East Sector

14.6.8 Waste and resource recovery

Operations at Sydney Airport generate a range of solid and liquid wastes from various sources. We aim to manage the impacts of this waste by:

- Avoiding unnecessary resource consumption and waste generation
- Minimising waste by changing behaviours
- Recycling and recovering of beneficial materials
- Disposing of waste to landfill as a last resort

Airlines are responsible for management and disposal of waste from their aircraft. We also have limited opportunities with other waste streams, for example a large amount of waste generated at the airport is currently not able to be recycled due to quarantine restrictions and requirements. Accordingly, recycling efforts focus on the non-quarantine waste stream.

Our waste contract sets a 30 percent target for recycling post collection. Recycling data is monitored annually and continues to indicate that a greater proportion of the airport's waste is being recycled rather than ending up as landfill. In 2017, approximately 42 percent of total non-quarantine waste volume was recycled.

We have undertaken a detailed waste audit and review across the airport. The review indicated that waste generation per passenger at Sydney Airport is at the lower end compared to other international airports. It also identified a number of opportunities for improvement in recycling, recovery and waste minimisation.

We are preparing a Waste Action Plan to implement the findings of the review. Through the development and implementation of a Waste Action Plan, we will continue to pursue opportunities to minimise waste and improve resource recovery initiatives.

Waste and resource recovery - Our 20-Year Response

Increasing volumes of waste are associated with increasing passenger and aircraft numbers, retail developments and commercial developments such as office buildings. Over the Master Plan 2039 planning period, a substantial amount of construction and demolition waste will also be generated. Construction of new developments will also result in increased resource use.

We will manage the impacts associated with the increased generation of waste and use of resources by implementing initiatives and strategies summarised below:

- Prepare and implement a waste action plan for our operations to improve recycling, resource recovery and waste minimisation
- Ensure that appropriate consideration for waste management and resource recovery is included in the planning and design for all major proposed developments within the airport site
- Continue to review the capacity of the waste system to ensure development plans incorporate the expansion of docks, waste collection areas and locations
- Ensure that waste management and resource recovery are considered for the construction phase of development proposals, aligning with Green Star requirements
- Ensure that sustainable procurement principles are considered and implemented in procuring goods and materials associated with proposed major developments within the airport site
- Continue to implement the tenant management strategy and ensure that tenants include waste management and resource recovery in their EMPs

14.6.9 Soil and land management

Most of the Sydney Airport site has been extensively modified by landfilling, terrain flattening and airport-related development. Due to this, and the long history of aviation and related uses at the airport (including fuel storage and distribution and firefighting training), the site contains a number of areas that are subject to soil and groundwater contamination.

To assist in the ongoing management of these sites, we implement a contaminated sites strategy. The strategy involves:

- A comprehensive risk classification system
- Contaminated sites register
- Groundwater monitoring program
- Pollution prevention programs and measures
- Identification of remediation opportunities

Since 2008, we have been actively remediating the former Joint Oil Storage Facility (JOSF) site by extracting hydrocarbons through a purpose-built remediation system. This site has experienced soil contamination resulting from on-site fuel storage from the mid-1950s. In 2014, we commissioned the next phase of the remediation system, located in the area of the JOSF plume below the T2 taxi holding area.

The risk of contamination to soil and groundwater from spills, fuel storage tanks and fuel pipelines is managed through:

- The Airport Tenant Management Strategy
- Regular workplace inspections
- Well defined standard operating procedures
- Independent monitoring and testing
- Asset management

Per- and poly-fluoroalkyl substances

The airport site is known to be impacted by per- and poly-fluoroalkyl substances (PFAS). The predominant known source of PFAS on the airport site is historic use of certain fire fighting foams used by fire fighting service providers or during fire training exercises.

Due to the widespread use of PFAS within a number of industrial applications, there is potential that PFAS found on the airport site is from other sources, including those originating from off-site.

As part of our ongoing environmental management and monitoring we will continue to work with the tenants who have caused PFAS contamination and relevant government authorities to assess, monitor and manage that contamination in accordance with the Environment Strategy 2019-2024 and the Airports Act, Regulations and guidelines.

In 2018, the Commonwealth, State and Territory environment ministers endorsed Australia's first PFAS National Environmental Management Plan.

As PFAS is considered an emerging contaminant, our strategy will continue to evolve. We have in place, and continue to develop, procedures and plans to implement relevant government guidelines.

Spill response and hazardous materials

The aviation operations at Sydney Airport involve the storage and regular use of a range of hazardous materials and chemicals. The main hazardous material used at the airport is aviation fuel. Aviation fuel is supplied to the airport by two underground pipelines and is stored at the JUHI located in the North West Sector.

Aviation fuel is distributed across the airport from the JUHI storage facility via a number of underground pipelines to apron hydrant outlets located adjacent to aircraft gates. Bulk tanker vehicles are used for the fuelling of regional and GA aircraft and helicopters where hydrant access is not available.

Other activities involving the use of hazardous materials include:

- Maintenance facilities operated by airport tenants
- Fire training, which requires the storage and use of firefighting foam
- Construction and related activities
- The use of liquid hydrocarbons (other than aviation fuel), solvents, paints, pesticides and herbicides

Effectively managing hazardous materials, and ensuring an effective response to any spills of hazardous materials, is important in minimising potential environmental impacts and also in ensuring that our work health and safety obligations are met.

We maintain a hazardous materials storage database, which includes a register of all known storage facilities on the airport for both us and tenants.

The following measures are also employed by us to minimise environmental impacts should a spill or an incident occur:

- Spill response – we have two designated spill response trucks, to ensure all minor spills are addressed as soon as possible. Spill kits are also available at aircraft parking bays and other identified potential risk areas
- Spill response procedures – we have developed spill response procedures and guidance material for tenants to ensure the correct handling and reporting of spills
- Emergency response – incidents involving hazardous materials are incorporated into the Airport Emergency Plan to ensure procedures are in place to deal with such incidents
- Infrastructure – pollution control gates, flame traps and other infrastructure are in place to control and contain any spills/losses, assisting with protecting the local environment

Soil and land management - Our 20-Year Response

New developments at the airport have the potential to impact on soil conditions through vegetation clearing, excavation, installation of fuel infrastructure, erosion and sedimentation, and disturbance of potential or actual acid sulphate soils and contaminated land.

We will manage the impacts on soil quality and contaminated land by implementing the initiatives and strategies summarised below:

- Infrastructure will be designed and constructed to minimise disturbance of contaminated sites where possible
- Opportunities to replace hazardous materials and fuel with new technology, such as batteries for stand-by power, will be investigated
- Develop and implement contaminant or site-specific strategies, where appropriate
- Work proactively with tenants to manage potentially contaminating activities and to actively manage historical contamination
- Continue to implement the contaminated sites strategy to address the management of known contaminated sites
- Maintain a contaminated sites register including a detailed map illustrating areas of known contamination across the airport site
- Continue to monitor developing global, national and state information and guidance regarding emerging contaminants of concern including PFAS and implement management strategies as appropriate
- Ensure potential soil quality and contaminated land risks are assessed and appropriate management measures identified for both the construction and operational phase of developments
- Investigate opportunities to remediate known contaminated sites within the airport site to the extent practicable

15.0 Aircraft Noise



15.1 Overview

Noise from aircraft operations continues to be one of the most significant environmental issues for people living around airports or under flight paths.

Sydney Airport works closely with the community, aviation industry, and the Australian, NSW and local governments to manage and where possible minimise aircraft noise impacts.

The responsibility to manage aircraft noise impacts at Sydney Airport is shared by many organisations. As well as Sydney Airport, the International Civil Aviation Organization (ICAO), the Australian, NSW and local governments, airlines, aircraft and engine manufacturers and regulators all play important roles.

Noise sharing is the key aim of our Long Term Operating Plan (LTOP), which involves varying the use of our runways to produce different combinations of flight paths affecting different parts of Sydney. Master Plan 2039 assumes that there will be no change to the curfew, movement cap or noise sharing arrangements and no change to the flight paths or runways within the planning period.

15.2 Key Points

- The responsibility to manage aircraft noise impacts at the airport is shared by many organisations including Sydney Airport
- The roles of Sydney Airport in relation to noise management are to:
 - Provide and maintain on-airport infrastructure to facilitate noise sharing
 - Support the use of quieter new generation aircraft
 - Ensure guidelines are in place to control noise generated by engine ground running and respond to ground-based noise complaints
 - Publish relevant and accurate information about noise impacts that can be easily accessed, including noise descriptors such as flight path movement charts, frequency-based aircraft noise charts and respite charts
- Sydney Airport actively participates in the Sydney Airport Community Forum, responding to aircraft noise and related environmental issues at Sydney Airport
- Sydney Airport supports ICAO's 'Balanced Approach' which is based on the following four pillars:
 - Noise reduction at source with quieter aircraft and noise-reducing engine/wing technologies and advancements in airframe design
 - Land use planning and development controls to safeguard and protect local communities from aircraft noise disturbance and passive noise control programs
 - Noise abatement operating procedures in the air and on the ground
 - Operating restrictions imposed on certain aircraft types and airport runway use and hours of operation
- Further details with regard to noise related matters are contained in [Chapter 16.0](#), [Section 16.4](#).



Image 15-1: Coming in to land at Sydney Airport

15.3 Governance of Aircraft Noise

A range of international and local industry players and regulatory authorities have roles and responsibilities for managing aircraft noise (see **Figure 15-1**).

We manage operations at the airport and ensure the effective delivery and coordination of airport-related services and facilities:

- Providing and maintaining on-airport infrastructure to facilitate noise sharing and supporting the use of quieter new generation aircraft
- Publishing noise descriptors and other plans to manage and communicate noise impacts from aircraft operations at Sydney Airport
- Ensuring guidelines are in place to control noise generated by engine ground running
- Handling ground-based noise complaints at Sydney Airport



Figure 15-1: Aircraft noise roles and responsibilities

Noise from ground-based activities at Sydney Airport is managed separately from noise caused by in-flight aircraft operations. Engine ground running, which is an essential part of aircraft operations and maintenance, is regulated by a comprehensive set of operational rules designed to maintain safety, comply with relevant standards and practice, and minimise noise. This is addressed in **Chapter 14.0** Environment.

As well as facilitating noise sharing with supporting infrastructure, Sydney Airport is directly involved in managing aircraft noise by working closely with the Commonwealth, NSW and local governments, and by consulting and engaging with the Sydney Airport Community Forum (SACF), the local community and the airlines that use the airport.

Together, we work to balance the economic and social benefits of aviation with the need to minimise noise impacts.



DIRDC

DIRDC advises the Minister for Infrastructure and Transport on the policy and regulations for airports and the aviation industry and administers the Airports Act and Air Navigation (Aircraft Noise) Regulations.

DIRDC enforces Sydney Airport aircraft movement cap and curfew and the granting of curfew dispensations. It also supports the Sydney Airport Community Forum.



Sydney Airport Community Forum

A community representative forum providing advice to the responsible Minister, Sydney Airport and aviation authorities on aircraft noise abatement and related environmental issues at Sydney Airport, particularly as the primary body for consultation on LTOP.



NSW and Local Governments

The NSW government determines the planning frameworks for areas around the airport, the aim being to ensure inappropriate development is avoided in areas where aircraft noise impacts are (or are forecast to be in the future) excessive. Local councils are responsible for implementing these frameworks.



Sydney Airport

- Provides and maintains on-airport infrastructure to facilitate noise sharing and support the use of quieter new generation aircraft
- Publishes relevant and accurate information about noise impacts that can be easily accessed including noise descriptors such as flight path movement charts, frequency-based aircraft noise charts and respite charts
- Ensures guidelines are in place to control noise generated by engine ground running
- Responds to ground-based noise complaints at Sydney Airport.

15.4 Describing Aircraft Noise

Aircraft noise is complex and varies according to a range of factors, including:

- The age, size, type and number of engines of an aircraft
- Aircraft weight and load factors
- Aircraft thrust settings, speed and altitude
- Airline standard operating procedures
- Pilot performance
- Weather conditions

Aircraft noise is produced on the ground and during all phases of flight. Community concerns associated with aircraft noise generally relate to aircraft take-off and landing and associated flight paths and frequency and the time of day at which flights occur. Many in the community place a high value on having lengthy periods of “respite”, that is periods of time when there are no aircraft flying overhead.

Sound is measured in units called decibels (dB). An ‘A-weighted’ sound level, expressed as dB(A), indicates the relative loudness of sound in the air as perceived by the human ear. In a normal environment with background and ambient noise, a three decibel change represents the threshold of detectability and is not likely to be noticeable.

15.5 Aircraft Noise Impacts

With continued global and national economic development, the propensity to travel for leisure and business-related purposes continues to drive increased air traffic movements. This in turn can increase the impact on the communities around the airport and under flight paths. Despite modern aircraft technology and airline fleet replacement continuing to reduce the measured noise levels for individual aircraft on approach to and departure from the runways, public concern around noise remains.

Recent research in the field of aircraft noise management and related levels of community annoyance, has identified the following contributing factors:

- Socio-economic and lifestyle expectations in relation to the environment
- Equitable sharing of actual and perceived negative impacts of aircraft noise
- Subconscious fear of aircraft accidents
- Feelings of loss of control, stress and poor psychological health
- Providing a focal point for other real or perceived negative aspects of airport development.

There is evidence that these types of non-acoustic factors may be as important as the noise exposure level in determining reported annoyance. Some of these factors are mapped in **Figure 15-2**.

The effects of noise generated by aircraft or from other sources on human health and wellbeing have been extensively studied in Australia and around the world. Relationships between exposure to excessive noise, annoyance and, in some cases, health impacts, have been documented.

It is vital that airports work with their local communities proactively managing noise generated from aircraft arrivals and departures and communicating in an open and transparent way about the impact of airport operations. This has been shown to be important in reducing community concerns and achieving acceptance and tolerance of the airport as air traffic grows.

Sydney Airport and its aviation industry partners are striving to achieve this through the initiatives described in the following sections.

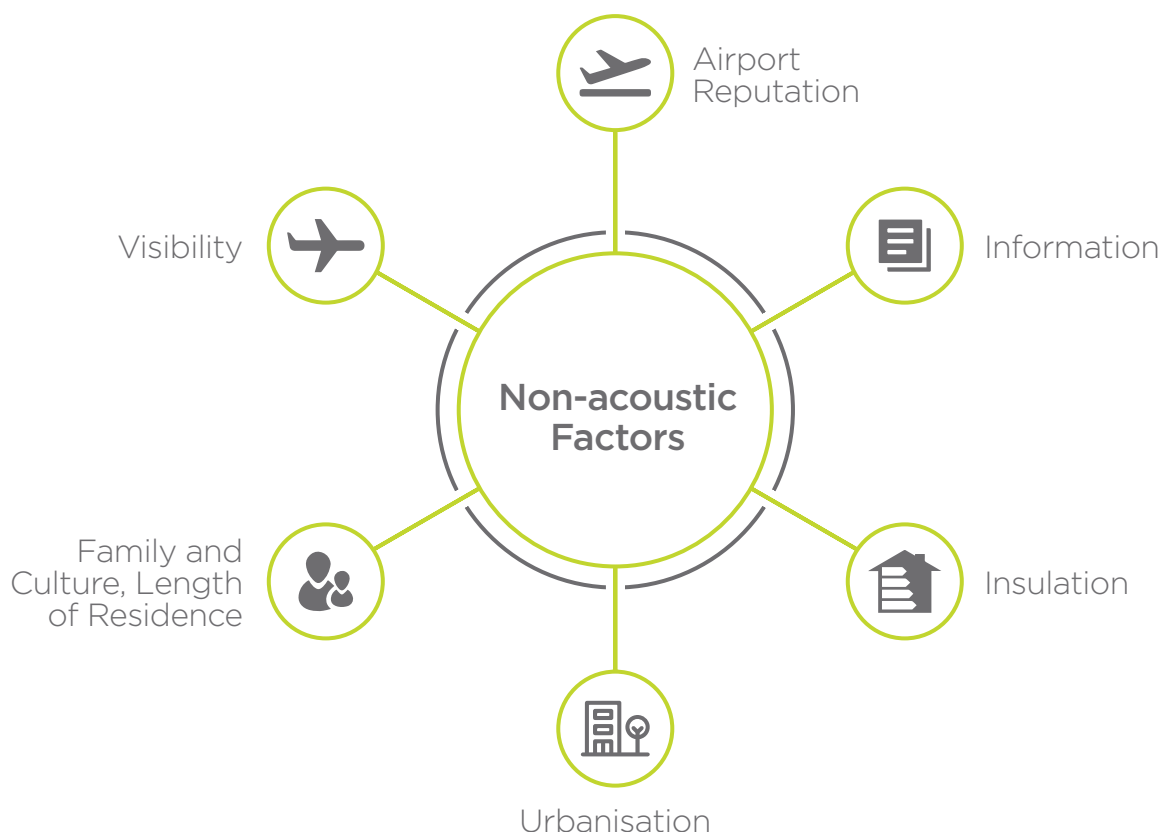


Figure 15-2: Non-acoustic factors to be considered in noise management
(Source: Based on Hooper, ICAO Green Airports Seminar, 2017)

15.6 The Four Pillars of the ICAO Balanced Approach

A useful framework for understanding aircraft noise management can be found in the International Civil Aviation Organisation's (ICAO) 'Balanced Approach'. This guidance material promotes better environmental outcomes in relation to potential aircraft noise impacts for communities living around airports or underneath or near flight paths.

ICAO's Balanced Approach consists of four key pillars illustrated in **Figure 15-3**.

ICAO's overarching policy on aircraft noise, especially comprehensive guidance on its reduction, is published in *ICAO Doc. 9829 – Guidance on the Balanced Approach to Aircraft Noise Management* (Balanced Approach Guidance). In 2007 the Balanced Approach Guidance was expanded to include 'People Issues', to address communication strategies and the availability of enhanced public information on aircraft noise.

Pillar 1

Reduction at the Source

Noise reduction at source with quieter aircraft and noise-reducing engine/wing technologies and advancements in airframe design



Pillar 2

Land Use Planning & Management

Land use planning and development controls to safeguard and protect local communities from aircraft noise disturbance and passive noise control programs



Pillar 3

Noise Abatement Operational Procedures

Noise abatement operational procedures in the air and on the ground



Pillar 4

Operating Restrictions

Operating restrictions imposed on certain aircraft types and airport runway use and hours of operation.



Figure 15-3: ICAO 'Balanced Approach' to aircraft noise management

15.6.1 Pillar 1 – Reduction at the Source

The ‘Reduction of Noise at the Source’ of noise is the first of the four pillars underpinning ICAO’s Balanced Approach.

Since the 1970s, ICAO has set progressively tighter certification standards (known as Chapters) for the noise emitted from civilian aircraft. Each Chapter sets noise level compliance criteria for different aircraft during take-off and landing. The large majority of civilian aircraft now operating in the global fleet mix fall within Chapters 3 and 4, and generally reflect step changes in aircraft technology. All new aircraft manufactured from 2006 onwards must meet the Chapter 4 noise standard.

A new Chapter 14 standard applies to all newly certified larger aircraft on or after 31 December 2017 and for lower weight new aircraft as of 2020. At Sydney Airport, some aircraft including the Boeing B787 and Airbus A350, are already meeting the more stringent standards.

The application of ICAO’s noise standards falls under the authority of each member state. For example, Chapter 2 aircraft have been banned from operating in Australia since April 2002. Marginally compliant Chapter 3 aircraft (Chapter 2 aircraft retro-fitted with a ‘hush-kit’ to meet Chapter 3 standards) were also banned from major Australian airports (including Sydney Airport) in September 2010.

No further restrictions are pending at this stage in Australia. However, as shown in **Figure 15-4**, airline fleet renewal and modernisation programs continue, in many cases, to progressively introduce into service new generation, quieter aircraft (for example the Boeing B787, B737Max, Airbus A350, A320neo) in place of ageing, noisier aircraft (like the Boeing B747, B767 and Airbus A340) which are being retired.

It is acknowledged that, despite the noise emitted by individual aircraft having decreased over time, the frequency of such flights has grown.

Pillar 1 at Sydney Airport

Reduction at the Source is being achieved in the following ways:

- In 2018, 21 airlines are operating next generation aircraft which represents:
 - 25 percent of all scheduled international movements
 - 452 next generation movements per week
 - Average seat configuration of 383 seats – 33 percent higher than the overall international average
- Since 2010, legacy four engine aircraft (B747/ A340) numbers have reduced by 68 percent, from an average of 38 movements per day to under 15 movements per day
- In 2017, SYD was the 11th busiest airport in the world for next generation aircraft movements, and 9th in terms of seats

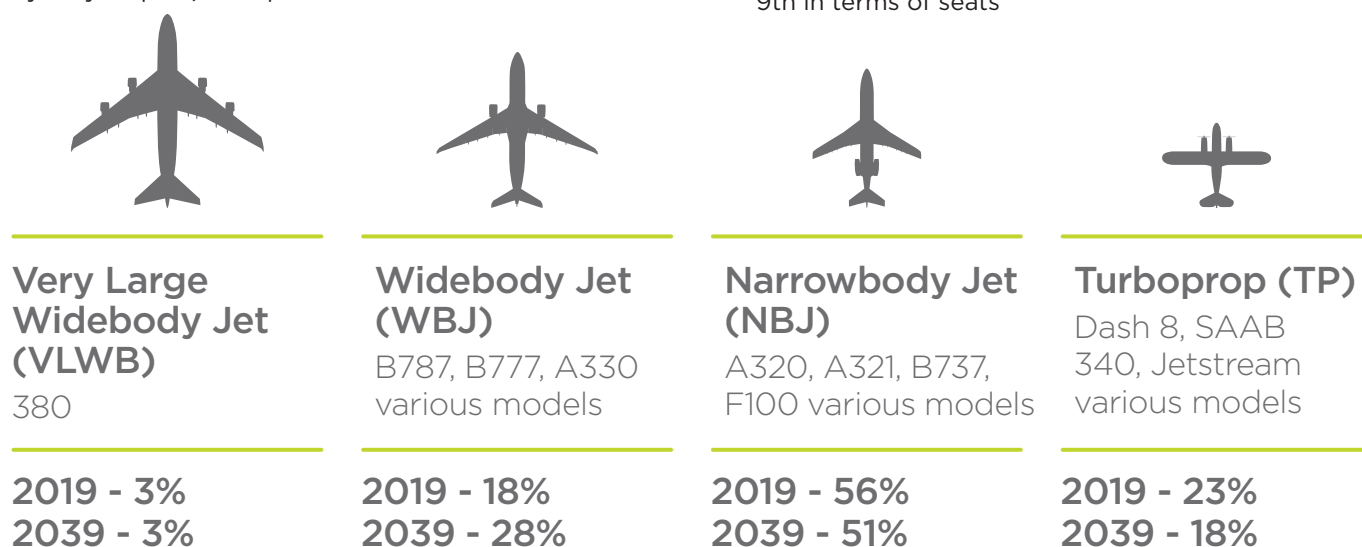


Figure 15-4: Sydney Airport fleet mix

15.6.2 Pillar 2 – Land Use Planning and Management

The second pillar of ICAO's Balanced Approach is 'Land Use Planning and Management'.

Land use planning and development controls near airports can help to minimise the impact of aircraft noise on people living in surrounding communities:

"The number of people affected by aircraft noise is dependent on the way in which the use of land surrounding an airport is planned and managed, and in particular the extent to which residential development and other noise-sensitive activities are controlled" (ICAO).

There are three key land use planning instruments:

Planning instruments control development in accordance with its compatibility with airport operations, and seek to minimise the extent to which the local community is exposed to aircraft noise. This is the basis of Australia's Aircraft Noise Exposure Forecast (ANEF) system, discussed in **Chapter 16.0 – Safeguarding Sydney Airport**

- **Mitigating instruments** are noise mitigation measures, ranging from mandated noise insulation by local planning authorities for new homes that fall inside designated noise contours, through to the acquisition of existing properties
- **Financial instruments** can involve a noise insulation fund to support property owners to mitigate noise impacts, or the application of broader noise-related airport charges to fund an insulation program or to incentivise aircraft operators to progressively renew their fleets with new generation, quieter aircraft.

Pillar 2 at Sydney Airport

Planning instruments

To reduce new development of sensitive uses in noise affected areas surrounding the airport, Sydney Airport publishes its updated ANEF (as part of this Master Plan) and works closely with the NSW Government and surrounding local councils in relation to land use planning controls.

Planning instruments are addressed in detail in **Chapter 16.0 – Safeguarding Sydney Airport**.

Mitigation instruments

Some local planning authorities require noise insulation to be included in new homes they approve that fall within designated noise contours.

Sydney Airport continues to work with Airservices Australia in relation to flight procedures to assist with mitigating aircraft noise.

Financial instruments

There are currently no financial instruments operating at Sydney Airport in relation to aircraft noise mitigation.

15.6.3 Pillar 3 – Noise Abatement Operational Procedures

Noise Abatement Operational Procedures' (NAPs) are the third pillar of ICAO's Balanced Approach. Operational measures tend to be specific to either aircraft take-off or landing but can result in cumulative improvements. They encompass a wide variety of techniques, but generally fall under one or more of four areas (see [Figure 15-5](#)).¹

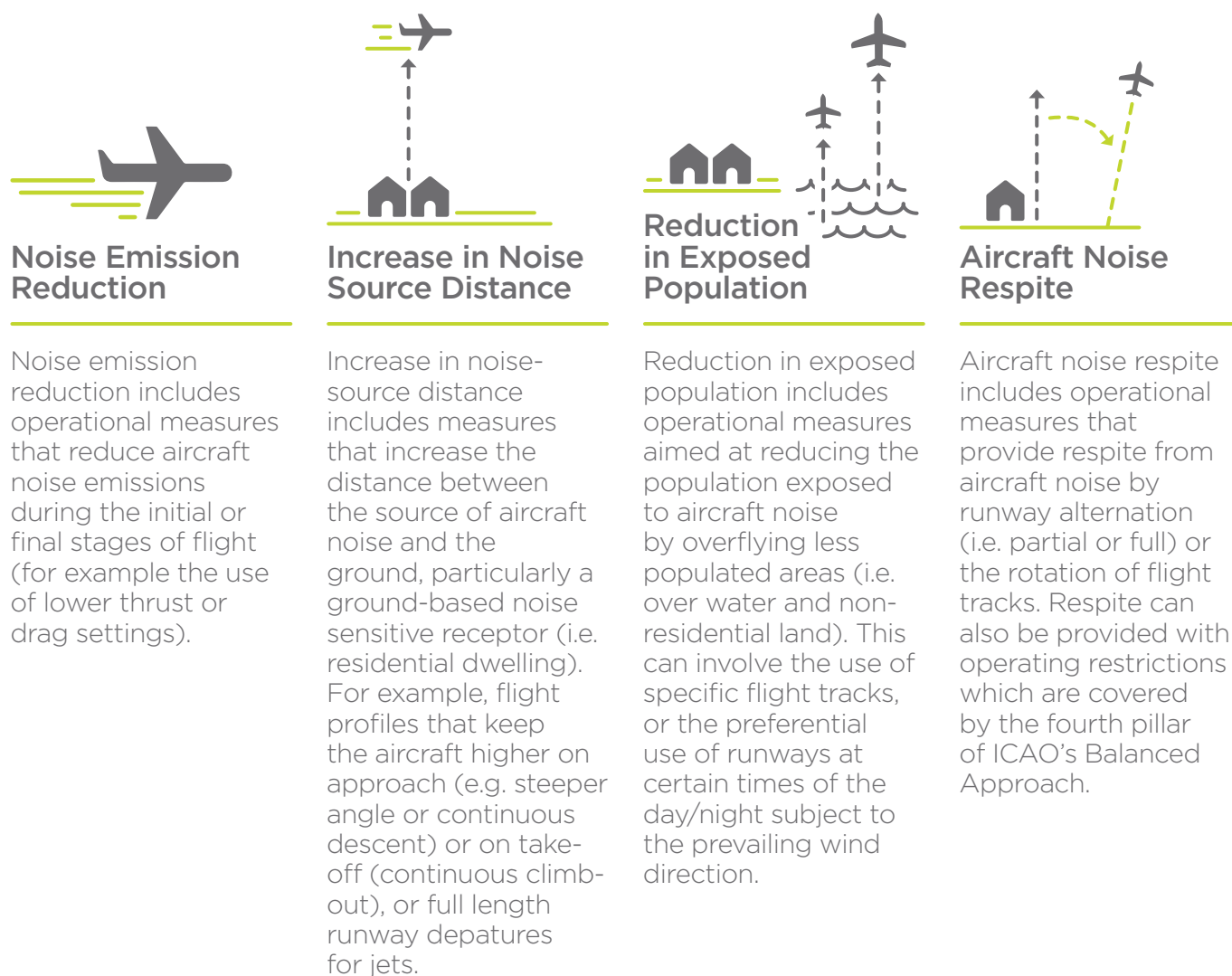


Figure 15-5: Noise abatement procedures

¹ CAA UK CAP 1165 | Managing Aviation Noise (2014)

Pillar 3 at Sydney Airport

Minimising the effect of noise on residents and providing respite from aircraft noise at Sydney Airport for those residents who are affected has been the Australian Government's objective since 1997 through its directive to Airservices Australia to implement LTOP for Sydney Airport.

Mitigation instruments include the use of preferential runways and routes, as well as noise abatement procedures (NAPs) to be used by pilots during take-off, approach and landing, to minimise noise during aircraft operations in the vicinity of an airport. Sydney Airport implements NAPs to minimise noise impacts in areas around Sydney Airport and / or under flight paths. Airservices Australia conducts reviews to check the effectiveness of NAPs.

As with previous master plans for Sydney Airport, Master Plan 2039 assumes that LTOP will remain in force during the planning period, and that Sydney Airport will continue to provide and maintain the necessary on-airport infrastructure to facilitate this. LTOP is a preferential runway regime based on the principle of noise sharing, with 10 defined Runway Modes of Operation (RMOs) as shown in [Figure 15-6](#) to [Figure 15-8](#) and [Appendix F](#). The various RMOs have different combinations of flight paths in the vicinity of the airport.

Where and when possible, the preference is to direct aircraft over water (i.e. Botany Bay to the south of the airport and the uninhabited Kurnell sand dunes) rather than residential areas.

The Australian Government and Airservices Australia have extensive information on the development, implementation, historic and current usage of the runway ends, flight paths and the various LTOP modes on their respective websites.

The noise sharing modes are Modes 5, 7 and 14a. Modes 12, 13 and SODPROPS are also considered to be noise sharing modes and the use of Mode 9 can also produce noise sharing outcomes. SODPROPS refers to 'simultaneous opposite direction parallel runway operations', with flights predominantly occurring over Botany Bay.

It is anticipated that the noise sharing RMOs can, subject to weather, continue to be used throughout the planning period. However, it is acknowledged that due to forecast increased traffic levels overall, there will be fewer opportunities for noise sharing than there are today.

The estimated times of the day during which noise sharing RMOs would be available in 2039 on the forecast representative busy day (subject to weather) are shown in [Figure 15.8](#). On days that are less busy than the representative busy day, it is expected that the times during which noise sharing RMOs can be used will be greater than shown there.

Airservices Australia provides ATC and air traffic management (ATM) services to aircraft at Sydney Airport, both for approach and departure paths and the en-route network. When selecting an RMO at Sydney, ATC must ensure that, subject to safety and weather conditions:

- Flight paths over water (i.e. Botany Bay) or non-residential areas are preferred where possible
- The rest of the air traffic is shared over surrounding communities
- Within safety and operational constraints, runway noise sharing RMO's change throughout the day to maximise respite from aircraft noise in individual areas

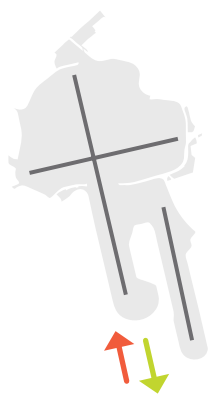
Sydney Airport, as a member of SACF and the LTOP Implementation and Monitoring Committee (IMC), continues to support the sharing of aircraft noise in areas around Sydney Airport within the LTOP's constraints of safety and operational efficiency.

Sydney Airport supports the periodic review of mode selection rules used by Airservices Australia air traffic control to ensure that any increases in the use of noise sharing modes made possible by advances in technology are achieved (subject to the overriding need to maintain safety).

Mode 1 - Curfew

D 16R
A 34L

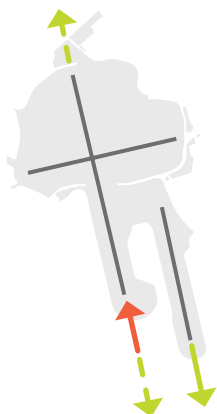
Departures to South
Arrivals from South



SODPROPS

D 16L, 16R(h)
A 34L

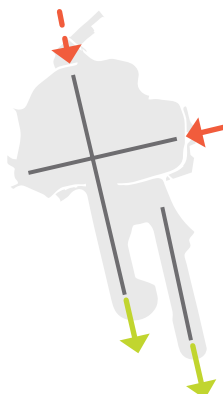
Departures to South
Arrivals from South



Mode 5

D 16L, 16R
A 25, 16R(h)

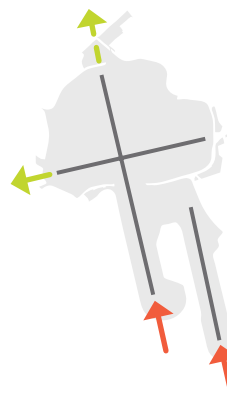
Departures to South
Arrivals from East



Mode 7

D 25, 34L(h)
A 34L, 34R

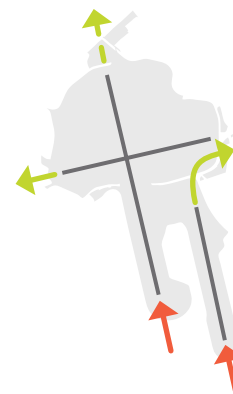
Departures to West
Arrivals from South



Mode 8

D 25, 34R, 34L(h)
A 34L, 34R

Departures to West,
East & North East
Arrivals from South



Mode 9

D 34L, 34R
A 34L, 34R

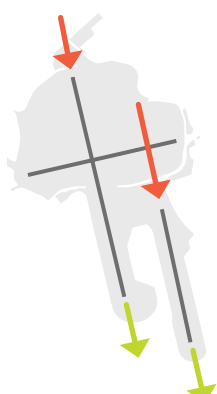
Departures to North & East
Arrivals from South



Mode 10

D 16L, 16R
A 16L, 16R

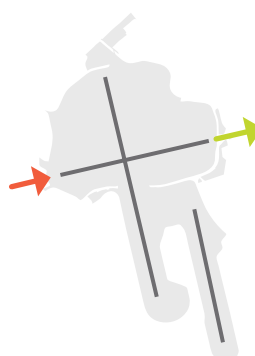
Departures to South
Arrivals from North



Mode 12

D 07
A 07

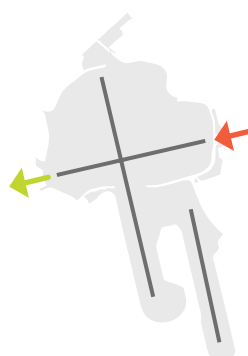
Departures to East
Arrivals from West



Mode 13

D 25
A 25

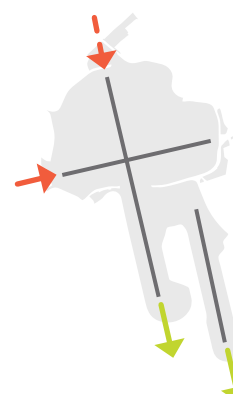
Departures to West
Arrivals from East



Mode 14a

D 16L, 16R
A 07, 16R(h)

Departures to South
Arrivals from West



Departure

Long Haul (h) Departure

Arrival

Long Haul (h) Arrival

Source: Sydney Airport Operational Statistics January 2018

Figure 15-6: Runway modes of operation

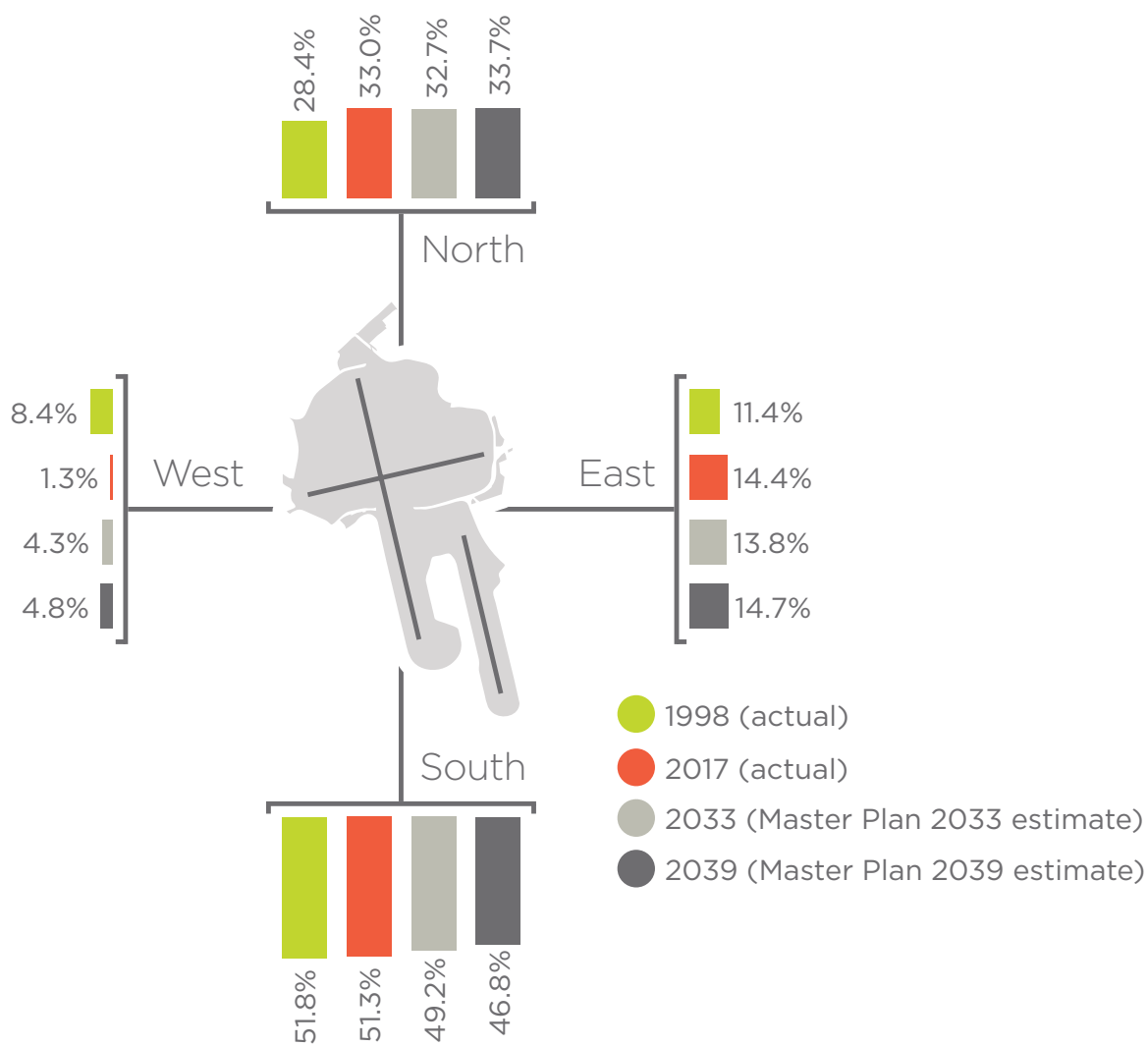


Figure 15-7: Runway end impacts since 1998

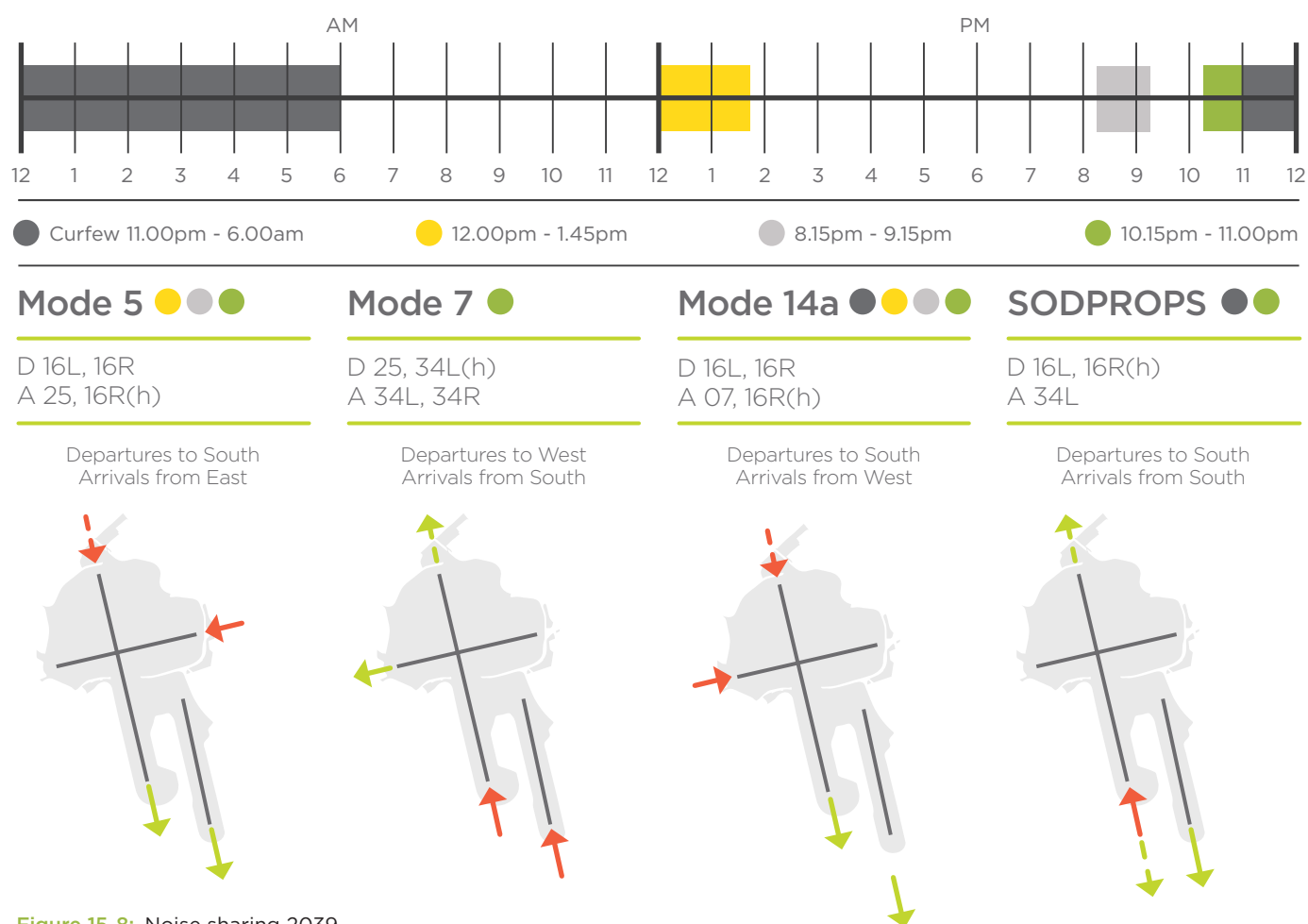


Figure 15-8: Noise sharing 2039

15.6.4 Pillar 4 – Operating Restrictions

‘Operating Restrictions’ are the fourth and last pillar of ICAO’s Balanced Approach, which can in turn be classified into four broad categories:

1. **Global restrictions** apply to all air traffic movements and generally relate to cumulative noise levels, whether based on a movement cap or a cumulative noise quota count system
2. **Aircraft-specific restrictions** apply to certain aircraft types based on international noise certification standards or related noise performance
3. **Partial restrictions** relate to operating restrictions that apply to a specific time of day (e.g. night curfew), predetermined days of the week, nominated flight phase operations (take-off or landing) or RMOs
4. **Progressive restrictions** relate to the implementation of noise mitigation measures such as a reduction in the number of air traffic movements (i.e. annual movement caps), conditional runway movement limits (i.e. attached to development approvals) or a reduction in the cumulative noise quota count.

Pillar 4 at Sydney Airport

Operating restrictions apply at Sydney Airport as shown in **Figure 15-9**, including:

- *Sydney Airport Curfew Act 1995*
 - 11pm to 6am curfew (restricts operations to specific types of aircraft or operations and specific runway assignment rules)
- *Sydney Airport Demand Management Act 1997*
 - Cap with maximum of 80 movements per hour
 - Protection of regional access to Sydney Airport (“regional ring fence”)
 - Long Term Operating Plan (LTOP), including Runway Modes of Operation and respite from aircraft noise

Sydney Airport Demand Management Act



Cap
80
movements
per hour

Sydney Airport Curfew Act



11pm to 6am
Curfew



Noise
certification
of aircraft



Long Term
Operating
Plan (LTOP)



Runway
modes of
operation

Figure 15-9: Operational restrictions at Sydney Airport

15.7 Aircraft Noise Mapping

Various metrics and graphics are used to describe and communicate current and future aircraft noise impacts, including:

- ANEF
- Flight path movements and respite charts
- Charts showing aircraft noise levels between 6am and 11pm (N70) and between 11pm and 6am (N60)

To compare forecast noise impacts with historical or present day noise impacts, Airservices Australia publishes historical and present day flight path movement, respite and N70 charts on its website. These are discussed in the following pages.

15.7.1 Australian Noise Exposure Forecast

The ANEF is a land use planning tool to guide zoning in the vicinity of the airport. The latest ANEF, and comparison with that in Master Plan 2033, are provided in **Chapter 16.0 – Safeguarding Sydney Airport** and **Appendix G**.

15.7.2 Flight paths

The flight paths used by aircraft arriving or departing from Sydney Airport are determined by Airservices Australia.

Master Plan 2039 assumes that the existing flight paths will remain unchanged throughout the planning period. **Map 23** and **Map 24** shows the flight paths used by jet and non-jet aircraft. The flight paths shown are those used by aircraft in the very early stages of flight (immediately after take-off) or very late stages of flight (immediately before landing).

Flight paths can vary in practice by up to several kilometres or more. This occurs for a range of reasons including weather conditions, requirements for aircraft separation or variations in aircraft performance.

15.7.3 Flight path movements and respite

Flight path movement charts have been used for around 20 years and are widely accepted as a simple tool for reporting Sydney Airport's noise exposure pattern. Airservices Australia publishes these charts in its monthly Sydney Operational Statistics reports.

Map 25 shows the projected average daily jet flight path movements for 2039, including:

- Where those aircraft usually fly
- How many flights are forecast (including the average daily movements and daily range)
- The percentage of Sydney Airport's overall movements these flights represent
- The percentage of days when there will be no aircraft movements on a path

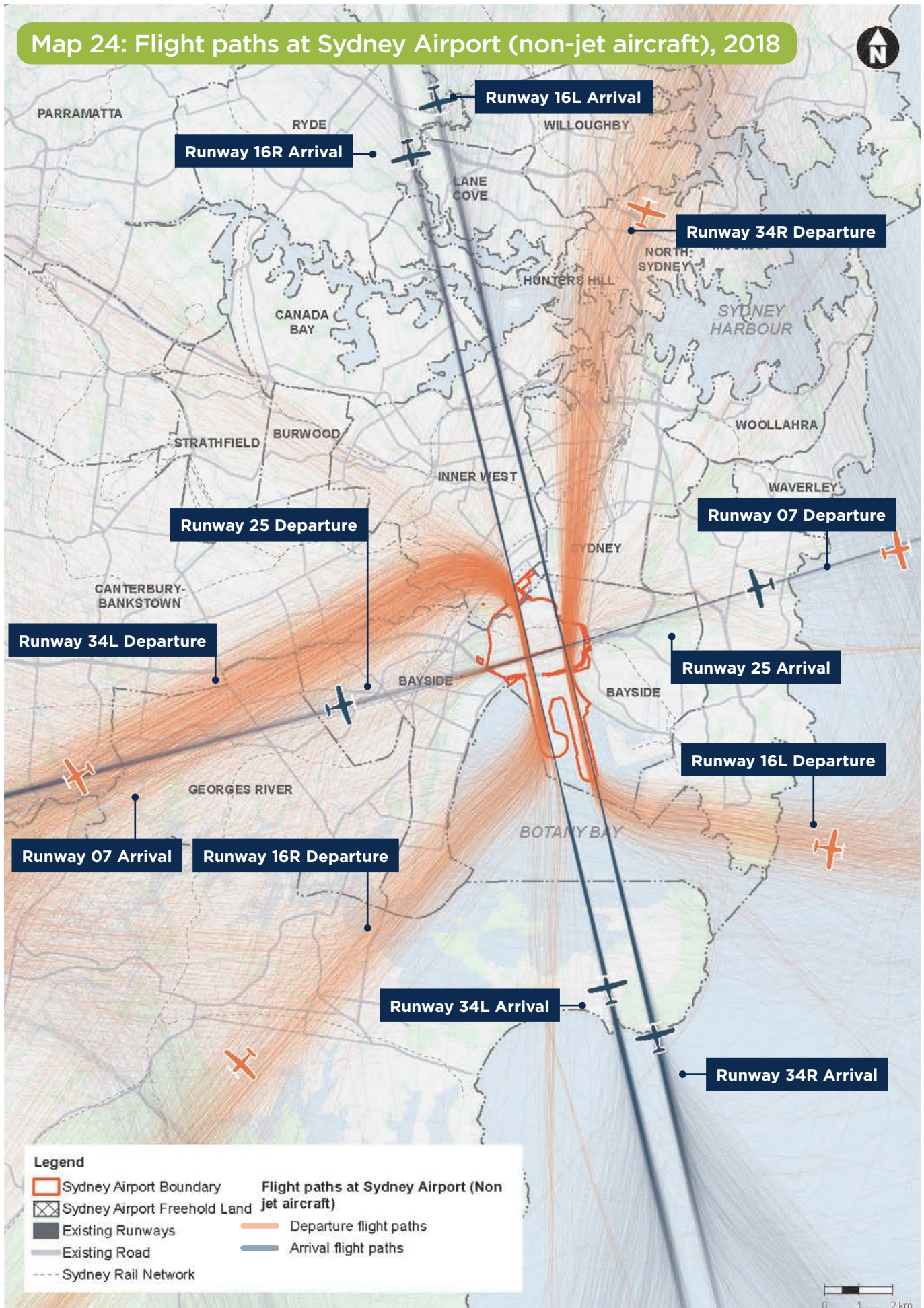
Map 26 shows the projected average daily jet aircraft respite periods in 2039, based on the number of whole clock hours (e.g. 9.00am to 10.00am) when there are no aircraft movements at all on a particular flight path, and reporting these as a percentage of the sum of all clock hours in the period in question. This figure shows respite during three discrete periods:

- Morning – 6.00am to 7.00am
- Daytime – 7.00am to 8.00pm
- Evening – 8.00pm to 11.00pm

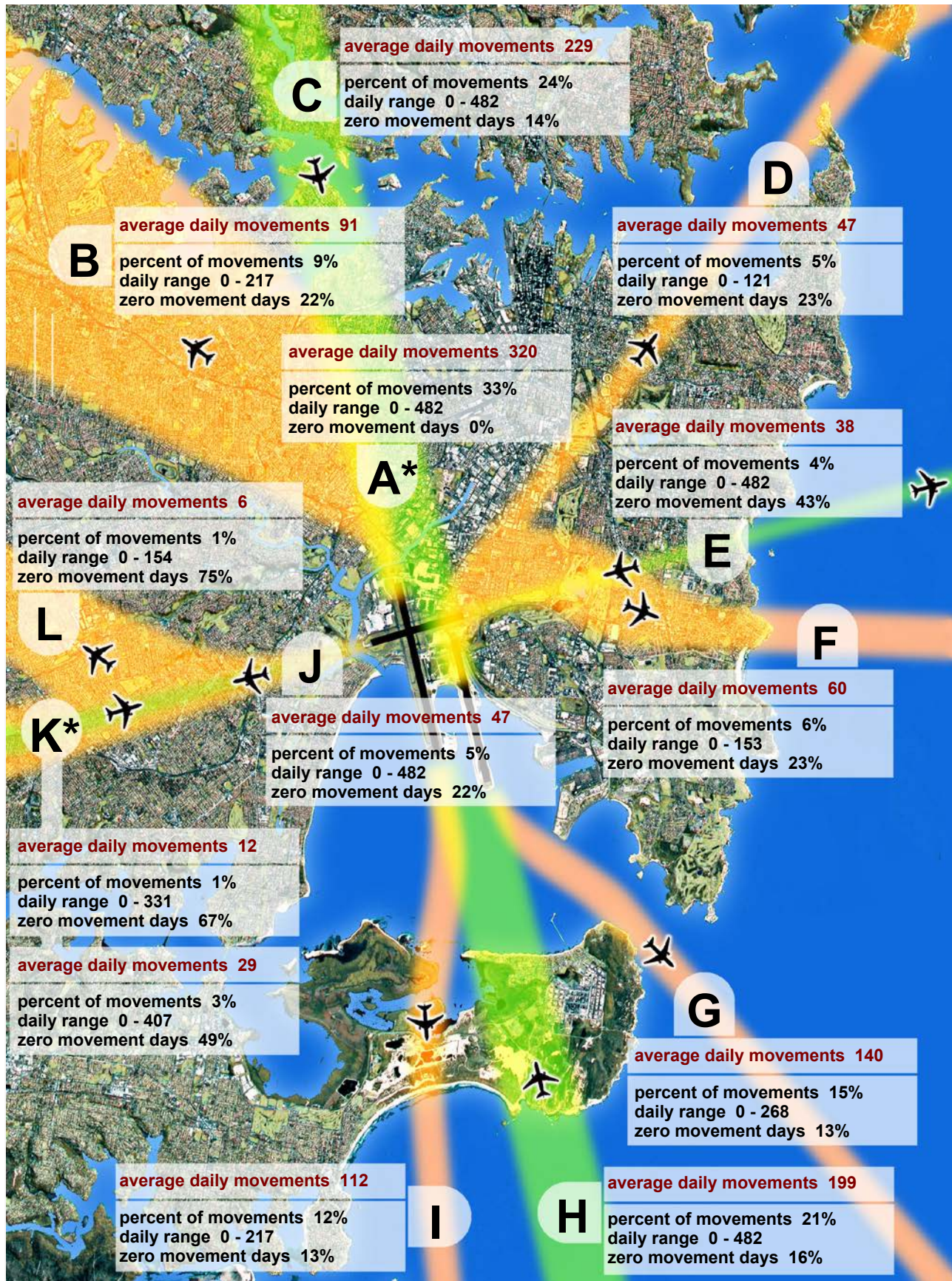
Map 23: Flight paths at Sydney Airport (jet aircraft), 2018



Map 24: Flight paths at Sydney Airport (non-jet aircraft), 2018

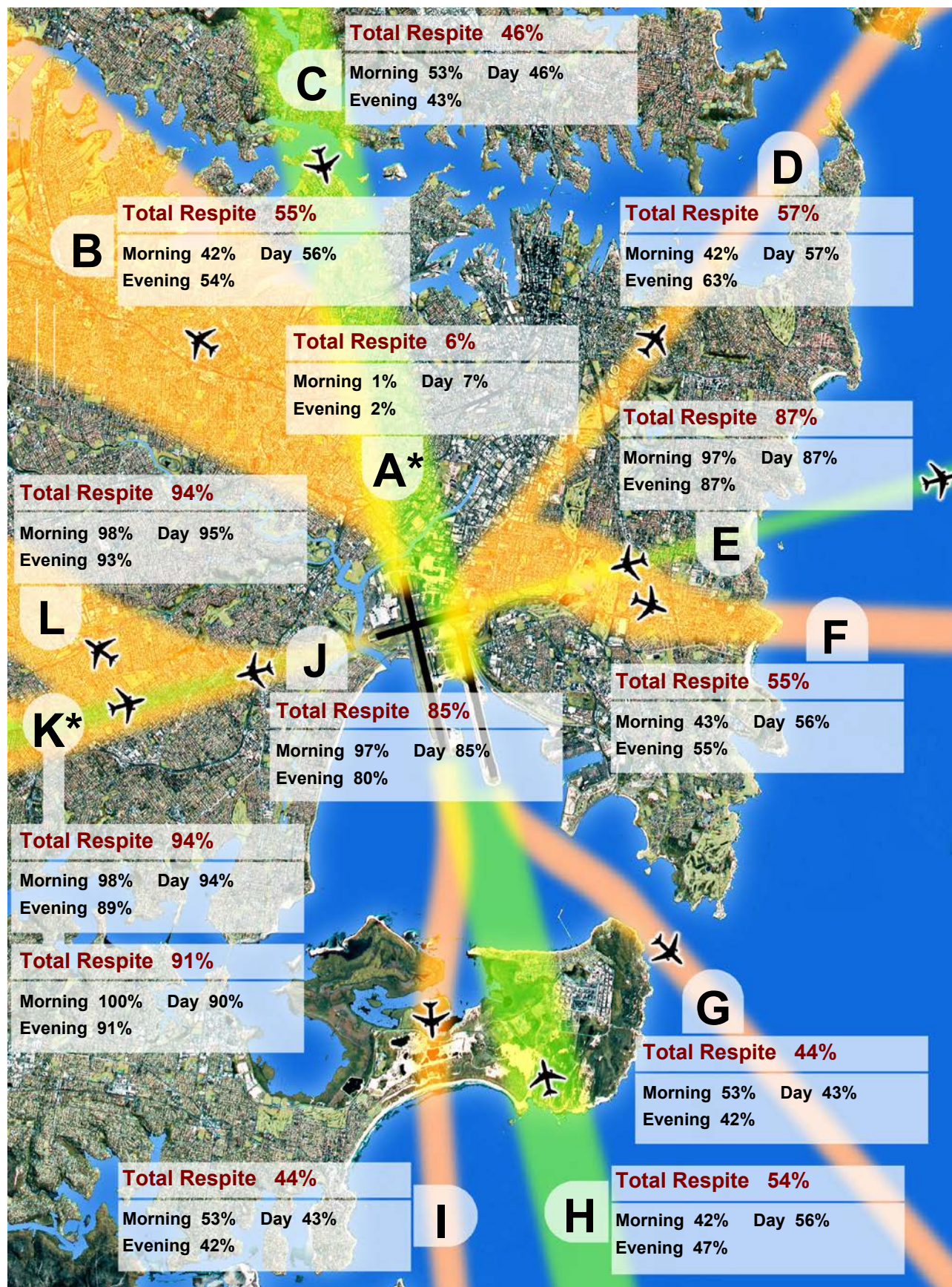


Map 25: Average daily jet aircraft movement periods 2039



Note : Track A* is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).

Map 26: Average daily jet aircraft respite periods 2039



Note : Track A* is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).
 A respite interval is a 60 minute period when there are no jet movements (R60).
 Morning: 06:00 to 07:00 Day: 07:00 to 20:00 Evening: 20:00 to 23:00 Total Respite: 06:00 to 23:00

15.7.4 Frequency-based aircraft noise charts

Knowing how many times a particular noise level will be exceeded in an area can be important. For this reason, frequency-based measures of aircraft noise are used. Typically, contour maps showing the number of events louder than 70 dB(A) are used. These are known as N70 contours.

The N70 level is chosen because it is equivalent to the single event level of 60 dB(A) specified in Australian Standard AS2021:2015 as the indoor design sound level for normal domestic areas in dwellings. An external single noise event will be attenuated by approximately 10 dB(A) by the fabric of a house with open windows. This is the sound pressure level of a noise event that is likely to interfere with conversation or with listening to radio or television.

Map 27 shows the forecast N70 chart for Sydney Airport in 2039 and, for comparison, the equivalent contours for 2033.

From the community's perspective, it is also important to know the number of noise events that are forecast to occur during sleeping hours. AS 2021:2015 identifies 50 dB(A) as the inside noise level above which aircraft noise can be considered to be intrusive during sleeping hours. This inside noise level would generally be experienced during a 60 dB(A) outside noise event. A contour map showing the number of events louder than 60 dB(A) – known as the N60 contour – is therefore an effective way of conveying this information to the community. Given its purpose, noise events shown are limited to those occurring between 11.00pm and 6.00am.

Map 28 shows the forecast N60 chart for Sydney Airport in 2026 (operations between 11.00pm and 6.00am only). As noted in section 16.4.2, the noise charts developed for this master plan, including the N60 (curfew hours) in **Map 28**, assumes that Western Sydney Airport opens in late 2026 and that as a consequence, there are changes to the curfew arrangements at Sydney Airport.

Operations allowed during the curfew period

The Australian Government's rules for the operation of the curfew are in the Commonwealth's *Sydney Airport Curfew Act 1995* and *Sydney Airport Curfew Regulations 1995*.

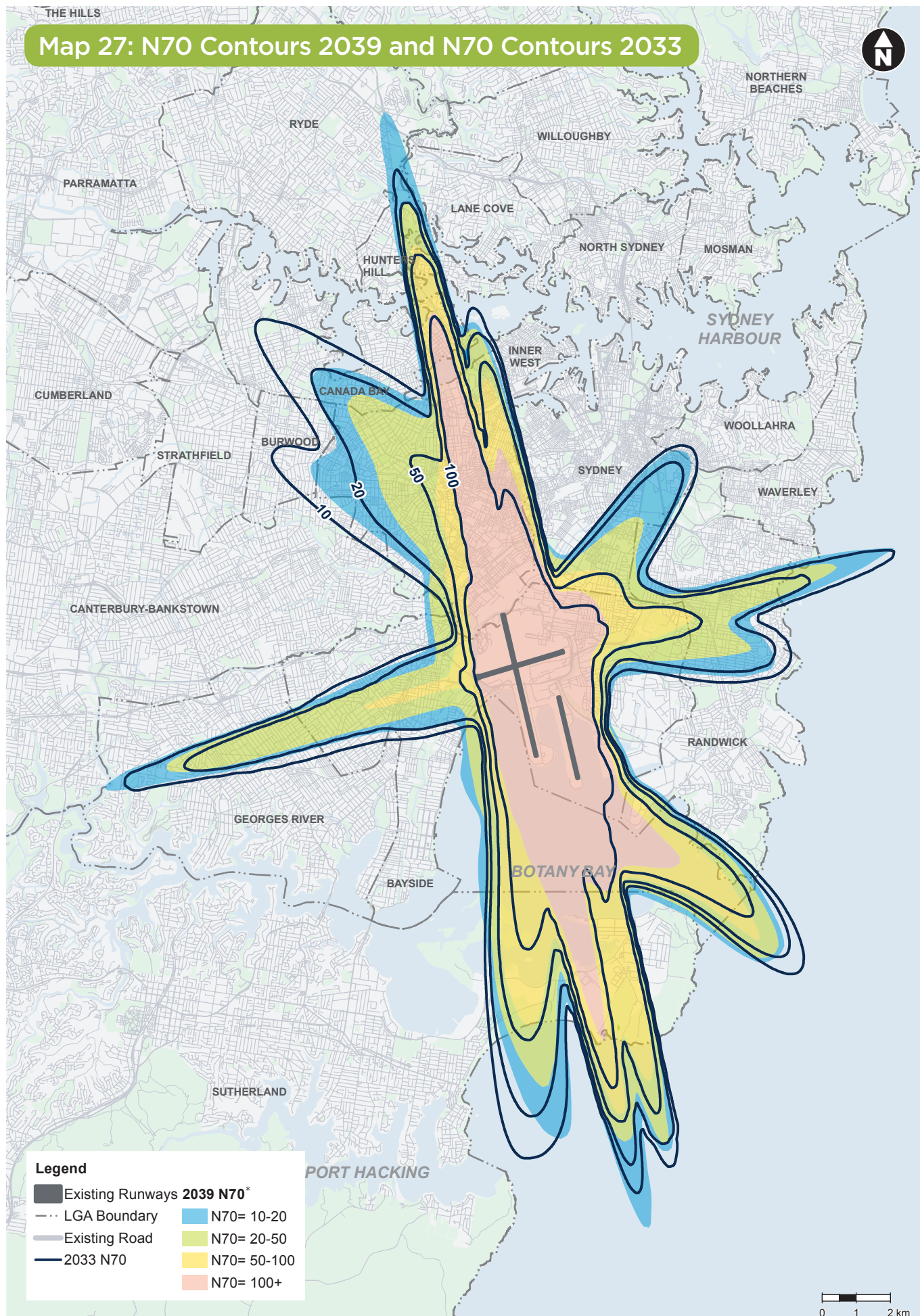
The curfew operates from 11pm until 6am. To mitigate noise impacts during this period, take-offs and landings at the airport are restricted to specific types of aircraft and operations. The principal categories of permitted operations are as follows:

- Small (less than 34,000kg) noise certificated propeller driven aircraft and low noise jets – mostly business and small freight jets (these are specified on a list which has been approved by the Minister) – are allowed to operate without a quota on the number of their movements
- Australian air Express, National Jet Systems and Toll Transport have specific approval to operate a limited number of freight movements per week in medium size freight aircraft

The Curfew Act and Regulations provide for international passenger aircraft movements between 11pm and midnight and between 5am and 6am (known as the curfew shoulder periods) subject to jet aircraft meeting the strictest ICAO noise standards (Chapter 3.0):

- While the Curfew Act would permit up to 35 aircraft movements per week (and no more than 7 on any one day), the Curfew Regulations prescribe lower limits, being no more than 24 movements per week (and no more than 5 on any one day) between 5am and 6am, which may only be landings
- While the Curfew Act would permit up to 14 aircraft movements per week (and no more than 4 on any one day), the Curfew Regulations prescribe zero movements between 11pm and midnight

Map 27: N70 Contours 2039 and N70 Contours 2033



*Noise events - movements per day

Map 28: N60 Contours 2026 (curfew hours only)



*Noise events - movements per night

15.8 Ground-Based Noise

During the curfew, aircraft must operate over Botany Bay, that is take-offs to the south and landings to the north:

- On Saturdays and Sundays aircraft must also operate over Botany Bay in the hour before and after the curfew, provided the weather and traffic conditions allow this to take place safely
- Aircraft are not permitted to take off over suburbs to the north of the airport after 10.45pm

The curfew restrictions do not apply in cases of emergency.

In exceptional circumstances, the minister may grant dispensations for aircraft to operate when they would not otherwise be allowed to do so. These must be issued in accordance with guidelines which define what exceptional circumstances are. When a dispensation is granted, a report giving the reasons for the dispensation must be tabled in both houses of the Australian Parliament. The Curfew Act provides for fines up to \$550,000 for a body corporate whose aircraft breaches the curfew.

Noise from ground-based activities at Sydney Airport is managed separately from noise generated by in-flight operations. Ground-based noise is addressed in [Chapter 14.0 – Environment](#) and in the [Environment Strategy 2019-2024](#).



Image 15-2: Surveying ground-based noise at Sydney Airport



16.0 Safeguarding Sydney Airport



16.1 Overview

Safeguarding operations at Sydney Airport and addressing internal safety and security is critical for the Airport's ongoing operations and growth.

All airport developments are subject to an internal safety and security review to ensure compliance with legislative obligations.

Inappropriate development, obstacles and certain land uses in areas surrounding an airport can severely restrict the operations and growth of that airport. While Sydney Airport can control development and activities on the airport, off-airport development involves external agencies and authorities, and needs to be managed co-operatively.

The ANEF contained within this chapter is a land use planning tool to manage noise sensitive land uses around the airport. It provides guidance for the NSW Government and local councils to make informed planning and development decisions.

16.2 Key Points

- We proactively manage safety, security and protection of the on-going operations of the Airport
- All development at Sydney Airport is subject to an internal safety and security review to ensure compliance with legislative obligations
- Expenditure on enhanced infrastructure and technology is vital to Sydney Airport's role of providing a safe and secure transport hub
- The capacity of Sydney Airport to operate and respond to the growth in aviation operations is impacted by what occurs on the land surrounding it. Safeguarding Sydney Airport is an ongoing and shared responsibility between all levels of government and the airport
- The NASF, which applies to Sydney Airport and the surrounding area, provides a national land use planning framework to:
 - Minimise aircraft noise-sensitive developments near Sydney Airport and communicate noise metrics
 - Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions



Image 16-1: The A350-1000 at Sydney Airport on the Airbus world demonstration tour

16.3 Airport Security

16.3.1 Introduction

Sydney Airport proactively manages safety and security. Significant investment has been made to enhance infrastructure, design and technology to support safety and security in our operational environment.

A well-established safety and security framework is in place. This involves collaboration between Sydney Airport, the AFP, government agencies, airlines and tenants of the airport.

In addition, comprehensive governance mechanisms ensure that safety and security policies and procedures are followed at all times.

Without compromising safety and security or compliance with the legislation, Sydney Airport seeks to minimise the inconvenience to passengers and other users of the Airport.

16.3.2 Infrastructure and technology

Like other publicly accessible facilities around the world, the nature and type of security threats facing Sydney Airport continues to evolve. This necessitates the ongoing protection of passengers, equipment and infrastructure, all of which increasingly require higher levels of:

- Integration and automation in access control
- Intrusion and perimeter detection
- Screening equipment

We continue to work closely with the Department of Home Affairs to introduce improved screening technologies, such as the introduction of remote screening and video analytics, in response to the evolving threat environment.

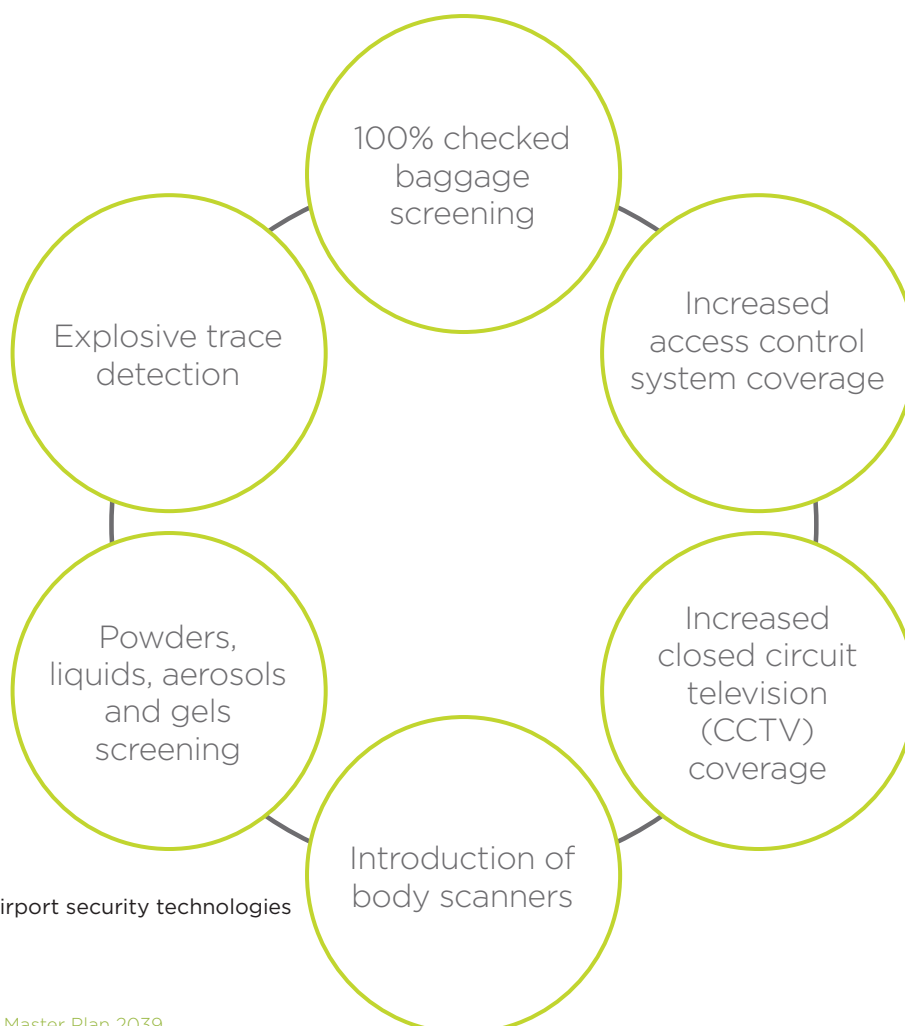


Figure 16-1: Sydney Airport security technologies

We are moving towards integration and automation of our security technologies to improve efficiencies, lower personnel cost and improve the passenger experience.

Ongoing expenditure on enhanced infrastructure and technology is vital to Sydney Airport's role in providing a safe and secure transport hub.

Over recent years, our security regime has been enhanced by several new or upgraded security technologies, as shown in [Figure 16-1](#).

Recent legislative changes, including the new *Aviation Transport Security Amendment (Airside Security) Regulations 2017* and changes associated with Security Restricted Areas (SRA), to be introduced in 2019, require aviation industry participants to:

- Ensure that a person or vehicle can only enter the SRA if the person and their vehicle are authorised to do so
- Implement random and unpredictable screening of people, vehicles and accompanying goods entering the SRA in accordance with an Aviation Screening Notice
- Introduce security awareness training about the new measures for airport and airline workers who regularly work within an SRA

A summary of the key changes and how we will meet these new requirements is shown in [Table 16-1](#).

Table 16-1: New airside security regulation changes

Regulation requirement	Description	Our approach to meet requirement
Access Control	Requirement to conduct access checks for persons and vehicles entering the SRA	Conducting physical face to ASIC checks
Screening Measures	Requirement to conduct random and unpredictable screening of non-exempt persons, vehicles and goods transiting into the SRA	Introducing new screening technology at pedestrian and vehicle entry points into the SRA
Training	Requirement to conduct security awareness training on the new regulations for all airport and airline workers, contractors and others who work regularly in the SRA	Updating and use of the Sydney Airport Security Awareness Guide and completion of a Security Awareness Test (prior to issue of an ASIC card)

16.3.3 Framework to manage safety and security

We are committed to maintaining a safe, secure and reliable airport operating environment through robust management frameworks, involving the preparation of:

- Safety management systems (SMS)
- Road traffic management plans
- Security management systems

We continue to review and implement our SMS. The SMS outlines the processes for effectively managing safety and is audited annually by CASA.

To manage the flow of traffic around airport operations and airport infrastructure, the Sydney Airport Traffic Management Plan has been prepared. The plan covers the interaction between vehicles and the immediate environment and the processes undertaken to eliminate and/or reduce risks.

The security management system at Sydney Airport is described in the Transport Security Program. The program sets out in broad terms Sydney Airport's security risk context, mitigation measures, and emergency and contingency plans.

Security management is carried out in accordance with the regulatory obligations specified in the *Aviation Transport Security Act 2004* and the *Aviation Transport Security Regulations 2005*.

We undertake security risk assessments at regular intervals based on the threat level established by the Australian Government. How we achieve certain security outcomes is shaped by legislative requirements, the local security risk context and our operational environment.

The Australian Government continues to highlight that preventative security planning in the current threat environment is the most practical mitigation strategy. Sydney Airport security plans and prevention strategies are consistent with this approach.

16.3.4 Safety and security culture

We are focused on fostering a strong safety and security culture among airport staff as individuals play a critical role in delivering security outcomes. Airport employees are well placed to identify and report suspicious, unusual or changed behaviours by members of the public or fellow staff.

We invest in regular staff security awareness campaigns as well as simulated scenarios, which allow procedures to be practised and lessons to be learned and built upon.

16.3.5 Governance mechanisms

We have implemented a centralised and integrated quality management system (Q-Pulse) to support the safety and security framework at Sydney Airport.

CASA, as regulator, conducts an annual safety audit of Sydney Airport to assess compliance with approved operational procedures and to ensure airport facilities meet the requirements under the CASA Manual of Standards. Annual aerodrome technical inspections are also undertaken which complement the CASA audit.

Sydney Airport engages a government licensed and professionally qualified security service provider. Along with passenger and checked baggage screening, the main security functions that are undertaken at Sydney Airport are illustrated in **Figure 16-1**.

Sydney Airport has an internal audit program to ensure contractors engaged by the Airport are also complying with the CASA Manual of Standards and WHS legislation.

The Department of Home Affairs conducts at least two audits of Sydney Airport each year to ensure compliance with government-mandated airport security requirements. Sydney Airport is also audited by both international and domestic airlines as well as other international government and regulatory agencies.

We actively seek to minimise any time or activity-based impacts on passengers and staff caused by security measures, without compromising safety and security or compliance with the legislation.

‘Security with service’ is viewed as critical to the end-to-end passenger experience at Sydney Airport.

We have implemented a collaborative approach with Sydney Airport’s security service provider to deliver ‘professional security with service and integrity’. This has resulted in improvements to the delivery of contracted security services at Sydney Airport and is positively changing the way people see and experience aviation security.

16.3.6 Security by design

‘Security by design’ considerations have been incorporated into the Airport Development Plan (see [Chapter 7.0](#)). Incorporating measures during detailed design such as structural design, blast mitigation, roadway design, vehicle access control and crowd management has benefits in terms of their effectiveness and of minimising costs and can better take account of the needs of passengers.

The Airport Development Plan maintains a focus on front of house areas, which are most densely populated with passengers and vehicles. In this context, increased separation distances are a priority for future works at Sydney Airport.

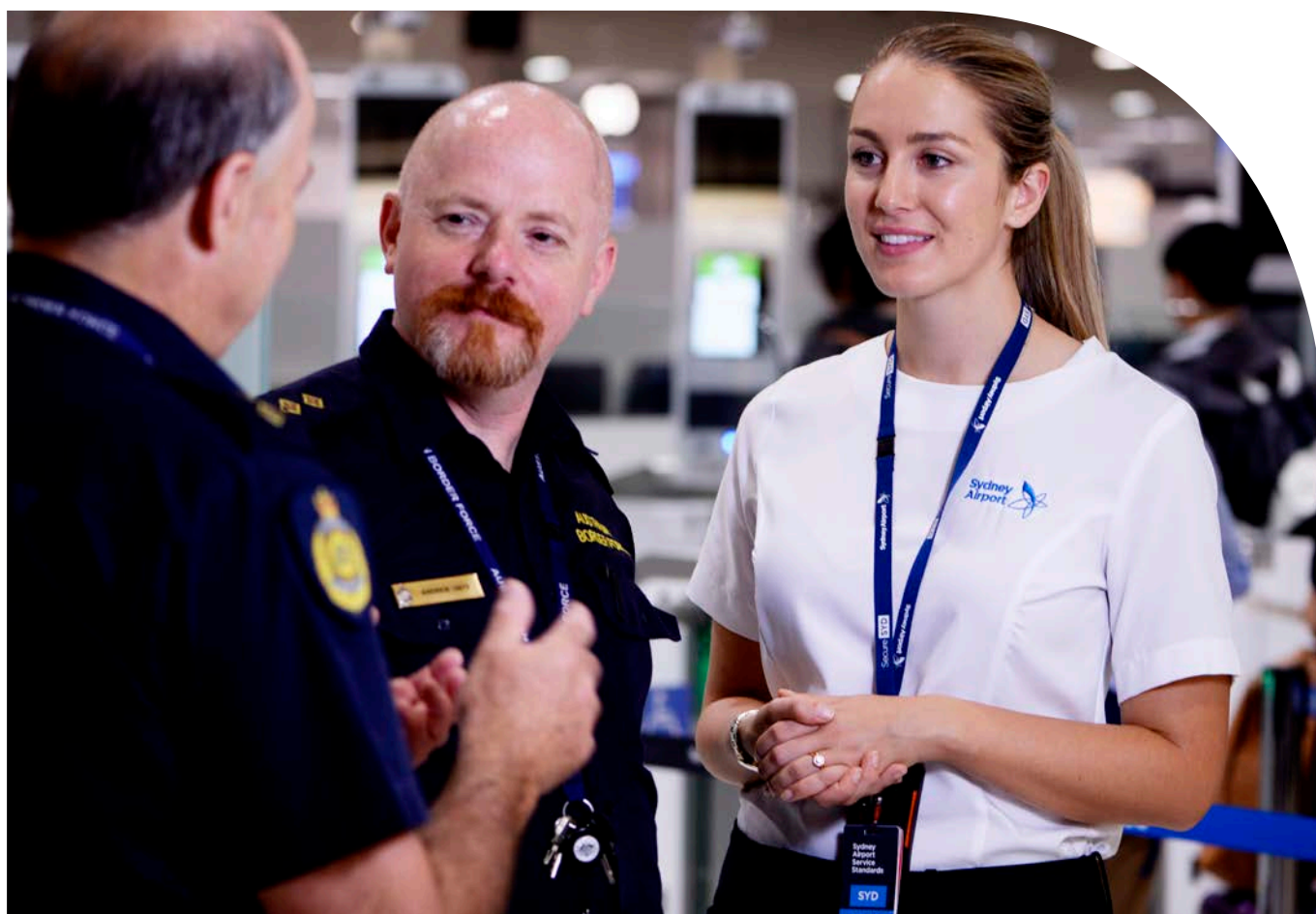


Image 16-2: Our airport terminal services team working with Australian Border Force

16.4 Airport Safeguarding

16.4.1 Introduction

The capacity of an airport to operate and its ability to respond to growing demand for aviation services can be directly impacted by what occurs on the land surrounding it. For example, the construction of buildings or other structures that physically intrude into the airspace around existing flight paths can clearly limit or prevent use of a particular runway at the airport.

Impacts on the airport can also occur as a result of other off-airport development activities that are less obvious. These include:

- Residential developments in inappropriate areas adjacent to airports or under flight paths, which are likely to result in future complaints about aircraft noise and calls to further restrict airport operations (e.g. through curfews or other noise management strategies)
- Large structures/buildings and industrial activities, chimneys and ventilation outlets that generate wind turbulence or wind shear, smoke or intrusions, which may constitute a hazard to aircraft in flight or further constrain airport operations
- Land uses or activities that may attract wildlife (e.g. birds, bats or flying foxes) which may constitute a hazard to aircraft in flight

The long term and effective safeguarding of Sydney Airport is critical to maintaining existing and future aviation operations and the social and economic benefits the Airport contributes to the wider community.

While Sydney Airport can control development and activities on the airport, off-airport development involves external agencies and authorities, and needs to be managed cooperatively.

Sydney Airport has been actively working with the NSW Government and local councils to ensure planning decisions made in areas outside the boundary of Sydney Airport have regard to and, where applicable, comply with the existing National Airport Safeguarding Framework (NASF) Guidelines.

16.4.2 National Airport Safeguarding Framework

NASF is a national land use planning framework which aims to:

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

It applies to all airports in Australia and affects planning and development around airports, including development activity that might penetrate operational airspace and/or affect navigational procedures for aircraft.

It is the responsibility of the NSW Government to implement NASF into its planning system. The NSW Government's *Greater Sydney Region Plan 2018* supports the implementation of NASF, stating:

"Manage the interfaces of industrial areas, trade gateways and intermodal facilities by... recognising and giving effect to the National Airports Safeguarding Framework, incorporating noise, turbulence and wildlife safety measures."

The Greater Sydney Commission has indicated in the *Greater Sydney Region Plan 2018* that a state-wide approach to implementing NASF is being developed by the NSW Department of Planning and Environment. Appropriately integrating NASF guidelines with relevant state and local planning instruments is expected to occur as part of this process.

All local councils are required to review their Local Environmental Plans as soon as practicable to give effect to the relevant *Greater Sydney Region Plan 2018*.

As the growth in aviation activity outlined in Master Plan 2039 occurs throughout the planning period, a sufficient supply of appropriately zoned land near the airport must be maintained (and where necessary created) to allow airport and aviation support-related land uses to be developed on land near the airport.

This is particularly important for freight-related activities at the airport, including freight centres, the need for cold storage facilities, logistics centres and warehousing, along with appropriate vehicle storage/processing and road access. Not all of these uses can be accommodated on the airport site itself.

The GSC has recognised the importance of ensuring industrially-zoned employment lands are protected in areas around Greater Sydney’s two nationally significant trade gateways, being Sydney Airport and Port Botany.

NASF is comprised of eight guidelines (refer to **Figure 16-2**). An additional guideline relating to Public Safety Zones (PSZs) is proposed to be finalised in the near future.

Copies of the full set of current guidelines can be found on the DIRDC website:

www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/



Figure 16-2: NASF Guidelines

Guideline A – Aircraft Noise

The Airports Act requires Master Plan 2039 to specify the following noise-related matters:

- An ANEF for the areas surrounding Sydney Airport
- Flight paths at Sydney Airport
- Sydney 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)

This section addresses these compliance issues. Other measures to ensure the community is fully informed about noise management issues are described in **Chapter 15.0 – Aircraft Noise**. These include Sydney Airport's role in facilitating the use of quieter next generation aircraft, active participation in Sydney Airport Community Forum and our commitment to community engagement. Sydney Airport also supports ICAO's balance approach for noise reduction at the source, land use planning and development controls, noise abatement operating procedures and operating restrictions.

The most effective way to manage aircraft noise intrusion in areas forecast to be exposed to high levels of aircraft noise is to implement effective and appropriate land use and planning controls and acoustic standards for such areas.

The ANEF, which was developed as a land use planning tool to manage noise sensitive land uses around the airport, provides guidance for the NSW Government and local councils to make informed planning and development decisions. Preparation of the ANEF requires consultation with planning authorities within the NSW Government and local government authorities in areas around the airport. The system underpins the Australian Standard AS2021:2015.

A balanced and transparent method is needed to ensure inappropriate development around airports does not impose unnecessary constraints on airport operations and create negative impacts on community amenity.

The updated Sydney Airport ANEF 2039, endorsed for technical accuracy by Airservices Australia, considers:

- Aircraft movement forecasts to 2039 including fleet mix and origins/destinations
- Airfield layout, RMOs, associated arrival and departure flight paths and ATC allocations to runways and flights paths for each RMO/route
- Terrain elevation
- Meteorology as affecting runway direction, aircraft performance and atmospheric noise dispersion
- Opportunities to use noise sharing modes based on runway demand/capacity and meteorology

The Sydney Airport ANEF 2039 will assist the NSW Government and surrounding local government planning agencies in land use zoning and consideration of development proposals to minimise impacts from aircraft operations at the airport.

Over the 20-year planning horizon for this Master Plan, the Australian Government is planning to have Western Sydney Airport (WSA) commissioned by 2026. Up until that time Sydney Airport (KSA) will continue to be the only airport in the Sydney Basin handling International, Domestic and Regional traffic. Forecasting scenarios prepared for Sydney Airport account for an additional airport in the Sydney Basin beyond 2026 and were translated into the future design day schedules on which the noise contours are based.

To handle the potential changes in air traffic movements into Sydney Airport pre- and post-commissioning of WSA, a composite ANEF was prepared. It is a combination of noise contours from future operational scenarios (referred to as Australian Noise Exposure Concepts or ANECs). Composite ANEFs are common, having been prepared for other airports such as Melbourne, Brisbane and Perth to account for future anticipated changes to their operating scenarios.

A Sydney Airport Composite 2039 ANEF was prepared based on two ANECs:

- 2026 design day
- 2039 design day

The endorsed ANEF 2039 is shown in **Map 29** and **Appendix G**.

Map 30 compares the updated ANEF 2039 with the ANEF 2033.

As is always the case when a new ANEF is prepared, the contours will be different to those in the previous ANEF. This is the case for the ANEF 2039 and ANEF 2033 as it was for the ANEF 2033 and ANEF 2029 before it.

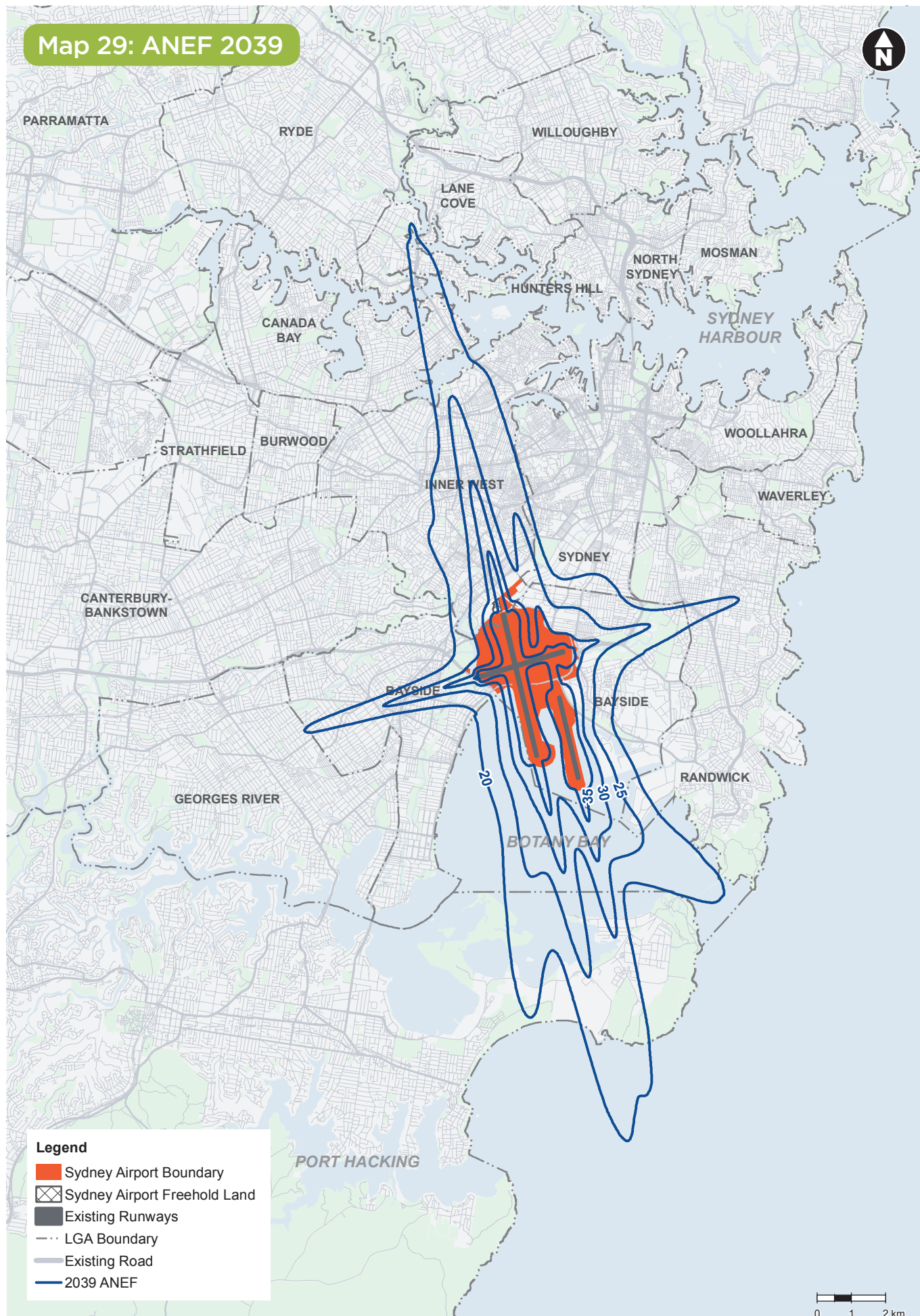
In some areas, the contours move further away from the airport (thus increasing the area affected by the ANEF) and in other areas the contours move closer to the airport (thus reducing the area affected by the ANEF). This is apparent for some sections of the ANEF 20 and 25 contours shown in ANEF 2039.

The reasons why some contours in ANEF 2039 are, in some areas, different to those in the previous ANEF 2033 can be summarised as follows:

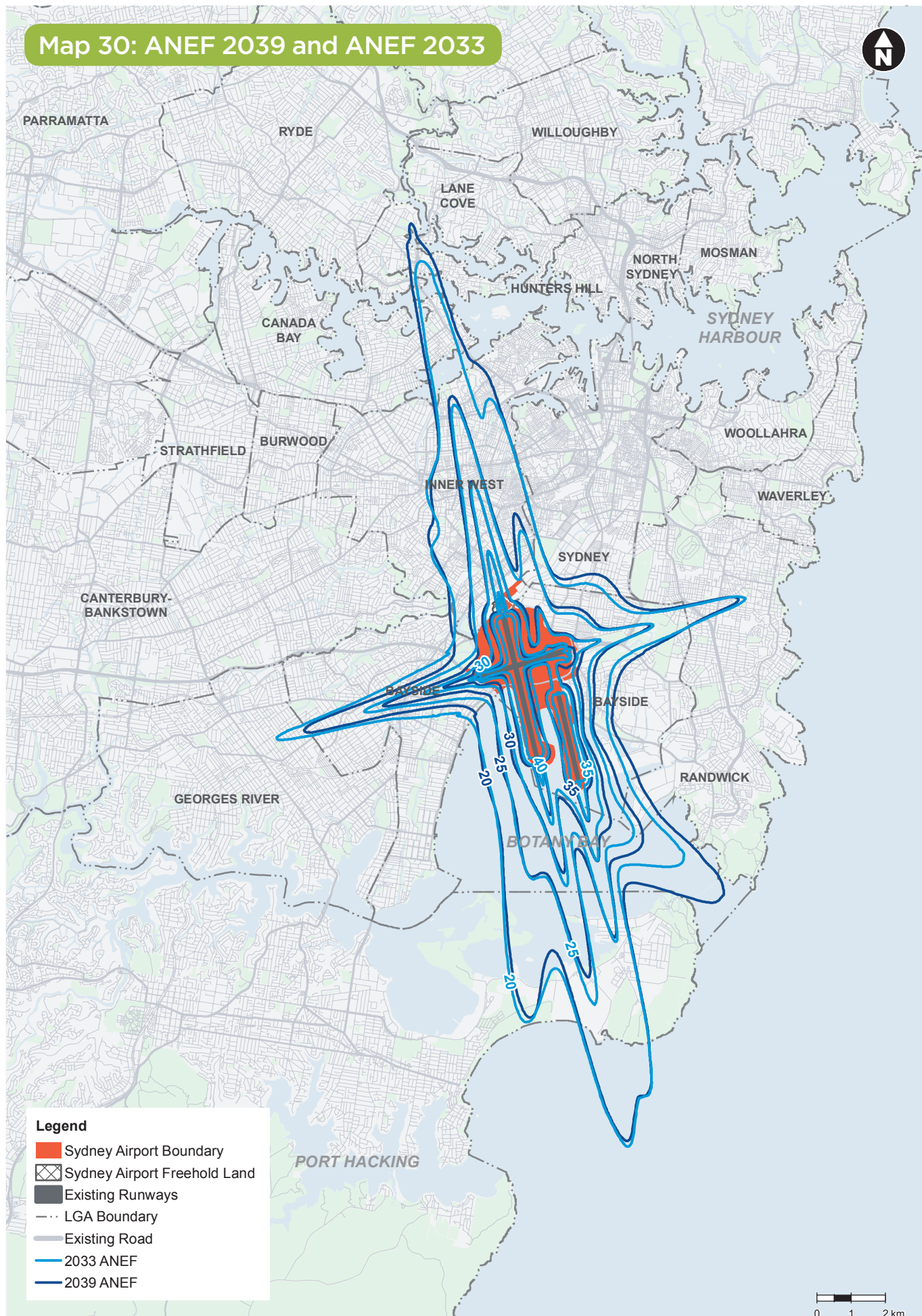
- Forecast increased aviation activity over the planning period, which will see flights increase to just over 408,000 per annum
- International passengers are expected to be the main driver of growth, increasing as a proportion of overall passengers (and therefore international flights) over the period to 2039. Aircraft flying to or from international destinations tend to be larger than those flying to or from domestic or regional destinations
- To ensure balanced operations between the airport's two north-south runways, it has been assumed that some of this growth in international flights will be accommodated on Sydney Airport's parallel north-south runway, noting that such international flights operate from that runway now
- The new ANEF 2039 assumes Western Sydney Airport opens in late 2026 and the aviation activity forecasts that underpin the ANEF reflect that
- Updated meteorological data

There are currently 38,157 residential dwellings and 229 public buildings within the ANEF 20 contour. Of those, 1,132 residential dwellings and five public buildings are currently located within the ANEF 30 contour. There has been a net increase of 593 residential dwellings and a net reduction of three public buildings within the ANEF 20 contour, compared to the previous ANEF 2033.

Map 29: ANEF 2039



Map 30: ANEF 2039 and ANEF 2033



Comparison with Master Plan 2033

With each new master plan the ANEF is updated. This master plan's ANEF reflects the latest information available including technological changes to aircraft, meteorological data and revised passenger and freight air traffic forecasts for the 20 year planning period. As a result of this new information the ANEF contours change.

Map 30 shows that:

- In some areas to the north, north-east and south-east of the airport, the noise contours move further away from the airport
- In some areas to the east, south and west of the airport, the contours move closer to the airport

The above changes are a result of a number of factors, including the:

- Number of aircraft flying to or from Sydney Airport is forecast to increase from 348,500 in 2017 to 408,260 in 2039
- Proportion of international flights, which typically use larger aircraft and require use of the main runway, is forecast to grow from 21 percent in 2017 to 28 percent in 2039
- Updated ANEF reflects the more balanced use of Sydney Airport's two parallel north-south runways

Guideline B – Windshear and Turbulence

Windshear and turbulence from buildings and objects situated close to airport runways have the potential to impact aviation operations.

Sydney Airport's development approval process requires consideration of NASF Guideline B, building-generated windshear and turbulence issues when considering all on-airport development.

NASF Guideline B presents a layered risk approach to the siting and design of buildings near airport runways.

The Airport's windshear assessment envelopes, based on Guideline B, are shown in Map 31.

Air turbulence relating to emission stacks or events that will affect the normal flight of aircraft operating in prescribed airspace is defined as a 'controlled activity' under the Airports Act. However, there are currently no specific off-airport planning controls requiring consideration of building generated windshear and turbulence for off-airport developments. Presently, such assessments are undertaken on a case-by-case basis with input from the Commonwealth Government, including agencies such as CASA, Airservices Australia and DIRDC.

Guideline C – Wildlife Strikes

Sydney Airport monitors and controls the presence of birds and other wildlife on or in the vicinity of the airport in accordance with CASA regulations. Sydney Airport's Wildlife Management Plan describes the practices and procedures for managing wildlife hazards caused by the presence of birds or animals on or near the airport.

The plan has been developed based on knowledge of local wildlife populations and the hazards various species pose to aircraft. Sydney Airport's Wildlife Management Plan has been developed in conjunction with the surrounding local councils. Sydney Airport works with local councils to determine the most appropriate strategies to manage bird hazards, including development of planting guidelines to reduce attraction of birds.

While there are currently no specific off-airport planning controls relating to Guideline C, when Sydney Airport is notified of off-airport permit applications, it assesses them for wildlife strike implications and requests conditions where appropriate. However, this may not capture all potentially important land use proposals, particularly given that the wildlife hazards risk zones outlined in Guideline C extend 13 kilometres from the Airport.

Guideline D – Wind Turbines

The location of wind turbines close to Sydney Airport is controlled through airspace protection guidelines (see NASF Guideline F).

Guideline E – Lighting

CASA has the authority, under the *Civil Aviation Regulations 1988*, to control ground lights where they have the potential to cause confusion or distraction from glare to pilots in the air.

To assist lighting designers and installation contractors in the vicinity of airports, CASA has established guidelines on the location and permitted intensities of ground lights within a six kilometre radius of an airport.

Within the six kilometre radius, there is a primary area that is divided into four lighting zones, as shown in **Map 32**. These zones reflect the degree of interference ground lights can cause as the pilot approaches landing.

External advertising, sports field floodlighting and street lighting are some of the more likely lighting sources requiring consideration.

The intensity of external lighting, the intensity of reflected sunlight, and smoke, dust or particulate matter may also be considered controlled activities under the *Airports (Protection of Airspace) Regulations 1996*, and therefore subject to the regulatory regime.

Map 32 illustrates the lighting restriction zones associated with each of the Sydney Airport runways.

Guideline F – Protected Airspace

Commonwealth Government regulations have long recognised the need to restrict the height of buildings and other structures (such as cranes) near airports or under flight paths. This protected airspace is formally known as ‘prescribed airspace’.

These regulations aim to ensure that:

- The airspace used by aircraft is obstacle-free
- Radar and other air navigation equipment can operate free from interference
- Airport safety lights are not obscured

Definition of prescribed airspace

Under the Airports Act, prescribed airspace is declared by the Australian Government as an area “... in the interest of the safety, efficiency or regularity of existing and future air transport operations into or out of an airport for the airspace to be protected.”

An airport’s prescribed airspace typically includes the following:

- **Obstacle Limitation Surface (OLS):** The OLS is defined by international specifications, as adopted by CASA. It defines the airspace surrounding an airport that must be protected from obstacles to ensure aircraft flying in good weather during the initial and final stages of flight, or in the vicinity of the airport, can do so safely
- **Procedures for Air Navigational Services – Aircraft Operations (PANS-OPS):** At major airports, radio and satellite navigation aids enable aircraft to fly safely in poor weather (known as ‘non-visual conditions’). In such conditions, visibility can be close to zero due to cloud or fog. To avoid collisions, pilots need to know that the airspace they are flying in is free of obstacles
- **Other surfaces:** Other surfaces are defined to ensure off-airport obstacles do not interfere with signals from ground-based air navigation equipment (such as radar) or obscure airport safety lights (such as high intensity approach lights, or HIAL).

If radar signals are interfered with, a pilot may receive inaccurate information about the location of the aircraft in relation to the airport. If the HIAL are obscured, particularly in low visibility conditions when they are most needed, a pilot may lose sight of the runway just before touch down. Both scenarios pose an obvious risk to safety.

Under section 182 of the Airports Act, activities that result in intrusions into an airport’s prescribed airspace are called ‘controlled activities’, and cannot be carried out without approval. The airport operator or DIRDC must assess applications to carry out controlled activities, and may impose conditions on approval.

Under the Airports Act, local councils with boundaries that fall within Sydney Airport’s protected airspace are required to review all building and development applications they receive for any infringements of prescribed airspace.

It is an offence to carry out a controlled activity without approval, or to breach a condition of a controlled activity approval.

Sydney Airport's prescribed airspace

Since Sydney Airport can control on-airport development activity, the primary focus of airspace protection is to ensure off-airport development activity does not compromise aviation safety.

Airspace protection therefore involves aspects of land use planning and development control, which need to be managed cooperatively with external responsible authorities, including the NSW and local governments. On 20 March 2015, DIRDC declared prescribed airspace for Sydney Airport.

Charts showing the current prescribed airspace can be downloaded at:

<https://www.sydneyairport.com.au/corporate/planning-and-projects/airspace-protection-tile>.

To protect these surfaces at Sydney Airport, we conduct annual obstacle monitoring surveys and publish the results on the Sydney Airport website. Daily obstacle monitoring is also conducted by airport operations staff, in conjunction with approved building activities within the airport vicinity, to maintain the safety, efficiency and regularity of aircraft operations into and out of Sydney Airport.

Guideline G – Protecting Communications, Navigation and Surveillance Facilities

Airservices Australia operates a number of radio navigation aids at Sydney Airport that provide guidance to aircraft operating in poor weather conditions. Airservices Australia also operates a number of surveillance systems that provide surveillance of aircraft in the air, and aircraft and vehicles operating on the ground at Sydney Airport.

To meet the performance requirements, airspace restrictions are established for each item of equipment and procedure. Sydney Airport's first preference is to ensure these are no infringements of airspace restrictions. It may be possible under some circumstances (subject to detailed modelling and analysis) to permit infringements of the protective surfaces without degradation in system performance. Protection of the navigation aid and radar restricted surfaces is a mandated requirement of CASR 139 and CASR 171.

NASF Guideline G also seeks to protect Communications, Navigation and Surveillance (CNS) facilities off-airport.

Guideline H – Protecting Strategically Important Helicopter Sites

National Airports Safeguarding Advisory Group Guideline H seeks to protect strategically important helicopter sites.

As the Guideline defines a helicopter landing site as an area 'not located on an aerodrome', the Guideline is not applicable to Sydney Airport.

Guideline I – Public Safety Areas

Public Safety Areas (PSA) (previously known as Public Safety Zones) are implemented at airports to protect the safety of the public from aviation activities and accidents.

The International Civil Aviation Organization (ICAO) data indicates that if an accident occurs, it will likely occur within 1,000 metres before the runway on approach or within 500 metres beyond the runway end on departure. A PSA covers this zone to protect public safety, limiting land uses, on- and off-airport, that increase the number of people living, working or congregating in the zone, and the storage of hazardous materials in the zone.

NASF Guideline I, Managing the Risk in Public Safety Areas at the Ends of Runways, has recently been finalised. The Guideline suggests two methods suitable for a planning-led approach to the assessment of the PSA:

- UK NATS Methodology
- Queensland State Planning Policy

As part of the master planning process, and the ongoing on-airport development approval process, Sydney Airport has regard to crash risk and public safety. Depending on the type of development being proposed, Sydney Airport undertakes a safety case.

Off-airport land use zoning falls within the jurisdiction of the surrounding local government areas. No legislation or guidelines presently exist with respect to permissible off-airport land uses with respect to aircraft crash risk. Sydney Airport will continue to work with the NSW Government and surrounding local government authorities on the implementation of NASF Guideline I.

16.5 Implementation

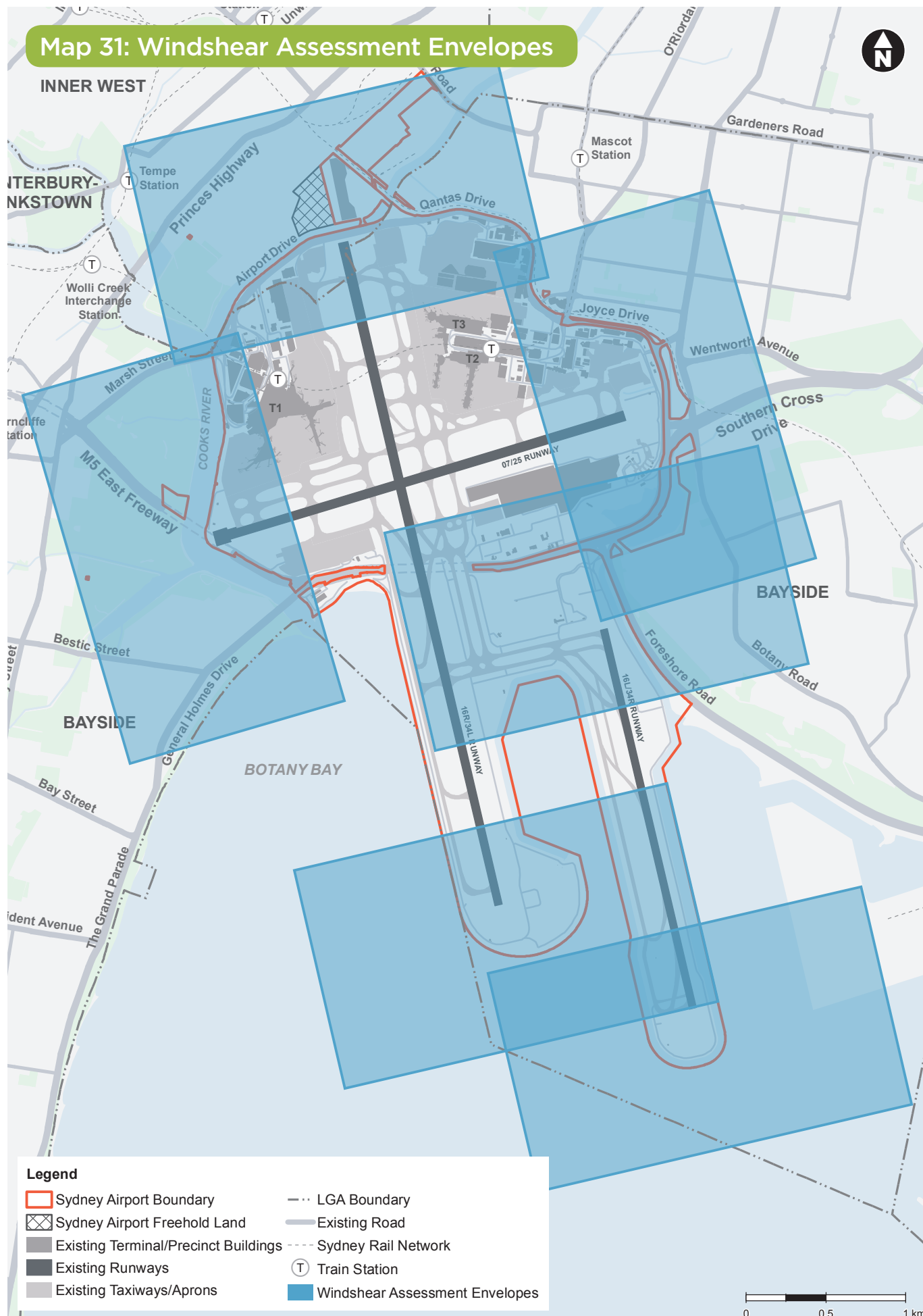
Security is an ongoing and critical factor in ensuring the safety of airport operations.

Safeguarding the airport is a shared responsibility among all levels of government and Sydney Airport. There is strong support from government for airport safeguarding, but it has become clear that improvements can be made to Sydney Airport's safeguarding framework. More broadly, NASAG has highlighted the need to improve airport safeguarding measures around Australia.

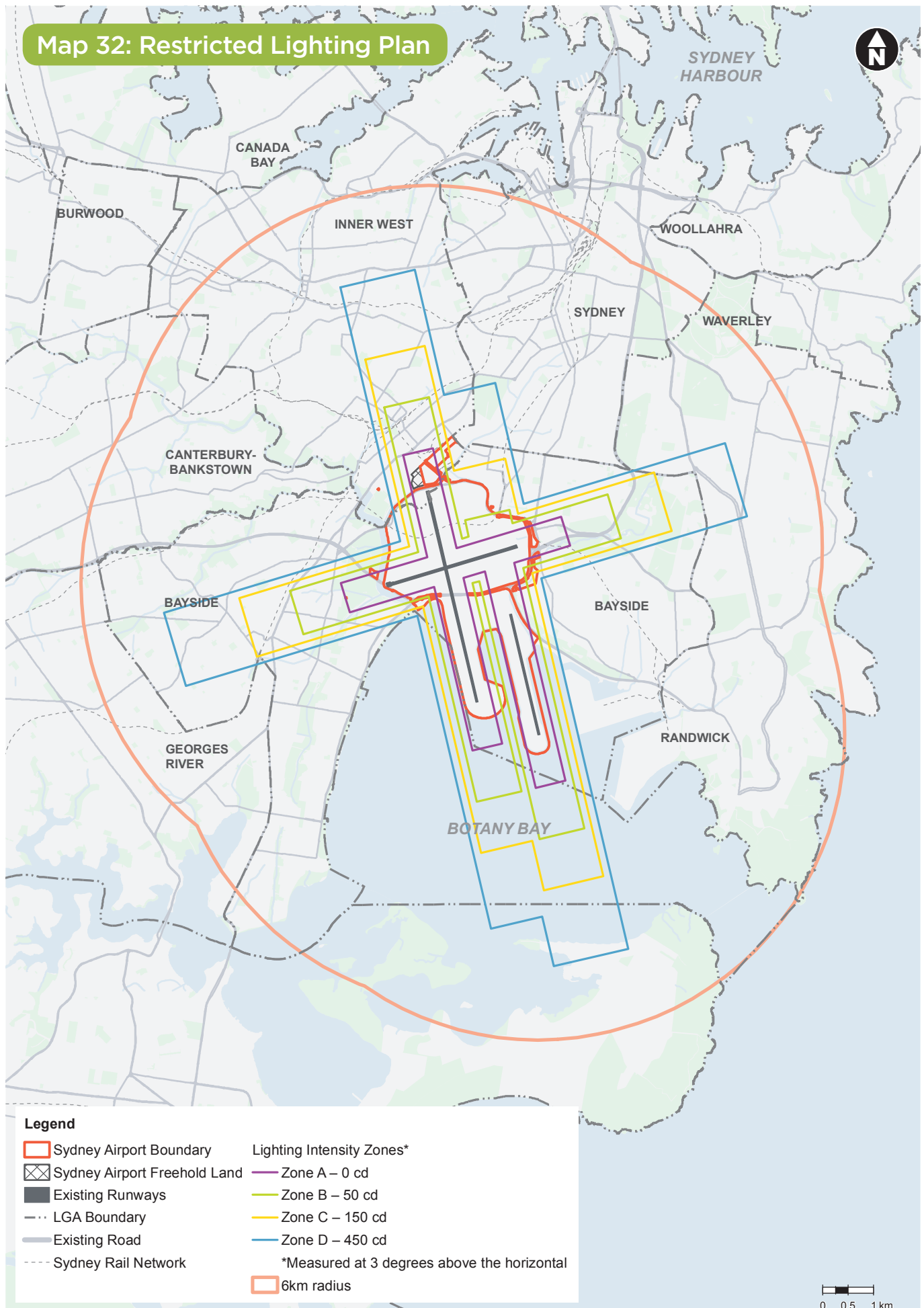
Sydney Airport supports the NASF guidelines and uses them to guide the consideration of on-airport developments and as the basis of responses to off-airport development proposals. For these guidelines to be fully effective, Sydney Airport believes they need to be translated into planning controls within the NSW planning system.

We are working with the Australian Government, NSW Government, local governments and industry to ensure that the airport's long-term operation is protected.

Map 31: Windshear Assessment Envelopes



Map 32: Restricted Lighting Plan



Section 4

Appendices







Appendix A

Abbreviations



ABBREVIATIONS

Abbreviation	Name in Full
ABC	Airport Building Controller
ADSB	Automatic dependant surveillance broadcast
AEO	Airport Environmental Officer
AFP	Australian Federal Police
ALC	Airport lessee company
ANEC	Australian Noise Exposure Concept
ANEF	Australian Noise Exposure Forecast
ANEI	Australian Noise Exposure Index
APU	Auxiliary power unit
ARFF	Airport Rescue and Fire Fighting
ASMGCS	Advanced surface movement guidance and control system
AST	Above-ground storage tanks
ATC	Air traffic control
ATI	Aerodrome technical inspection
BITRE	Bureau of Infrastructure, Transport and Regional Economics
CAGR	Compound annual growth rate
CASA	Civil Aviation Safety Authority
CBD	Central business district
CCTV	Closed circuit television
CDA	Continuous descent approach
CEO	Chief executive officer
DIRDC	Department of Infrastructure, Regional Development and Cities
DME	Distance measuring equipment
DVOR	Doppler very-high frequency omni range
EMP	Environmental Management Plan
EMS	Environmental management system
EPA	NSW Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
FBO	Fixed base operator
FEGPU	Fixed electrical ground power unit
FTE	Full-time equivalent
GA	General aviation
GBAS	Ground based augmentation system
GDP	Gross domestic product
GLS	GBAS landing systems
GNSS	Global navigation satellite system
GSE	Ground support equipment
GSP	Gross State Product

Abbreviation	Name in Full
HIA	Heritage impact assessment
HIAL	High intensity approach lighting
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ILS	Instrument landing system
IMF	International Monetary Fund
ISO	International Standards Organisation
JOSF	Joint oil storage facility
JUHI	Joint user hydrant installation
LCC	Low cost carrier
LEP	Local Environmental Plan
LGA	Local government area
LTOP	Long Term Operating Plan
LTOP IMC	Long Term Operating Plan implementation and monitoring committee
MARS	Multiple aircraft ramp system
MDP	Major Development Plan
MLAT	Multilateralisation
MOS	Manual of standards
N60	Noise events louder than 60dB(A)
N70	Noise events louder than 70dB(A)
NASAG	National Airport Safeguarding Advisory Group
NASF	National Airports Safeguarding Framework
NBN	National Broadband Network
NPI	National pollutant inventory
NSW	New South Wales
O&D	Origin and destination
OECD	Organisation for Economic Co-operation and Development
OLS	Obstacle limitation surface
PANS-OPS	Procedures for air navigation services – aircraft operations
PCA	Preconditioned air
PRM	Precision runway monitor
PSZ	Public safety zone
RAAF	Royal Australian Air Force
RMO	Runway mode of operation
Roads and Maritime	Roads and Maritime Services (NSW)
RNP	Required navigation performance
RPK	Revenue per passenger kilometre
RPT	Regular public transport

Abbreviation	Name in Full
SACF	Sydney Airport Community Forum
SEPP	State Environmental Planning Policy
SIDS	Standard instrument departures
SMR	Surface movement radar
SODPROPS	Simultaneous opposite direction parallel runway operations
SSR	Secondary surveillance radar
STARS	Standard arrival routes
SWSOOS	Southern and western suburbs ocean outfall sewer
T1	Terminal 1
T2	Terminal 2
T3	Terminal 3
TAR	Terminal area radar
TBus	Sydney Airport terminal transfer shuttle bus service between T1 and T2/T3.
TFI	Tourism Futures International
TfNSW	Transport for New South Wales
ULD	Unit load devices
UST	Underground storage tanks

Appendix B

Glossary of Terms



GLOSSARY OF TERMS

Term	Definition
Advertisement	A sign, notice, device or representation in the nature of an advertisement visible from any public place or public reserve or from any navigable water.
Advertising structure	A structure used or to be used principally for the display of an advertisement.
Aircraft maintenance facility	A building or place used for the repair and fitting of accessories to aircraft or vehicles associated with airport operations, and includes work involving body building, panel building, panel beating, spray painting or chassis restoration.
Airport	A place used for the landing, taking off, parking, maintenance or repair of aeroplanes, and includes associated buildings, installations, facilities and movement areas and any heliport that is part of the airport.
Airport Master Plan	The principal planning document required under the <i>Airports Act 1996</i> , setting out a 20-year plan for each leased federal airport.
Airservices Australia	The Commonwealth Government agency providing 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.
Airside Passenger Holding Facility	A building or place (not a terminal) where aircraft passengers can wait to board aircraft, including amenities for those passengers such as lounge/seating areas, food and drink premises, and retail premises
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.
Amusement centre	A building or place (not being part of a pub or registered club) used principally for playing: <ol style="list-style-type: none"> Billiards, pool or other like games, or Electronic or mechanical amusement devices, such as pinball machines, computer or video games and the like
Animal boarding or training establishment	A building or place used for the boarding, keeping, dog training for border security purposes or caring of animals for commercial purposes, and includes an ancillary veterinary hospital.
Aprons	Aprons are defined areas for the safe parking of aircraft. The transfer of passengers and freight between aircraft and terminal facilities as well as servicing and maintenance of aircraft in between flights takes place on aprons.
Australian noise exposure concept (ANEC)	A set of contours based on hypothetical aircraft operations at an airport in the future. In this Master Plan, ANECs have been used to model the impact of the new generation of quieter aircraft such as the A380 and B787. As ANEC maps are based on hypothetical assumptions and may not have been subject to review or endorsement, they have no official status and cannot be used for land use planning purpose. An ANEC however, can be turned into an ANEF.

Term	Definition
Australian noise exposure forecast (ANEF)	A set of contours showing forecast of future aircraft noise levels. The ANEF is fundamentally a tool for land use planning, and is used in Australian Standard 2021 to define areas where construction of certain building types is "acceptable", "conditionally acceptable" and "unacceptable". At ANEF values less than 20, all building types are considered "acceptable", and hence 20 ANEF is the lowest-valued contour generally shown on ANEF charts. ANEF maps are subject to review and endorsement by Airservices Australia.
Australian noise exposure index (ANEI)	A set of contours calculated using ANEF techniques and based on historical data that shows the average noise exposure for a given period such as a year. Airservices Australia publishes the quarterly and annual ANEI for Sydney Airport.
Aviation activity	Any activity for the arrival, departure, movement or operation of aircraft and includes aircraft aprons, helipads, heliports, runways, taxiways and the like.
Aviation support facility	Any aircraft maintenance facility, engine-run area, ground support equipment, airline catering, airline office, transport depot and associated ground-base activities necessary for the orderly and efficient operation of aviation activity.
Building identification sign	A sign that identifies or names a building and that may include the name of a building, the street name and number of a building, and a logo or other symbol, but that does not include general advertising of products, goods or services.
Bulky goods premises	<p>A building or place used primarily for the sale by retail, wholesale or auction (or for the hire or display of) bulky goods, being goods that are of such a size or weight as to require:</p> <ol style="list-style-type: none"> a large area for handling, display or storage, or direct vehicular access to the site of the building or place by members of the public for the purpose of loading or unloading such goods into or from their vehicles after purchase or hire <p>And including goods such as floor and window supplies, furniture, household electrical goods, equestrian supplies and swimming pools but does not include a building or place used for the sale of foodstuffs or clothing unless their sale is ancillary to the sale or hire or display of bulky goods.</p>
Business identification sign	<p>A sign that indicates:</p> <ol style="list-style-type: none"> the name of the person or business, and the nature of the business carried on by the person at the premises or place at which the sign is displayed <p>And may include the address of the premises or place and a logo or other symbol that identifies the business.</p>
Business premises	<p>A building or place at or on which:</p> <ol style="list-style-type: none"> an occupation, profession or trade (other than an industry) is carried on for the provision of services directly to members of the public on a regular basis, or a service is provided directly to members of the public on a regular basis <p>And may include, without limitation, premises such as banks, post offices, hairdressers, dry cleaners, food and drink premises, travel agencies, internet access facilities, medical centres, betting agencies and the like, but does not include sex service premises.</p>
Car park	A building or place primarily used for the purpose of parking motor vehicles, including any manoeuvring space and access thereto, whether operated for gain or not and may include valet parking services and car wash facilities/services.

Term	Definition
Child care centre	<p>A building or place used for the supervision and care of children that:</p> <ul style="list-style-type: none"> a. provides long day care, pre-school care, occasional child care or out-of-school-hours care, and b. does not provide overnight accommodation for children other than those related to the owner or operator of the centre <p>but does not include:</p> <ul style="list-style-type: none"> a. a building or place used for home-based child care, or b. an out-of-home care service provided by an agency or organisation accredited by the NSW Office of the Children's Guardian, or c. a baby-sitting, playgroup or child-minding service that is organised informally by the parent of the children concerned, or d. a service provided for fewer than 5 children (disregarding any children who are related to the person providing the service) at the premises at which at least one of the children resides, being a service that is not advertised, or e. a regular child-minding service that is provided in connection with a recreational or commercial facility (such as a gymnasium), by or on behalf of the person conducting the facility, to care for children while the children's parents are using the facility, or f. a service that is concerned primarily with the provision of: <ul style="list-style-type: none"> i. lessons or coaching in, or providing for participation in, a cultural, recreational or religious or sporting activity, or ii. private tutoring, or g. a school, or h. a service provided at exempt premises (within the meaning of Section 200 of the Children and Young Persons (Care and Protection) Act 1998), such as hospitals, but only if the service is established, registered or licensed as part of the institution operating on those premises.
Civil Aviation Safety Authority (CASA)	An independent statutory body responsible for regulating aviation safety in Australia and the safety of Australian aircraft overseas.
Code	<p>Australia has adopted ICAO methodology of using a code system, known as the Aerodrome Reference Code, to specify the standards for individual aerodrome facilities which are suitable for use by aeroplanes within a range of performances and sizes.</p> <p>Ascending letters indicate increasing aircraft size, for example a Boeing 737 or Airbus A320 is a Code C aircraft, a Boeing 747-400 or Airbus A330 is a Code E aircraft and the Airbus A380 is a Code F aircraft.</p>
Convenience store	Premises used for the purposes of selling small daily convenience goods such as foodstuffs, personal care products, newspapers and the like to provide for the day-to-day needs of people who live or work in the local area, and may include ancillary services such as a post office, bank or dry cleaning but does not include restricted premises (eg brothels). Convenience store has the same definition of "neighbourhood shop" (per the NSW LEP Standard definition).

Term	Definition
Development	<p>For the purposes of this Master Plan means:</p> <ol style="list-style-type: none"> constructing buildings or other structures, altering the structure of buildings or other structures, undertaking, constructing or altering earthworks (whether or not in relation to buildings or other structures), undertaking, constructing or altering engineering works, electrical works or hydraulic works (whether or not in relation to buildings or other structures), demolishing, destroying, dismantling or removing: <ol style="list-style-type: none"> Buildings or other structures, or Earthworks, or Engineering works, or Electrical works, or Hydraulic works <ul style="list-style-type: none"> undertaking land clearing
Earthworks or engineering works	<p>Means:</p> <ol style="list-style-type: none"> runways, taxiways and aprons, surface car parks retaining walls dams roads railways pipelines tunnels
Educational establishment	<p>A building or place used for education (including teaching), being:</p> <ol style="list-style-type: none"> a school, or a tertiary institution, including a university or a TAFE establishment that provides formal education and is constituted by or under an Act
Entertainment facility	<p>A theatre, cinema, musical hall, concert hall, dance hall and the like, but does not include a pub, nightclub or registered club.</p>
Environmental facility	<p>A building or place that provides for the recreational use or scientific study of natural systems and including walking tracks, seating, shelters, board walks, observation decks, bird hides or the like, and associated display structures.</p>
Environmental protection works	<p>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 and the like.</p>
Existing leases	<p>All existing leases and interests in the land at the time the head lease was granted which are in effect as of the date of the Master Plan.</p>
Flight path movement maps	<p>These maps provide an indication of where aircraft fly and how many overflights there are over a particular period</p>
Food and drink premises	<p>Premises that are used for the preparation and retail sale of food or drink (or both) for immediate consumption on or off the premises, and includes any of the following:</p> <ul style="list-style-type: none"> a restaurant or cafe take away food and drink premises a pub a small bar

Term	Definition
Freight handling and transport facility	A facility used principally for the bulk handling of goods for transport by road, rail, air or sea including any facility for the loading and unloading of vehicles, aircraft, vessels or containers used to transport those goods and for the parking, holding, servicing or repair of those vehicles, aircraft or vessels or for the engines or carriages involved.
Function centre	A building or place used for the holding of events, functions, conferences and the like, and includes convention centres, exhibition centres and reception centres, but does not include an entertainment facility.
Gate	Physical location where passengers depart/arrive at terminal to access aircraft – either directly for contact stands or via bus or walking for remote stands.
Ground Transport Interchange	A ground transport interchange facilitating a bus and coach pick-up/drop-off facility and parking /storage of vehicles, approved as part of the “T2/T3 Ground Access Solutions and Hotel Major Development Plan” (MDP) approved by the Commonwealth on 20 March 2015. This MDP also allows for the construction of new roads, a reconfiguration of existing roads, and the construction of a new hotel within Sydney Airport’s T2/T3 precinct.
Helipad	A place not open to the public used for the taking off and landing of helicopters.
Heliport	A place open to the public used for the taking off and landing of helicopters whether or not it includes: <ul style="list-style-type: none"> a. a terminal building, or b. facilities for the parking, storage or repair of helicopters
Heritage conservation management plan	A document that details the heritage significance of an item, place or heritage conservation area and identifies conservation policies and management mechanisms that are appropriate to enable that significance to be retained.
Heritage impact statement	A document consisting of: <ul style="list-style-type: none"> a. a statement demonstrating the heritage significance of a heritage item, archaeological site, place of Aboriginal heritage significance or other heritage conservation area, and b. an assessment of the impact that proposed development will have on that significance, and c. proposals for measures to minimise that impact
Heritage item	A building, work, archaeological site, tree, place or Aboriginal object described in an inventory of heritage items that is available at the head office of Sydney Airport.
Heritage significance	Archaeological, architectural, cultural, historical, natural or aesthetic value, scientific or social value.
Hotel or motel accommodation	A building or place (whether or not licensed premises under the Liquor Act 2007 in accordance with the Airports (Control of On-Airport Activities) Regulations 1997 Part 1A): <ul style="list-style-type: none"> a. comprising rooms or self-contained suites, and b. that may provide meals to guests or the general public and facilities for the parking of guests’ vehicles but does not include backpackers accommodation, a boarding house, bed & breakfast accommodation or farm stay accommodation.

Term	Definition
Industrial retail outlet	<p>A building or place that:</p> <ol style="list-style-type: none"> is used in conjunction with an industry (including a light industry) but not in conjunction with a warehouse or distribution centre, and is situated on the land on which the industry is carried out, and is used for the display or sale (whether by retail or wholesale) of only those goods that have been manufactured on the land on which the industry is carried out. <p>but does not include a warehouse or distribution centre.</p>
Industry	Means the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity.
Instrument Landing System	Instruments capable of providing both directional and glide slope guidance.
Jet Base	Jet Base located in the North East Sector of the airport adjacent to Terminal 3.
Kiosk	Retail premises used for the purposes of selling food, light refreshments and other small convenience items such as newspapers, films and the like.
Landscape and garden supplies	A building or place used for the storage and sale of landscaping supplies such as soil, gravel, potting mix, mulch, sand, railway sleepers, screenings, rock and the like, and/or a building or place the principal purpose of which is the retail sale of plants and landscaping and gardening supplies and equipment. It may, if ancillary to the principal purpose for which the building or place is used, include a restaurant or cafe and the sale of any of the following: outdoor furniture and furnishings, barbeques, shading and awnings, pools, spas and associated supplies, and items associated with the construction and maintenance of outdoor areas; pets and pet supplies and/or fresh produce.
Landside	The area of an airport and buildings to which the public normally has free access.
Light industry	A building or place used to carry out an industrial activity that does not interfere with the amenity of the neighbourhood by reason of noise, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, waste water, waste products, grit or oil, or otherwise, and includes high technology industry.
Liquid fuel depot and distribution facility	Storage and distribution premises that are used for the bulk storage and distribution of petrol, oil, petroleum or other inflammable liquid for aircraft and airport vehicles.
Major Development Plan	A requirement under the Airports Act 1996 for airport lessee-companies to provide information to the Commonwealth Government and the public about significant planned development on leased federal airport sites.
Manoeuvring areas	That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Term	Definition
Marina	<p>A permanent boat storage facility (whether located wholly on land, wholly on the waterway or partly on land and partly on the waterway) together with any associated facilities, including any:</p> <ol style="list-style-type: none"> facility for the construction, repair, maintenance, storage, sale of hire of boats, and facility for providing fuelling, sewage pump-out or other services for boats, and facility for launching or landing boats, such as slipways or hoists, and associated car parking, commercial, tourist or recreational or club facility that is ancillary to a boat storage facility, and associated single mooring
Medical centre	Business premises used for the purpose of providing health services (including preventative care, diagnosis, medical or surgical treatment, counselling or alternative therapies) to outpatients only, where such services are principally provided by health care professionals, and may include the ancillary provision of other health services.
Mixed use development	A building or place comprising 2 or more different land uses, identified as permissible in the zone.
Movement areas	That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons.
N60	Noise events louder than 60dB(A)
N70	Noise events louder than 70dB(A)
N70 contours	These are one of a number of alternative noise descriptors. N70 refers to the number of noise events louder than 70dB(A) over a particular period. The level of 70dB(A) has been chosen because it is equivalent to the single event level of 60dB(A) specified in the Australian Standard AS2021 as the indoor design sound level for normal domestic areas in dwellings. An external single event noise level will be attenuated by approximately 10dB(A) by the fabric of a house with the windows open. An internal noise level of 60dB(A) is likely to interfere with conversation or with listening to radio or television. Airservices Australia publish regular N70 contour charts which will be able to be compared to the chart shown in the Master Plan.
Navigational aids	Any aircraft surveillance equipment, control towers, radars, visual and non-visual navigation aids and the like.
Office premises	A building or place used for the purpose of administrative, clerical, technical, professional or similar activities that do not include dealing with members of the public at the building or place on a direct and regular basis, except where such dealing is a minor activity (by appointment) that is ancillary to the main purpose for which the building or place is used.
Parking space	A space dedicated for the parking of a motor vehicle, including any manoeuvring space and access to it, but does not include a car park.
Passenger transport facility	A building or place used for the assembly or dispersal of passengers by any form of transport, including public transport and facilities required for parking, manoeuvring, storage or routine servicing of any vehicle that uses the building or place.

Term	Definition
Precision approach runway, category I	An instrument runway served by instrument landing systems (ILS) or microwave landing systems (MLS) and visual aids intended for operations with a decision height not lower than 60m (200ft) and either a visibility not less than 800m or a runway visual range not less than 550m.
Pub	Licensed premises under the Liquor Act 1982, the principal purpose of which is the sale of liquor for consumption on the premises, whether or not the premises include hotel or motel accommodation and whether or not food is sold on the premises, but excludes gaming facilities.
Public administration building	A building or facility used for offices, administrative, training, equipment storage, or other like purposes by the Crown, a statutory body, a council or an organisation established for public purposes, and includes police station, customs, aviation rescue and fire fighting services and the like.
Public Safety Zone	A designated area of land at the end of airport runways within which certain planning restrictions may apply.
Rapid Exit Taxiway	Taxiways linked to runways at an angle that permit aircraft to exit the runway at higher speeds.
Recreation area	A place used for outdoor recreation that is normally open to the public, and includes: <ul style="list-style-type: none"> a. a children's playground, or b. an area used for community sporting activities, or c. a park, reserve or garden or the like d. any ancillary buildings but does not include a recreation facility (indoor), recreation facility (major) or recreation facility (outdoor).
Registered club	A registered club means a club that in accordance with the requirements of the Airports (Control of On-Airport Activities) Regulations 1997, holds licence under the Liquor Act 2007.
Research station	A building or place for the principal purpose of agricultural, environmental, fisheries, forestry, meteorological, minerals, scientific or soil data collection or research and includes any associated facility to education, training, administration or accommodation.
Respite	A respite hour is a whole clock hour where there are no aircraft movements over a particular area in that hour.
Restaurant	A building or place the principal purpose of which is the preparation and serving, on a retail basis, of food and drink to people for consumption on the premises, whether or not liquor, takeaway meals and drinks or entertainment are also provided.
Retail premises	A building or place used for the purpose of selling items by retail, or for hiring or displaying items for the purpose of selling them by retail or hiring them out, whether the items are goods or materials (or whether also sold by wholesale).
Road	A public road or a private road within the meaning of the Roads Act 1993 and includes a classified road
Runway strips	Runway strips are areas surrounding a runway and are provided to reduce the risk of damage to aircraft running off runways and also to provide obstacle-free airspace for aircraft flying over the area during takeoff or landing operations

Term	Definition
Runways	<p>Runways are the defined areas provided for the landing and taking-off of aircraft. Sydney Airport has three runways, which are identified by international convention by a two-part designator derived from the direction in which the aircraft is flying:</p> <ul style="list-style-type: none"> Runway 16R/34L is the main north-south runway Runway 16L/34R is the shorter parallel north-south runway Runway 07/25 is the east west runway. <p>Runways 16R and 16L are used by aircraft landing or taking off towards the south. 16 approximates to a compass bearing of 160°. The R and L designators refer to right and left respectively when viewed from the direction in which the aircraft is flying. This serves to distinguish between the respective runways.</p> <p>Runway 34L is used by aircraft landing or taking off towards the north. 34 approximates to a compass bearing of 340°.</p> <p>Runway 34R is used by aircraft landing towards the north and taking off to the north-east and east.</p> <p>Runway 07 is used by aircraft landing or taking off towards the east. 07 approximates to a compass bearing of 70°.</p> <p>Runway 25 is used by aircraft landing or taking off towards the west. 25 approximates to a compass bearing of 250°.</p>
Scope 1 Emissions	Scope 1 greenhouse gas emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities at a facility level. Scope 1 emissions are sometimes referred to as direct emission.
Scope 2 Emissions	<p>Scope 2 greenhouse gas emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity.</p> <p>Scope 2 emissions from one facility are part of the scope 1 emissions from another facility.</p>
Scope 3 Emissions	Scope 3 emissions are indirect greenhouse gas emissions other than scope 2 emissions that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by that facility's business. Some examples are extraction and production of purchased materials, transportation of purchased fuels, use of sold products and services, and flying on a commercial airline by a person from another business.
Self-storage units	Storage premises that consist of individual enclosed compartments for storing goods or materials (other than hazardous or offensive goods or materials).
Service station	<p>A building or place used for the sale by retail of fuels and lubricants for motor vehicles, whether or not the building or place is also used for any one or more of the following:</p> <ol style="list-style-type: none"> the ancillary sale by retail of spare parts and accessories for motor vehicles the cleaning of motor vehicles installation of accessories inspecting, repairing and servicing of motor vehicles (other than body building, panel beating, spray painting or chassis restoration) the ancillary retail selling or hiring of general merchandise or services or both

Term	Definition
Sewage reticulation system	<p>A building or place used for the collection and transfer of sewage to a sewage treatment plant or water recycling facility for treatment, or transfer of the treated waste for use or disposal, including associated:</p> <ol style="list-style-type: none"> Pipelines and tunnels, and Pumping stations, and Dosing facilities, and Odour control works, and Sewage overflow structures, and Vent stacks
Shop	<p>Premises that sell merchandise such as groceries, personal care products, clothing, music, homewares, stationery, electrical goods or the like or that hire any such merchandise, and includes a convenience store but does not include food and drink premises or restricted premises.</p>
Signage	<p>Any sign, notice, device, representation or advertisement that advertises or promotes any goods, services or events and any structure or vessel that is principally designed for, or that is used for, the display of signage, and includes:</p> <ol style="list-style-type: none"> Building identification signs, and Business identification signs, and Advertisements, but does not include traffic signs or traffic control facilities
Simultaneous opposite direction parallel runway operations	<p>A noise sharing procedure where aircraft depart and arrive over Botany Bay. Runway 16L is used for departures and Runway 34L is used for arrivals. This can only be operated in good weather conditions with low winds.</p>
Stand	<p>Physical location of an aircraft parking position for either passenger or cargo aircraft.</p>
Storage premises	<p>A building or place used for the storage of goods, materials, plant or machinery for commercial purposes and where the storage is not ancillary to any business premises or retail premises on the same parcel of land.</p>
Structures	<p>Means:</p> <ol style="list-style-type: none"> Bridges Fences Towers and pylons Tents and other temporary structures
Sydney Gateway	<p>A major transport project, to be delivered by Roads and Maritime, to provide a high capacity road link between WestConnex at St Peters Interchange, Sydney Airport and Port Botany.</p>
Takeaway food and drink premises	<p>Food and drink premises that are predominantly used for the preparation and sale of food or drink (or both) for immediate consumption away from the premises.</p>
Taxiways	<p>Taxiways are defined paths providing for the safe and expeditious surface movement of aircraft between runways and aprons. Due to its traffic levels, Sydney Airport has a complex taxiway system including rapid exit taxiways (RETs). RETs enable aircraft, after landing, to vacate runways at higher speeds, thus reducing runway occupancy time.</p>

Term	Definition
Temporary structure	Includes a booth, tent or other temporary enclosure (whether or not part of the booth, tent or enclosure is permanent), and also includes a mobile structure.
Terminal	Terminal means a transport building or place used for processing, assembling, boarding and disembarking of passengers to/from aircraft and includes associated facilities to support airport operations and passengers.
Terminal Control Area (TMA)	A volume of controlled airspace surrounding a major airport where there is a high volume of traffic.
Terminal Instrument Flight Procedures (TIFP)	Procedures to govern flight under conditions in which flight by outside visual reference is not safe. This involves flying by reference to instruments in the flight deck and navigating by reference to electronic signals.
Thresholds	Points on the runway from which the landing distance available to an aircraft is measured. A threshold is determined with reference to the obstacle-free approach gradient required for the particular category of runway. Where there is no obstacle infringement, the threshold and runway end normally coincide. Where obstacles infringe the approach surface it is necessary to displace the threshold to achieve the required obstacle-free gradient. A number of Sydney Airport's runways have displaced thresholds.
Tourist or visitor accommodation	A building or place that provides temporary or short-term accommodation on a commercial basis, and includes hotel or motel accommodation, serviced apartments, bed and breakfast accommodation and backpackers' accommodation.
Transfer corridor	Provision of an area for the facilitation of inter-terminal transfers of passengers and baggage.
Transport depot	A building or place used for the parking or servicing of motor powered or motor drawn vehicles used in connection with a passenger transport undertaking, business, industry or shop.
Trigeneration plant	A plant that simultaneously provides electricity, heating, and cooling.
Utility undertaking	Any of the following undertakings carried on, or permitted to be carried on by authority of any government department or under the authority of or in pursuance of any commonwealth or state Act: <ul style="list-style-type: none"> a. railway, road transport, water transport, air transport, wharf or river undertakings b. undertakings for the supply of water, hydraulic power, electricity or gas or the provision of sewerage or drainage services, and c. a reference to a person carrying on a utility undertaking includes a reference to a council, electricity supply authority, government department, corporation, firm or authority carrying on the undertaking.

Term	Definition
Vehicle sales or hire premises	A building or place used for the display, sale (whether by retail or wholesale) or hire of motor vehicles, caravans, boats, trailers, agricultural machinery and the like, whether or not accessories are sold or displayed there.
Warehouse or distribution centre	A building or place used mainly or exclusively for storing or handling items (whether goods or materials) pending their sale or distribution, but from which no retail sales are made.
Waterway or foreshore management activities	Activities comprising: <ul style="list-style-type: none"> a. Riparian corridor and bank management, including erosion control, bank stabilisation, re snagging, weed management, revegetation and the creation of foreshore access ways, b. In-stream management or dredging to rehabilitate aquatic habitat or to maintain or restore environmental flows or tidal flows for ecological purposes, and c. Coastal management and beach nourishment, including erosion control, dune or foreshore stabilisation works, headland management, revegetation activities and foreshore access ways.
WestConnex	A new motorway under construction to link the M4 motorway to the M5 motorway.
Wholesale supplies	The display, sale or hire of goods or materials by wholesale only to businesses that have an Australian business number registered under the <i>A New Tax System (Australian Business Number) Act 1999 of the Commonwealth</i> .
Works 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, including construction) when not required for use. This includes ancillary temporary office facilities and amenities supporting such a depot.



Appendix C

History of Sydney Airport and Existing Facilities



HISTORY OF SYDNEY AIRPORT AND EXISTING FACILITIES

C1 Key stages in the development of Sydney Airport

Key stages in the development of Sydney Airport are set out in [Table C1-1](#) below.

Table C1-1: Development of Sydney Airport

	Year	Activity	Master Plan implications
Pre-aviation		The land on which the airport is sited – the northern shore of Botany Bay – is within the land on which the coastal Aboriginal people have lived for tens of thousands of years	A number of studies have been undertaken and have indicated that there are no Aboriginal archaeological sites or areas of potential archaeological sensitivity within the airport.
	19th century	Freshwater supply for Port Jackson sourced from ponds on eastern side of airport site (1835). Construction of Alexandra Canal which was planned to connect Botany Bay with Port Jackson. During late 19th and early 20th centuries, airport site is used for industrial buildings including textile and flour mills.	The Engine and Mill Ponds are identified as environmentally significant areas in the Airport Environment Strategy – in recognition of pre-aviation uses of the airport site.
Early airport development	1911	The first flight occurs when an aircraft takes off from the former Ascot Racecourse (now part of the airport site).	Environmentally significant remnant fig trees remain within the area.
	1919	First passenger flight	
	1920s	Mascot Aerodrome officially opens and Commonwealth Government acquires the aerodrome.	This is part of a program to develop a nationwide airport network.
	1930s	Additional land is purchased, the main runway is surfaced with gravel and two ancillary grass runways are laid out.	These early runways were located in the vicinity of what is the T2/T3 and Jet Base.
	1940-45	New passenger terminal opens and airport is further developed during World War II to enhance its civilian and military facilities.	Elements of this building remain in the T2/T3 precinct and have been identified as having heritage significance.
	Post 1945	Cooks River is diverted and two new runways are built.	Key elements of existing airport laid out – in particular the runway.
Into the jet era	1959	Arrival of B707 and other jet and turbo-prop aircraft ushers in rapid growth in air travel.	Curfew at Sydney Airport first introduced after the government decided that these older noisy jet aircraft “will not be scheduled to take off or land during the quiet hours of the night”.
	1968	Main north-south runway (16R/34L) is extended by land reclamation into Botany Bay to cater for long-haul international jets.	Curfew remains a key operating influence for Sydney Airport.
	1970	First stage of international terminal opens on current site.	Location of General Holmes Drive under the runway and diversion of the southern and western suburbs ocean outfall sewer.
	1970s	Further expansion of the international and domestic terminals. In 1972, Runway 16/34 is extended into Botany Bay to its present length of 3,962m.	

	Year	Activity	Master Plan implications
Major airport expansion	1992	Major expansion of International terminal adds eight gates for B747-400 aircraft.	
	1994	The parallel runway (16L/34R) opens at its current length of 2,438m. New flight paths added.	
	1996	Current control tower opens.	Complements parallel runways.
	1997	Aircraft movement cap of 80 flights per hour is legislated.	The Long Term Operating Plan commences. Noise insulation program commences and is completed by the late 1990s.
	2000	International and domestic terminals significantly upgraded and expanded.	
	2000	Significant ground access infrastructure developed – the Airport Rail Link, the Eastern Distributor and M5 East Motorway.	
Post-privatisation	2002	Sale of Sydney Airport to Southern Cross Airports Corporation is completed.	Statutory requirement for development of a 20 year Master Plan for the airport.
	2004	Sydney Airport Master Plan 03/04 approved.	Sets out planning proposals for Sydney Airport for a 20 year period to 2023/24.
	2007	The first ever commercial flight by the new generation quieter A380 lands at Sydney Airport. Sydney Airport will soon become one of the busiest A380 airports in the world.	
	2009	Sydney Airport Master Plan 2009 approved.	Sets out planning proposals for Sydney Airport for a 20 year period to 2029.
	2011	Sydney Airport announces New Vision that will see terminal precincts transformed into integrated international, domestic and regional precincts without any change to operating restrictions.	The feedback and comments received during consultation on the New Vision have informed the preparation of the development plan in this Master Plan.
	2002–2013	Over \$2 billion of investments and other initiatives during the past decade have led to increased service levels, enhanced safety and security, delivered environmental improvements and increased capacity to meet demand. Key projects include terminal upgrades, new car parks, new checked baggage screening facilities, runway end safety areas and making Sydney Airport ready for larger, quieter and more fuel efficient aircraft.	
	2014	Sydney Airport Master Plan 2033 approved.	Sets out planning proposals for Sydney Airport for a 20 year period to 2033.
	2015	Sydney Airport takes control of the operation of T3 giving Sydney Airport control of 100 percent of the airports terminal footprint	

C2 Existing facilities

2.1 Existing terminals

Passenger terminals serve the needs of different types of users by:

- Processing check-in, security, border controls, aircraft boarding and disembarking, and baggage handling for travellers
- Providing for passengers waiting for or transferring between flights
- Providing passengers and airport visitors with facilities including food and beverage, toilets, shopping and other activities

Associated activities and infrastructure such as landside access, car parking and utilities support the operation of the terminals and facilitate the passenger experience.

Over many years, there has been substantial investment in the terminals at Sydney Airport. Terminal 1 (T1) and Terminal 2 (T2) are respectively the common user international and domestic facilities. Terminal 3 (T3) is currently a dedicated Qantas domestic terminal.

2.1.1 Terminal 1

Opened in 1970, it is the current international terminal located in the North West Sector of the airport. Since that time, the terminal has been extensively modified and expanded.

T1 is a four level structure, with vertically separated arrival and departure passenger concourses currently supporting 25 contact aircraft gates with aerobridges and a walk-up gate, together with other bussed and layover stands in a number of locations on the airfield.

The current total floor area is approximately 288,000 square metres, including approximately 20,000m² of ramp offices. Major functional elements include:

- 216 departure check-in counters
- 15 check-in kiosks
- Integrated outbound baggage handling and security screening system
- 18 conventional and 24 eGate departure passport control positions
- Passenger and hand baggage screening facilities
- 44 conventional and 22 smart gate passport control positions
- Transfer passenger and baggage screening facilities
- 12 baggage reclaim units
- Inbound baggage screening facilities
- Extensive retail and related facilities

2.1.2 Terminals 2 and 3

The domestic terminal complex is located in the North East Sector of the airport and comprises two adjacent but currently unconnected buildings – T2 and T3.

T2 is a three-level structure which supports two single-level arrival/departure pier type concourses. Currently, the piers serve up to a total 23 contact aircraft gates and a number of stand-off bussed aircraft positions.

T3 is a three-level structure which is integrated with a single-level linear and satellite type arrival/ departure passenger concourse. Currently, the concourse provides a nominal 16 contact aircraft gates with aerobridges and several stand-off bussed aircraft positions.

T2 and T3 are not physically linked at terminal level, although underground pedestrian access between the terminal baggage halls is available via the links to the airport rail link domestic terminal station. Together, T2 and T3 have a gross floor area in excess of 140,000 square metres, including approximately 29,000 square metres of ramp offices. The existing terminal facilities provide good levels of service at current traffic levels. Major functional elements include:

- T2 – 50 check-in counters, no bag drops, 48 kiosks/passenger and hand baggage screening facilities
- T3 – 10 check-in counters, 24 bag drops, 48 kiosks/passenger and hand baggage screening facilities
- Transfer passenger and baggage screening facilities
- Integrated outbound baggage handling and security screening system
- A combined 11 baggage reclaim units

Table C2-1: Runway data

Runaway direction	Length (m)	Width (m)	Take-off run available (m)	Take-off distance available (m)	Accelerate stop distance available (m)	Landing distance available (m)
16R	3,962	45	3,962	4,052	3,992	3,877
34L	3,962	45	3,962	4,052	3,962	3,962
16L	2,438	45	2,438	2,528	2,438	2,207
34R	2,438	45	2,438	2,498	2,438	2,400
07	2,530	45	2,530	2,620	2,560	2,530
25	2,530	45	2,530	2,590	2,530	2,429

2.2 Existing movement areas

2.2.1 Runways

Sydney Airport has three runways. The dimensions and declared distances of these runways are given in [Table C2-1](#).

Runways 16R/34L and 16L/34R are parallel on an approximate north-south alignment separated by a distance of 1,037m. Runway 16R/34L is suitable for heavy long haul departures. Runway 07/25 crosses Runway 16R/34L and is on an approximate east-west alignment. Weather requires the exclusive use of Runway 07/25 for a limited number of hours per year when strong winds preclude the use of the north/south runways.

Runways 16R/34L and 07/25 and their supporting taxiways currently accommodate operations by Code F aircraft.

Sydney Airport has sophisticated equipment to assist with safe take-off and landing during low visibility conditions. This allows the airport to remain operational during a wide range of weather conditions:

- All runways are provided with precision approach path indicator systems (PAPIS) to provide visual approach slope guidance to aircraft
- Transmissometer units are operational on all runways and provide accurate visibility assessments to aircraft crews when operating in low visibility conditions. This technology facilitates increased aircraft movements in those conditions
- Stop bars have been commissioned at Sydney Airport to enhance runway safety and better facilitate low visibility operations
- Runways 16L and 16R are currently equipped with High Intensity Approach Lighting (HIAL) systems
- All runways are equipped with Instrument Landing Systems (ILS) to permit aircraft to conduct precision approaches in poor weather. Instrument landing systems are classified according to their ability to facilitate landings in poor weather conditions. Runways 16L and 16R currently facilitate approaches in visibility conditions down to 550 metres
- All runways have complying Runway End Safety Areas (RESAs)

2.2.2 Taxiways

Runways are supported by a comprehensive taxiway system designed to facilitate the efficient movement of aircraft between the runways and terminal areas. Rapid exit taxiways are provided on the parallel runways to minimise runway occupancy time.

2.2.3 Aprons and stands

Apron areas are provided to facilitate aircraft parking. The parking position is known as an aircraft stand (or gate). Existing aprons at Sydney Airport accommodate operations by the full range of aircraft types. Currently there are approximately 115 aircraft stands dedicated to supporting international, domestic, regional and freight operations.

There are a number of additional parking positions on the aprons within the general aviation area for aircraft of various sizes and Qantas currently provides parking positions for its own use within the engineering facilities north of T3 in the North East Sector of the airfield.

Apron areas also support activities associated with the servicing of aircraft such as baggage, freight, refuelling and flight catering and utilise a variety of ground support equipment (GSE) operated by third parties. A network of airside roads provides for GSE and other vehicle movements.

2.2.4 Engineering facilities

The engineering facilities are located in the North East Sector of the airport north of Terminal 3. The area comprises a lease area of approximately 30 hectares. The engineering facilities are used by Qantas for aircraft maintenance, layover parking and also contain a variety of aviation support facilities.

2.2.5 General aviation

The general aviation parking area is located in the North East Sector, adjacent to the Runway 25 threshold. The area provides aircraft parking for a number of freight, corporate and private aircraft as well as a variety of aviation support facilities such as maintenance hangars, freight handling and administrative buildings.

2.2.6 Helicopters

A helicopter precinct is located in the South East Sector adjacent to the Runway 25 threshold. The area includes a touchdown and lift-off area, taxiways, parking pads, storage/maintenance hangars and administrative buildings.

2.2.7 Emergency facilities

Sydney Airport has two marshalling areas for the staging of emergency vehicles and associated communication and coordination facilities located adjacent to the Aviation Rescue and Fire Fighting (ARFF) services facilities. There are also two emergency evacuation facilities for marine rescue and recovery located adjacent to the parallel runways within Botany Bay.

2.3 Existing support systems

2.3.1 Airservices Australia facilities

Airservices Australia is responsible for the provision of Air Traffic Control (ATC), ARFF and the provision and maintenance of radio navigation aids and systems.

The control tower is situated mid-way between runways 16R/34L and 16L/34R and south of Runway 07/25. The primary responsibility of ATC staff is the processing and separation of air traffic in both the initial and final stages of flight. ATC also provides surface movement control to aircraft and vehicles on the runways and taxiways.

Sydney Airport is equipped with an advanced surface movement guidance and control system (ASMGCS) to assist with identification and management of all aircraft and vehicles on the airport manoeuvring area. ASMGCS consists of an enhanced surface movement radar (SMR) combined with a multilateration system to track aircraft and vehicles on the airport surface (see [Section 6.8](#)).

The WAAM is a surveillance technology with a high update rate, which permits ATC to accurately undertake precision runway monitoring for aircraft on approach to the parallel runway system in poor weather conditions. It is critical to maintaining runway capacity in these conditions.

The terminal area radar provides a primary radar surveillance capability out to a radius of 50 nautical miles from Sydney Airport. It provides secondary radar coverage to about 175 nautical miles. This system is augmented by the WAAM and automatic dependent surveillance broadcast system.

Surveillance and navigation systems rely on the transmission of radio waves that must be protected from any structures or obstacles that could cause signal refraction or interference. Consequently, areas located either on-airport or off-airport surrounding these facilities may have development restrictions imposed through Sydney Airport's development approval assessment process.

The ARFF service has two on-airport fire stations and currently provides ICAO Category 9 standard during hours of flight operations, upgrading to Category 10 as required to facilitate A380 operations. The ARFF service is also equipped to undertake marine rescue within Botany Bay. A fire training area is located to the north of the ARFF facility near Runway 16L.

2.3.2 Bureau of Meteorology facilities

The Bureau of Meteorology (BOM) has a number of airport facilities to support aircraft operations. These include:

- A weather balloon-launching station
- Instrument enclosure
- A vertical wind profiler
- Visibility sensors
- Observation office

2.4 Overview existing freight facilities and service providers

The existing airside and landside cargo terminal facilities at Sydney Airport are occupied by and the responsibility of various service providers or Cargo Terminal Operators (CTOs).

Freight logistics at Sydney Airport are dominated by four main CTOs – Qantas, dnata, DHL and Menzies Freight. The area dedicated to freight operations/ international and domestic CTOs is approximately 13.7 hectares.

The airside terminal facilities are located on land leased from Sydney Airport. These are primarily located in the North West Sector for international air freight handling, and domestic air freight handling is located within the North East Sector (passenger terminal precinct of T2 and T3).

Livestock handling facilities are provided at Sydney Airport in accordance with Australian quarantine requirements in the current international precinct.

Off-site, there are well over 100 forwarders, logistics providers and integrators located within a 5km radius of Sydney Airport. These operations range in scale, complexity and degree of service from major operations to small owner-operators offering very basic services.

Sydney Airport air freight volumes are dominated by imported goods and associated handling requirements. As a hub airport, air freight to and from Sydney is transhipped via domestic routes, which produces different handling characteristics for airlines.

Appendix D

Compliance with Airports Act



COMPLIANCE WITH AIRPORTS ACT

The Sydney Airport Master Plan must be prepared in accordance with the requirements of the *Airports Act 1996* and associated Regulations.

The legislation specifies elements that are to be addressed within an Airport Master Plan. The tables below should be used to reference how each element of the legislation is addressed within the Master Plan.

Requirements under Part 5, Division 3, Section 70(2) Final Master Plans	Chapter / Section 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 2.0 and 3.0
b. to provide for the development of additional uses of the airport site	Chapter 10.0
c. to indicate to the public the intended uses of the airport site	Chapters 7.0 and 13.0
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 13.0, 14.0, 15.0 and 16.0
e. to ensure that all operations at the airport are undertaken in accordance with relevant environmental legislation and standards	Chapter 14.0 and Environment Strategy 2019-2024
f. to establish a framework for assessing compliance at the airport with relevant environmental legislation and standards	Chapter 14.0 and Environment Strategy 2019-2024
g. to promote the continual improvement of environmental management at the airport	Chapter 14.0 and Environment Strategy 2019-2024

Requirements under Part 5, Division 3, Section 71(2) Contents of Draft or Final Master Plan	Chapter / Section Response
a. the airport-lessee company's development objectives for the airport	Chapter 2.0
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 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0
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	Chapters 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0
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 15.0
da. flight paths (in accordance with regulations, if any, made for the purpose of this paragraph) at the airport	Chapter 15.0
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	Chapters 13.0, 15.0 and 16.0
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 14.0 and Environment Strategy 2019-2024
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 14.0 and Environment Strategy 2019-2024

Requirements under Part 5, Division 3, Section 71(2) Contents of Draft or Final Master Plan	Chapter / Section Response
ga. in relation to the first 5 years of the master plan - a plan for a ground transport system on the landside of the airport that details:	Chapter 7.0 and 11.0
i. a road network plan	
ii. the facilities for moving people (employees, passengers and other airport users) and freight at the airport	
iii. the linkages between those facilities, the road network and public transport system at the airport and the road network and public transport system outside the airport	
iv. the arrangements for working with the State or local authorities or other bodies responsible for the road network and the public transport system	
v. the capacity of the ground transport system at the airport to support operations and other activities at the airport	
vi. the likely effect of the proposed developments in the master plan on the ground transport system and traffic flows at, and surrounding, the airport	
gb. in relation to the first 5 years of the master plan - detailed information on the proposed developments in the master plan that are to be used for:	Chapters 7.0 and 10.0
i. commercial, community, office or retail purposes	
ii. for any other purpose that is not related to airport services	
gc. in relation to the first 5 years of the master plan - the likely effect of the proposed developments in the master plan on:	Chapters 3.0 and 10.0
i. employment levels at the airport	
ii. the local and regional economy and community, including an analysis of how the proposed developments fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport	
h. an environment strategy that details:	Chapter 14.0 and Environment Strategy 2019-2024
i. the airport-lessee company's objectives for the environmental management of the airport	
ii. the areas (if any) within the airport site which the airport-lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant	
iii. the sources of environmental impact associated with airport operations	
iv. the studies, reviews and monitoring to be carried out by the airport-lessee company in connection with the environmental impact associated with airport operations	
v. the time frames for completion of those studies and reviews and for reporting on that monitoring	
vi. the specific measures to be carried out by the airport-lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations	
vii. the time frames for completion of those specific measures	
viii. 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.	
i. such other matters (if any) as are specified in the regulations.	Chapter 14.0 and Environment Strategy 2019-2024

Requirements under Part 5, Division 3, Section 71A Draft or final master plan must identify proposed sensitive developments	Chapter / Section Response
1. A draft or final master plan must identify any proposed sensitive development in the plan.	N/A
2. A sensitive development is the development of, or a redevelopment that increases the capacity of, any of the following:	N/A
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	
(2A) A sensitive development does not include the following:	Noted
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 inhouse training to staff of an organisation conducting operations at the airport	
3. In this section:	Noted
Aviation educational facility means any of the following:	Noted
a. a flying training school	
b. an aircraft maintenance training school	
c. a facility that provides training in relation to air traffic control	
d. a facility that provides training for cabin crew	
e. any other facility with the primary purpose of providing training in relation to aviation related activities	
Community care facility includes the following:	Noted
a. a facility that provides aged care within the meaning given by the Aged Care Act 1997	
b. a retirement village within the meaning given by the Social Security Act 1991	Noted
c. a facility that provides respite care within the meaning given by the Aged Care Act 1997	

Requirements under Part 5, Division 3, Section 79 Public comment or advice to State etc.	Chapter / Section Response
Advice to State etc.	
<p>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:</p> <ul style="list-style-type: none"> 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. 	Commenced
<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); and b. a written certificate signed on behalf of the company listing the names of those to whom the advice was given. 	Upcoming action
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; and (ii) 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; and (iii) specifying the place or places where the copies will be available for inspection and purchase; and (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; and (iiib) in the case of a notice published in a newspaper—specifying the address of the airport's website; and (iv) 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; and b. make copies of the preliminary version available for inspection and purchase by members of the public in accordance with the notice; and a. 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; and (ii) in accordance with the notice. 	Upcoming action

Requirements under Part 5, Division 3, Section 79 Public comment or advice to State etc.	Chapter / Section Response
<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> <p>a. copies of those comments; and</p> <p>b. a written certificate signed on behalf of the company:</p> <ul style="list-style-type: none"> (i) listing the names of those members of the public; and (ii) summarising those comments; and (iii) demonstrating that the company has had due regard to those comments in preparing the draft plan; and (iv) 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>	Upcoming action

Requirements under Part 5, Division 3, Section 80 Consultations	Chapter / Section Response
<p>1. This section applies if:</p> <p>a. an airport-lessee company gives the Minister a draft master plan under section 75, 76 or 78; and</p> <p>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:</p> <ul style="list-style-type: none"> (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. 	Upcoming action
<p>2. The draft plan submitted to the Minister must be accompanied by a written statement signed on behalf of the company:</p> <p>a. listing the names of the persons consulted; and</p> <p>b. summarising the views expressed by the persons consulted.</p>	Upcoming action

Requirements under Regulation 5.02: Contents of Draft or Final Master Plan - general	Chapter / Section Response
1. For paragraphs 71(2)(j) and (3)(j) of the Act, the following matters are specified in an environment strategy:	Chapters 15.0 and 16.0
a. any change to the OLS or PANS-OPS surfaces for the airport concerned that is likely to result if development proceeds in accordance with the master plan	
b. for an area of an airport where a change of use of a kind described in subregulation 6.07(2) of the Airports (Environment Protection) Regulations 1997 is proposed:	
(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.	
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 13.0 and Appendices B and F
3. For subsection 71(5) of the Act, a draft or final master plan must:	Chapter 7.0
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.	

Requirements under Regulation 5.02A: Contents of Draft or Final Master Plan - to be specified in Environment Strategy	Chapter / Section Response
1. For subparagraphs 71(2)(h)(ix) and (3)(h)(ix) of the Act, the matters in this regulation must be specified in an environment strategy.	Chapter 14.0 and Environment Strategy 2019-2024
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:	Chapter 14.0 and Environment Strategy 2019-2024
a. any relevant indigenous communities and organisations; and	
b. any relevant Commonwealth or State body	
3. The environment strategy must specify the airport-lessee company's strategy for environmental management of areas of the airport site that are, or could be, used for a purpose that is not connected with airport operations.	Chapter 14.0 and Environment Strategy 2019-2024
4. The environment strategy must specify:	Chapter 14.0 and Environment Strategy 2019-2024
a. the training necessary for appropriate environment management by persons, or classes of persons, employed on the airport site by the airport-lessee company or by other major employers; and	
b. the training programs, of which the airport-lessee company is aware, that it considers would meet the training needs of a person mentioned in paragraph (a).	

Requirements under Regulation 5.02B: Contents of Draft or Final Master Plan - to be addressed in Environment Strategy	Chapter / Section Response
1. For subsection 71(5) of the Act, a draft or final master plan must address the things in this regulation.	Chapter 14.0 and Environment Strategy 2019-2024
2. In specifying its objectives for the airport under subparagraph 71(2)(h)(i) or (3)(h)(i) of the Act, an airport-lessee company must address its policies and targets for:	Chapter 14.0 and Environment Strategy 2019-2024
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.	
3. In specifying under subparagraph 71(2)(h)(ii) or (3)(h)(ii) of the Act, the areas within the airport site it identifies as environmentally significant, an airport-lessee company must address:	Chapter 14.0 and Environment Strategy 2019-2024
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.	
4. In specifying the sources of environmental impact under subparagraph 71(2)(h)(iii) or (3)(h)(iii) of the Act, an airport-lessee company must address:	Chapter 14.0 and Environment Strategy 2019-2024
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.	

Requirements under Regulation 5.02B: Contents of Draft or Final Master Plan - to be addressed in Environment Strategy	Chapter / Section 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); and b. the scope, identified by the airport-lessee company, for conservation of objects and matters at the airport that have natural, indigenous or heritage value; and c. the approaches and measures identified by the airport-lessee company as its preferred conservation approaches and measures; and d. the professional qualifications that must be held by a person carrying out the monitoring; and e. the proposed systems of testing, measuring and sampling to be carried out for possible, or suspected, pollution or excessive noise; and f. the proposed frequency of routine reporting of monitoring results to the airport environment officer (if any) for the airport, or to the Secretary. 	Chapter 14.0 and Environment Strategy 2019-2024
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:	
a. the matters mentioned in subregulations (2) to (4); and	
b. the means by which it proposes to achieve the cooperation of other operators of undertakings at the airport in carrying out those plans.	
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).	
	Chapter 14.0 and Environment Strategy 2019-2024



Appendix E

Planning Laws and Regulations



PLANNING LAWS AND REGULATIONS

Sydney Airport is subject to a range of airport specific, and general laws and regulations. The key planning laws and regulations that apply at Sydney Airport are set out in this Appendix.

E1 Airport master planning

The *Airports Act 1996* (the Act) requires the Master Plan to identify Sydney Airport'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.

This Master Plan has been prepared in accordance with the requirements of the Act.

A master plan must include the strategic direction for efficient and economic development at the airport and to indicate to the public the intended uses of the airport. A master plan must cover a period of 20 years and ordinarily, be reviewed every five years. A master plan must be displayed for public comment for 60 business days and must include:

- Development objectives and assessment of future needs
- Intentions for land use
- Australian Noise Exposure Forecast and the airport's intentions for managing noise
- Flight paths
- Airport environment strategy
- Ground transport plan
- Commercial activities
- Economic contributions

The *Airports Regulations 1997* provides land use, planning and building controls for Commonwealth leased airports. Part 5 of the regulations states that the master plan must set out proposals in a similar format to that required by state or territory legislation (as described above), specifically:

'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'.

The land use definitions (see Appendix B) and terminology used in NSW planning legislation have been used, where appropriate, to provide a level of detail and transparency.

Additionally the Airports Regulations specify that for Subsection 71(5) of the Airports Act a master plan must 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'.

E2 Airport developments

Construction of new development at the airport is subject to a robust development assessment process that provides a system for approving building activities. The *Airports (Building Control) Regulations 1996* establishes a system for approving appropriate building activities on the airport site.

Regulation 2.05 of the *Airports (Building Control) Regulations 1996* requires an application for approval of a building activity to include a statement describing how the proposed building activity is consistent with both the Master Plan and the Environment Strategy.

Building activities at the airport require a building activity approval from the Airport Building Controller (ABC) who is advised by the Airport Environment Officer (AEO). Both the ABC and the AEO are independent officers employed by the Commonwealth Department of Infrastructure, Regional Development and Cities.

In addition, a corresponding consent must also be granted by Sydney Airport. In this way, all proposed developments are assessed using the same process so as to determine whether the development is consistent with the Master Plan. This facilitates the independent assessment of development within the airport environment. Sydney Airport has an internal process for assessing development proposals which is described in more detail in section E3 below. A statutory assessment of the environmental impacts created by a new development is also undertaken by the AEO.

Where proposed works are deemed to require a Major Development Plan (MDP), an environmental assessment is carried out and community consultation is undertaken prior to seeking (pursuant to Division 4 Part 5 of the Act, including Section 89), approval from the Minister for Infrastructure and Transport. Major Development Plans may only be approved if they are consistent with the master plan in force for the airport.

E3 Development assessment at Sydney Airport

Development at Sydney Airport is managed under a regulatory framework set by the Act and associated regulations as well as the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

3.1 Regulatory processes

The planning and development process for lodging, assessing and approving works at Sydney Airport is summarised in the flow chart attached at [Figure E3-1](#).

The *Airports (Building Control) Regulations 1996* require that carrying out a building activity, as defined in Section 98 of the Act (described as development in this Master Plan), must have written consent of the airport lessee company (Sydney Airport Corporation Limited). Prior to Sydney Airport's written consent, the planning and development process must be followed (refer to [Figure E3-1](#)). Key aspects of this process are:

- Consultation with Sydney Airport planning and development as to the need for a major development plan (MDP), Sydney Airport development application, application for Sydney Airport consent or an exemption
 - Application under the *Airports (Building Control) Regulations 1996*
 - Determine whether the development is consistent with Section 32 of the Act
 - Determine the development's consistency with the Master Plan and Environmental Strategy
 - Consultation with internal and external stakeholders, in particular, local government, regarding developments in proximity to boundaries as well as state government agencies
- A statutory assessment of the environmental impacts created by new developments, which is assessed by the airport environmental officer through the airport building controller, in accordance with the *Airport (Building Control) Regulations 1996*

Environmental impact assessment is regulated by the EPBC Act, the *Airport (Environmental Protection) Regulations 1997* and the [Sydney Airport Environmental Strategy 2019-2024](#).

Pursuant to the Act and *Airports (Building Control) Regulations 1996*, Sydney Airport's written consent must also be accompanied by the consent of the ABC before works commence. Works of a minor nature may be expected only after consultation with the ABC. ABC applications are made pursuant to the Act and *Airports (Building Control) Regulations 1996* and focus primarily on:

- Consistency of the development with the Master Plan
- Compliance with the Building Code of Australia

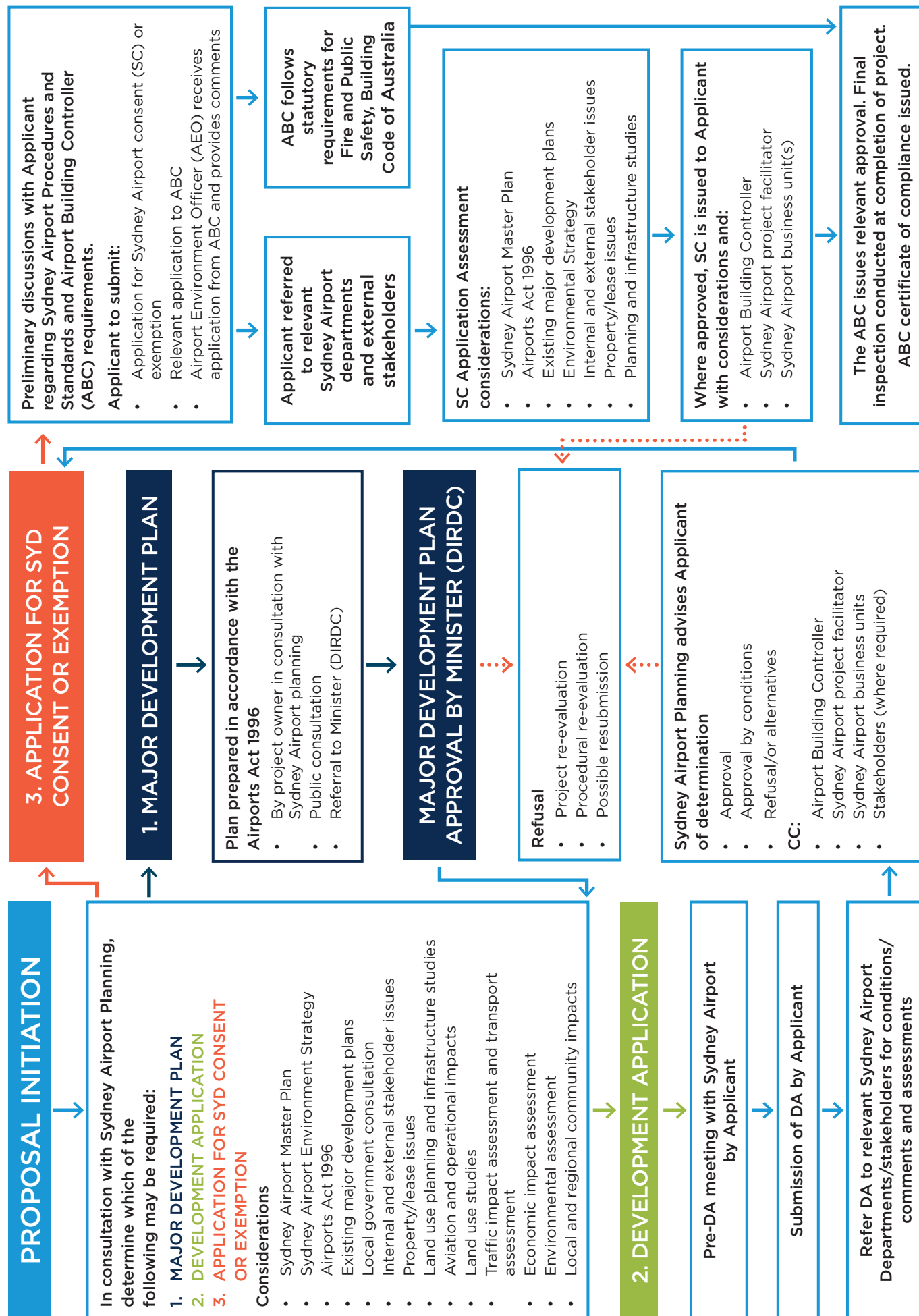


Figure E3-1: Sydney Airport planning and development process

3.2 Development standards

In addition to assessing proposals on regulatory compliance, proposals are also assessed on their performance in relation to a range of aviation, infrastructure, planning and environmental studies.

Due to the nature of the airport environment, development standards relating to each development are assessed on aviation-related standards not normally found in local planning ordinances. However, common planning standards and practices are applied to airport development where it is prudent to do so.

Sydney Airport's development standards are typically based on the list of documents and issues shown in [Table E3-1](#). Each development is assessed on its performance against each of these issues and corresponding guidelines and benchmark documents, in addition to the Land Use Plan (refer to [Chapter 13.0](#) of the Master Plan).

Table E3-1: Development Standard

Issue	Area	Sydney Airport guidelines and benchmark documents
Airside infrastructure	Aviation	MOS 139, ICAO Annex 14
Navigation surveillance systems	Aviation	Airservices Australia Navigational Aid Surface Drawings, MOS 172
Aircraft noise	Aviation	Building siting and insulation AS2021-2000 – Aircraft Noise Intrusion – Building, Siting and Construction
Obstacle limitation surface	Aviation	Airports (Protection of Airspace Regulations)
Runway end safety	Aviation	MOS 139
Lighting	Aviation	MOS 139
Bird hazard	Aviation	Wildlife management plan
Dust hazard	Aviation	Airport works plans
Aviation security	Aviation	Transport security program
Radar reflectivity and navigational aids	Aviation	Assessed on a case by case by Airservices Australia
Master grading	Infrastructure	Services master plan
Utilities	Infrastructure	Services master plan
Advertising and signage	Planning	Sydney Airport Master Plan; SEPP 64 principles
Land use	Planning	Sydney Airport Master Plan
Road traffic generation, traffic and transport management	Planning	Ground transport strategy, RTA guide to traffic generating development
Utilities protection	Planning	New southern railway, underground fuel and gas pipelines, SWSOOS, services master plan
Contaminated sites	Environmental	Contaminated sites register
Heritage	Environmental	Environment strategy and heritage management plan
Fuel storage	Environmental	Above-ground fuel storage policy
Asbestos	Environmental	Work health and safety standards
Environmentally sustainable development	Environmental	Environment strategy

3.3 External consultation

Table E3-2 outlines a list of the agencies consulted on an ongoing basis. Note that agencies are consulted where there is a requirement for specific input on a particular issue. Other agencies not appearing below may also be consulted

Table E3-2: External Consultation

Consulted Body	Reason
Department of Planning and Environment (NSW)	Consultation regarding major on-airport developments
Airlines and tenants	Consultation regarding major on-airport developments
Local government authorities	Stakeholder consultation with local government on development interface issues on the airport boundary, including major developments
Airservices Australia and Civil Aviation Safety Authority	Radar/Navigational/OLS interference issues
Roads and Maritime Services	Trunk road access, advertising signage, traffic generating developments
Sydney Water Corporation	Potable water, trade waste, heritage (Alexandra Canal), air rights, SWSOOS
Sydney Ports Corporation	Port Botany/airport interface issues
Ausgrid	Electrical supply – network issues on-site/off-site
Joint User Hydrant Installations	Pipeline protection – hydrant installation and pipeline
Airport Link Company	New southern railway tunnel protection
APA Group	Moomba Gas pipeline protection
Department of Environment, Population and Energy	Heritage matters

E4 Consistency with State environmental planning policies

4.1 Consistency with State environmental planning policies

State Environmental Planning Policy	Relevance to Sydney Airport
State Environmental Planning Policy No 33—Hazardous and Offensive Development (SEPP 33)	<p>SEPP 33 aims to identify potentially hazardous or offensive development and, in determining whether a development is hazardous or offensive industry, requires measures to be employed to reduce the impact of such development.</p> <p>Any proposed development of a hazardous or offensive nature on Sydney Airport requires development consent. Supporting information may include a hazard analysis prepared in accordance with relevant requirements.</p>
State Environmental Planning Policy No 55—Remediation of Land (SEPP 55)	<p>The objectives of SEPP 55 include the remediation of contaminated land for the purpose of reducing the risk to human health or another aspect of the environment. Under SEPP 55, a consent authority must not grant consent to a development unless it has considered whether the land is contaminated and whether it is suitable, or can be made suitable, for the proposed use.</p> <p>Sydney Airport has legislative requirements and internal processes to manage contaminated sites to achieve objectives similar to the aims and objectives of SEPP 55. These objectives are documented in Sydney Airport Environment Strategy.</p>
State Environmental Planning Policy No 64—Advertising and Signage (SEPP 64)	<p>SEPP 64 aims to ensure outdoor advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable location, and is of high quality design and finish.</p> <p>Consistent with the aims of SEPP 64, Sydney Airport considers issues of road safety, amenity, character and finish when assessing proposals for advertisements and signage within the airport.</p>
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017	<p>The Vegetation in Non-Rural Areas SEPP aims to protect the biodiversity values of trees and other vegetation and preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.</p> <p>Vegetation at the airport consists predominantly of mown grassed areas with occasional low to open shrubland and woodlands, man-made wetlands and planted native and exotic trees. The Sydney Airport Environment Strategy 2019-2024 identifies two native plant community types occurring on the airport, their location and protection/ management measures.</p> <p>Management of vegetation at the airport is carried out in accordance with DIRDC's land clearing guidelines and the airport's replanting offset program. As part of the five year biodiversity action plan in the Environment Strategy 2019-2024, Sydney Airport proposes to develop an airport wide vegetation strategy which incorporates biodiversity offsets.</p>

State Environmental Planning Policy	Relevance to Sydney Airport
Coastal Management State Environment Planning Policy	<p>Sydney Airport acknowledges the introduction of the Coastal Management Act 2016 and the associated updates to the Coastal Management SEPP – the State Environmental Planning Policy (Coastal Management) 2018.</p> <p>The Coastal Management SEPP divides every part of the ‘coastal zone’ of NSW into one of three management areas. These are:</p> <ul style="list-style-type: none"> • The coastal wetlands and littoral rainforests area • The coastal environment area • The coastal use area <p>The purpose of a coastal management program is to ‘set the long-term strategy for the co-ordinated management of land within the coastal zone’. The focus of the program is to achieve the objectives of the Coastal Management Act. These objectives are wide-ranging and include:</p> <ul style="list-style-type: none"> - Protect and enhance natural coastal processes and coastal environmental values including natural character, scenic value, biological diversity and ecosystem integrity and resilience - Recognise the coastal zone as a vital economic zone and to support sustainable coastal economies - Facilitate ecologically sustainable development in the coastal zone and promote sustainable land use planning decision-making - Promote integrated and co-ordinated coastal planning, management and reporting - Facilitate the identification of land in the coastal zone for acquisition by public or local authorities in order to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone. <p>The coastal area around Sydney Airport is identified by the NSW Government as a ‘coastal use area’. The management objectives for the ‘coastal use area’ (set out in the Coastal Management Act) envisage that there will be urban development (with bulk and scale) on adjacent land.</p> <p>Sydney Airport is surrounded by waterways (including the coastal area). To minimise the impact of airport operations on surface water quality in adjacent waterways, we work closely with airport tenants, operators and contractors to manage activities that have the potential to impact on water quality and continue to identify opportunities to improve water quality. We have prepared a draft Stormwater Quality Management Plan which aims to improve the quality of stormwater leaving the airport site.</p> <p>The flood study mentioned in Master Plan 2039 is directly aimed at addressing the impacts of rising sea levels. Flood studies will be undertaken under the Climate Risk Assessment and Adaptation Plan. Sydney Airport has committed to periodic reviews and updates of the Adaptation Plan to ensure it evolves in response to new science, new global, Australian or aviation policies and new information. These documents identify risks associated with potential future climate scenarios and actions required to fully prepare for a climate resilient future.</p>

State Environmental Planning Policy	Relevance to Sydney Airport
<p>State Environmental Planning Policy (Three Ports) 2013</p>	<p>Three Ports SEPP identifies Port Botany as a State significant area for the development of port related facilities and development that supports the operations of Port Botany. Three Ports SEPP recognises the proximity of Sydney Airport and seeks to provide for development at Port Botany that does not, by its nature or scale, constitute an actual or potential obstruction or hazard to aircraft.</p> <p>Land to the east of Sydney Airport within the State Environmental Planning Policy is zoned primarily General Industry (IN1) and Special Activities (SP1).</p> <p>The proposed zoning of land on the eastern side of Sydney Airport recognises the proximity to SEPP (Port Botany). Sydney Airport also recognises the height and scale of development envisaged within SEPP (Port Botany) and its potential impacts on airport operations.</p>
<p>Sydney Regional Environmental Plan No 33—Cooks Cove (SREP 33)</p> <p>(Deemed State Environmental Planning Policy)</p>	<p>Under SREP 33, 20 hectares of the Cooks Cove northern precinct has been within a Trade and Technology Zone (TTZ). In part, the TTZ aims to:</p> <ul style="list-style-type: none"> • Rezone land at Cooks Cove to encourage trade and technology uses, and to attract global-reach businesses which strengthen Sydney's international competitiveness, and • Capitalise on the physical proximity of the Cooks Cove site to Sydney Airport and Port Botany to create trade-focussed development <p>Sydney Airport has long argued the importance of protecting employment lands in the vicinity of the airport. Sydney Airport therefore opposes current proposals to rezone the TTZ to permit residential development, including 25-storey towers.</p>

4.2 Consistency of Master Plan with relevant Local Environmental Plans

4.2.1 Introduction

Local Environmental Plans (LEPs) are prepared under Part 3 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and provide the statutory planning provisions and development controls for a local government area (LGA).

On 21 September 2005 a Standard Instrument – Principal Local Environmental Plan (LEP template) for all local government areas within the state of NSW was introduced by the NSW Minister for Planning and Environment. The *Bankstown Local Environmental Plan 2015* (BLEP) was developed in accordance with the standard instrument.

The Sydney Airport site is located within the Bayside and Inner West LGAs. These LGAs were formed following Council amalgamations in 2016, and until new comprehensive LEPs for these Councils are made, the previous Council's LEPs apply. These are:

- Botany Bay LEP 2013
- Rockdale LEP 2011 (which form Bayside Council)
- Marrickville LEP 2011 (which along with Ashfield and Leichhardt Council, formed Inner West Council)

The relevant associated provisions under each LEP are outlined in this appendix, together with an assessment of the consistency of the Master Plan's land use zones with the relevant provisions.

4.2.2 Land Use Definitions on Sydney Airport

Land use definitions for LEPs are required to meet the definitions in the NSW Standard LEP template. Definitions of terms used for the Sydney Airport Master Plan are provided in [Appendix G](#).

4.2.3 Bayside Council

The relevant zoning provisions of Botany Bay LEP 2013, and the Rockdale LEP 2011, as they relate to the Airport Site and adjoin land are detailed below.

Botany Bay LEP 2013

The relevant zoning provisions of Botany Bay LEP, as they relate to Sydney Airport and its land use zones, are detailed below.

Zone SP2 Infrastructure (Airport)

The airport site is zoned SP2 Infrastructure (Airport) under the Botany Bay LEP 2013, specifically for airport use. The objectives of the SP2 Infrastructure zone are:

- To provide for infrastructure and related uses and
- To prevent development that is not compatible with or that may detract from the provision of infrastructure

Environmental protection works in this zone are permitted without consent. Land uses permitted with consent in this zone include development for the airport or development ordinarily incidental or ancillary to development for the purpose of an airport.

The Master Plan has divided this portion of the land into the following separate zones to accurately reflect on-site activities. These zones include:

- AD1 – Aviation Activities and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support
- AD4 – Utilities Reservation
- AD5 – Aviation Reservation
- BD1 – Business Development
- BD2 – Enviro-Business Park
- EC1 – Environmental Conservation

Each zone provides for specific types of land uses related to airport operations and other development that is considered ancillary or incidental to airport operations, including the business, industrial and commercial land uses. The aviation related land uses are therefore consistent with the SP2 Infrastructure (Airport) zoning under Botany Bay LEP 2013.

Zone SP2 Infrastructure (Railway) and (Classified Road)

Adjacent to the SP2 Infrastructure (Airport) zone along the northern and eastern perimeter of the airport are areas of land zoned either SP2 Infrastructure (Railway) or SP2 Infrastructure (Classified Road) under the Botany Bay LEP. These major transport network services provide a buffer between the airport and adjacent industrial and business development zones, and also provide access to Port Botany. The objectives of these zones are to provide for infrastructure and related uses, and to prevent development that is not compatible with or that may detract from the provision of infrastructure. Environmental protection works are permitted without consent in this zone. Land uses permitted with consent in this zone include development for the purpose of a railway or development ordinarily incidental or ancillary to development for the purpose of a railway.

The zones specified under the Master Plan will not conflict with or prevent the efficient operations of SP2 Infrastructure (Railway) or (Classified Road) zones.

IN1 General Industrial

A large parcel of land located to the north of the airport site between Coward Street and Qantas Drive is zoned IN1 General Industrial. There is also a small portion south of General Holmes Drive on the western side of McFall Street. The objectives of this zone include to provide a wide range of industrial and warehouse land uses, encourage employment opportunities, minimise any adverse effect of industry on other land uses and to support and protect industrial land for industrial uses. A wide range of employment uses are permitted with consent in the IN1 General Industrial zone.

Land zoned IN1 General Industrial adjoins land zoned proposed to be zoned AD1 (Aviation Activity and Aviation Support Facilities) and AD3 (Airport Logistics and Support) zones under the Master Plan which are considered to be complementary land uses to contribute towards an aviation-related commercial/light industrial hub.

B5 Business Development

Land to the north-east of the Airport site, between land zoned IN1 General Industrial and Wentworth Avenue is zoned B5 Business Development. A portion of the railway that that elsewhere is zoned SP2 Infrastructure (railway) is also part of this B5 zone. There is another small portion of land zoned B5 east of the site, near the intersection of Botany Road and the M1. The objective of this zone is 'to enable a mix of business and warehouse uses, and bulky goods premises that require a large floor area, in locations that are close to, and that support the viability of, centres'.

This zone adjoins land proposed to be zoned AD1 (Aviation Activity and Aviation Support Facilities), AD2 (Airport Terminal and Support Services), AD3 (Airport Logistics and Support) on the Airport site. Uses that are permissible with consent under these zones comprise aviation-related activities, including aviation support facilities, passenger transport terminals and support services as well as a business development. These uses are considered to be complementary with the objectives, and permissible uses within the B5 zone.

B4 Mixed Use

A parcel of land east of the Airport site, on the eastern side of Botany Road is zoned B4 Mixed Use. The objective of this zone is to provide a mixture of compatible land uses and to integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling. Uses permissible on this site include a range of commercial and retail uses, as well as shop top housing and apartment buildings. As this zoned land is east of both General Holmes Drive and Botany Road, and the B5 Business Development zone, this is considered to be a transition zone to residential zones further east.

IN2 Light Industrial

On the eastern side of Botany Road, south of Wentworth Avenue, land is zoned IN1 Light Industrial. The objectives of this zone include providing a wide range of light industrial, warehouse and related used, encourage employment opportunities and to support the viability of centres, to minimise any adverse effect of industry on other land uses and support and protect industrial land for industrial uses. This is near land proposed to be zoned BD1 Business Development and EC1 Environmental Conservation, and is considered to be a compatible zoning.

R2 Low Density Residential

A small portion of land zoned R2 Low Density Residential is located between the IN2 zoned land and Southern Cross Drive. Although this use is generally not consistent with the Airport zones and industrial and business uses in the vicinity, this is likely a legacy area given the age of some of the housing stock, and established when conflicting land use zones was not as regulated as today.

SP1 Special Activity (Recreation Facility)

On the southern side of Southern Cross Drive, east of Botany Road, is part of the Botany Water Reserves including the Mills Stream. This is zoned SP1 Special Activity (Recreation Facility) and objectives of this zone includes to provide for sites with special natural characteristics that are not provided for in other zones, and facilitating development that is in keeping with the special characterises of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land. This is a State significant landscape heritage item and also of regional importance as a major recharge source for the Sydney basin aquifer.

B7 Business Park

East of the Airport site, and on the southern side of Bay Street and the Mill Pond waterway, is an area of land zoned B7 Business Park. The objectives of the zone include providing a range of office and light industrial uses, to encourage employment opportunities and enable other land uses that provide facilities or services to meet the day to day needs of workers. This is considered to be a consistent use with the operations of the airport, and could provide for a range of support employment activity, which are considered to be uses complementary to the airport site.

RE1 Public Recreation

The southern-most parcel of land adjoining the eastern boundary of the airport site, south of General Holmes Drive, and adjoining the Mill Stream and Botany Bay foreshore, is a parcel of land zoned RE1 known as Sir Joseph Banks Park, and is approximately 26 hectares. Objectives of the zone include to enable land to be used for public open space or recreational purposes, provide a range of recreational setting and activities and compatible land uses, and protect and enhance the natural environment for recreational purposes. The EC1 zone in this portion of the site provides a buffer to airport operations in the west and minimises the potential for land use conflicts between land zoned under the Botany Bay LEP and the Master Plan. Given the environmental characteristics of this land, this zone is considered appropriate and not a conflicting use for the airport.

Rockdale Local Environmental Plan 2011

The relevant zoning provisions of Rockdale LEP, as they relate to Sydney Airport and its land use zones, are detailed below.

Zone SP2 Infrastructure (Airport)

The portion of the airport site located within the Rockdale LGA is zoned SP2 Infrastructure (Airport), which permits development for airport purposes. Development that is ordinarily ancillary to airport purposes is permissible with consent in this zone. The Master Plan has zoned this land for five (5) separate purposes. These are:

- AD1 – Aviation Activities and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support
- BD1 – Business Development
- BD2 – Enviro-Business Park

The provisions of the Rockdale LEP that relate to land adjoining Sydney Airport are discussed below.

Zone RE1 Public Recreation

Land zoned RE1 Public Recreation, known as Kyeemagh Reserve, is located on the western side the Cooks River between Muddy Bay and Botany Bay. Another parcel RE1 zoned land further north of the land zoned under the SREP (Cooks Cove) site known as Cahill Park, is located along the foreshore of the Cooks River, west of the Airport site. Another parcel of RE1 zoned land adjoins the Cooks River between Muddy Bay and Botany Bay, known as Kyeemagh Reserve and Beach. The objectives of this zone are to enable land to be used for public open space or recreational purposes, provide for a range of recreational activities and compatible uses, and to protect and enhance the natural environment for recreation purposes. The types of uses that are permissible in the zone include recreational facilities, community facilities, child care centres and kiosks.

The western sector of the airport site adjacent on the opposite of the Cooks River to Cahill Park is proposed to be zoned BD1 (Business Development) and AD1 (Aviation Activity and Aviation Support Facilities) and under the Master Plan. The part of the Airport site on the opposite side of the Cooks River of Kyeemagh Reserve is proposed to be zoned AD1 (Aviation Activity and Aviation Support Facilities).

The separation achieved by the Cooks River ensures that the proposed zonings will not conflict with the public recreation areas. Amenity impacts on existing open space areas will remain unchanged from the existing zones

Clause 6.3 Development in areas subject to aircraft noise

The provisions of Clause 6.3 of Rockdale LEP 2011 place specific controls on developing land within areas directly affected by aircraft noise. That is, land in proximity to the airport site and within an ANEF contour of 20 or greater. The provision directs council to ensure the guidelines provided in Australian Standard *AS 2021:2015 – Acoustics – Aircraft Noise Intrusion – Building Siting and Construction* are incorporated in the design and construction of buildings that are affected by noise and vibration associated with airport operations.

Marrickville Local Environmental Plan 2011

The relevant zoning provisions of Marrickville Local Environmental Plan 2011 (Marrickville LEP), as they relate to Sydney Airport and its land use zones, are detailed below.

Infrastructure (Air Transport Facilities)

A portion of the northern sector of the airport site, around Alexandra Canal, is located within the Inner West LGA and subject to the Marrickville LEP 2011. Sydney Airport is zoned SP2 Infrastructure (Air Transport Facilities) under Marrickville LEP. The Master Plan has zoned this land for three (3) separate purposes. These are:

- AD1 – Aviation Activity and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support

The objective of the SP2 (Infrastructure) zone is ‘to provide for infrastructure and related uses, to prevent development that is not compatible with or that may detract from the provision of infrastructure and to protect and provide for land used for community purposes’.

Under the SP2 Infrastructure (Air Transport Facilities) zone, home occupations are permitted without consent. Roads and any development that is ordinarily incidental or ancillary to development for the purpose of air transport facilities is permitted with consent in the SP2 Infrastructure (Air Transport Facilities) zone). All other land uses are prohibited in this zone.

The Master Plan proposes to zone this land as AD1 (Aviation Activity and Aviation Support Facilities), AD2 (Airport Terminal and Support Services) and AD3 (Airport Logistics and Support) which permit uses that are fundamental to airport operations.

Zone IN1 General Industrial

Sydney Airport owns a freehold parcel of land north of Airport Drive and Alexandra Canal, which is within the airport boundary. This freehold land does not fall within the Commonwealth’s landholding of the airport. This land is therefore governed under the provisions of the NSW EP&A Act and Marrickville LEP and is zoned IN1 General Industrial under Marrickville LEP.

The purpose of the IN1 zone is to provide for industrial and warehouse uses, to encourage employment, minimise adverse effect of industry on other land uses, and to protect industrial land in proximity to Sydney Airport and Port Botany. For the adjoining land subject to the Master Plan, the zone AD3 – Airport Logistics and Support is to apply, which permits uses that support airport operations.

Types of development permissible with consent in the IN1 zone include (but are not limited to) dwelling houses, general industries, light industries, neighbourhood shops, and takeaway and food and drink premises. While permissible with consent in the IN1 zone, development consent in relation to dwelling houses only applies to alterations or additions to existing dwellings. It is also noted that a number of airport related uses, such as air transport facilities, airstrips and passenger transport facilities, are prohibited in the IN1 zone.

Existing development within the IN1 zone comprises a number of uses prohibited under Marrickville LEP, including animal boarding or training establishments, commercial premises, child care centres, and air transport facilities. Aviation-related uses within the AD3 zone would not unreasonably intensify the use of this area beyond what currently exists. In addition, there are no sensitive land uses adjoining or in proximity to this portion of the airport site.

A portion of the IN1 zoned land is owned by Sydney Airport but is not zoned under the Master Plan and is not subject to the requirements of the Act or the Master Plan.

RE1 Public Recreation

Land zoned RE1 Public Recreation is located adjacent to the airport site, to the north of Alexandra Canal. A small portion of this land is located adjacent to land zoned AD1 (Aviation Activity and Aviation Support Facilities) and AD2 (Airport Terminal and Support Services) under the Master Plan. The objective of the RE1 zone is to enable land to be used for public open space or recreational purposes, provide a range of recreational settings and activities, community facilities, services and compatible land uses, and to protect and enhance the natural environment for recreational purposes.

The location of the RE1 zone on the opposite side of Alexandra Canal, coupled with the purpose of the zone, minimises the potential for land use conflicts between this land and the airport site. In addition, RE1 zoned land provides a buffer between residential development to the north and airport operations.

Zone SP2 Infrastructure (Rail Infrastructure Facilities, Air Transport Facilities and Stormwater Management Systems)

Land within the Marrickville portion of the site is zoned SP2 Infrastructure and includes land for purposes including rail infrastructure facilities, air transport facilities and stormwater management systems. The objective of the SP2 Infrastructure zone is to 'provide for infrastructure and related uses, prevent development that is not compatible with or that may detract from the provision of infrastructure and to protect and provide for land used for community purposes'.

Alexandra Canal to the north of the airport is zoned SP2 Infrastructure for the purpose of stormwater management systems. Port Botany freight line and Airport Drive are zoned SP2 Infrastructure (Rail Infrastructure Facilities and Air Transport Facilities respectively). This zoning supports airport operations and is therefore consistent with the AD2 zone under the Master Plan.

Development in areas subject to aircraft noise

Marrickville LEP 2011 contains provisions, in section 6.5, relating to development on land that is near the airport, has an ANEF contour of 20 or greater and where the consent authority considers the land to be affected by aircraft related noise. This provision places specific controls on development within these areas and requires the consent authority to consider the following:

- Whether the development will result in an increase in the number of dwellings or people affected by aircraft noise
- The location of the development in relation to the criteria contained in Australian Standard AS 2021:2015, *Acoustics Aircraft Noise Intrusion - Building Siting and Construction*
- Satisfaction that the development will meet the indoor design sound levels in relation to the criteria provided in Australian Standard AS 2021:2000, *Acoustics - Aircraft noise intrusion - Building Siting and Construction*

Marrickville LEP 2011 contains provisions relating to the protection of airspace operations to direct the consent authority when assessing development applications to have regard to whether the proposed development will penetrate the limitation or operations surface. Development consent must not be granted if the consent authority and commonwealth body are satisfied that the proposed development will penetrate the limitation or operations surface.

4.2.4 Commercial and retail development in areas adjacent to Sydney Airport

The Act requires the Master Plan to include an analysis of how the proposed developments in the Master Plan fit within the planning schemes for commercial and retail development in the area that is adjacent to the airport.

Chapter 10.0 of the Master Plan (Commercial Development Plan) describes the type of commercial and retail development that may occur on the airport site over the planning period for the Master Plan, including the first five years.

Sydney Airport has a strong track record of delivering appropriate commercial activities/developments that enhance the passenger and other airport user needs. Sydney Airport's commercial planning activities comprise only 5.8 percent of allocated land. The majority of proposed future commercial development is expected to involve hotel accommodation for passengers, offices for aviation related businesses and general retail for passengers, their 'meeters and greeters', staff and related aviation service providers.

Therefore, having regard to the commercial and retail developments that are permitted by the various LEPs operating in areas adjacent to the Airport and given the type of commercial and retail development Sydney Airport anticipates will occur on the airport site over the planning period (including the next five years), the proposed on-airport developments fit within the planning schemes for areas adjacent to the Airport.

Appendix F

Runway Modes of Operation



RUNWAY MODES OF OPERATION

To facilitate noise sharing and implementation of the Long Term Operating Plan for Sydney Airport, Airservices Australia has adopted a preferred runway selection system which, depending on weather and traffic, utilises the runway modes of operation on specified days and times. The following arrangements set out in [Tables F1-1](#) and [F1-2](#), and [Figure F1-1](#) became effective on 1 July 2010.

Table F1-1: Preferred runway selection – Monday to Friday

Time	Preferred Options	Runway Operation
2300 to 0600	1	Curfew – Departures 16R / Arrivals 34L (Mode 1)
0600 to 0700	1	SODPROPS – Departures 16L / Arrivals 34L
	2	Departures 16L&R / Arrivals 34L (shoulder curfew). If traffic permits.
	3	Departures 34R, 25 & 34L/Arrivals 34L&R (Mode 8), or
		Departures 25 / Arrivals 34L&R (Mode 7), or
		Departures 16L&R / Arrivals 25 (Mode 5), or
		Departures 16L&R / Arrivals 07 (Mode 14A)
	4	34 (Mode 9) or 16 (Mode 10)
0700 to 2245	5	07 (Mode 12) or 25 (Mode 13)
	1	SODPROPS – Departures 16L / Arrivals 34L
	2	Departures 16L&R / Arrivals 07 (Mode 14A), or
		Departures 34R, 25 & 34L / Arrivals 34L&R (Mode 8), or
		Departures 25 / Arrivals 34L&R (Mode 7), or
		Departures 16L&R / Arrivals 25 (Mode 5)
2245 to 2300	3	34 (Mode 9) or 16 (Mode 10)
	4	07 (Mode 12) or 25 (Mode 13)
	1	SODPROPS – Departures 16L (mandatory) / Arrivals 34L
	2	Departures 16L&R (mandatory) / Arrivals 34L (shoulder curfew) unless there would be significant delays to either departing or arriving aircraft, or traffic complexity requires a variation or weather conditions preclude the use of 34L
	3	Departures 16L&R / Arrivals 25 (Mode 5), or
		Departures 16L&R / Arrivals 07 (Mode 14A)
2245 to 2300	4	16 (Mode 10)

Notes:

- Runway 34 and Runway 16 parallel runway operations should only be considered for use if required for traffic management purposes during the following hours:
 - 0700 to 1100 Monday to Saturday
 - 0800 to 1100 Sunday
 - 1500 to 2000 Sunday to Friday.
- In order to take advantage of suitable traffic dispositions, variations to these times will occur.
- 20 knot crosswind and 5 knot downwind criteria apply to all dry runway conditions
- This is not an operational document. It has been prepared for information purposes only and is subject to change without notice.

Source: Airservices, Sydney Airport Operational Statistics, January 2018

Table F1-2: Preferred runway selection – Saturday and Sunday

Time	Preferred Options	Runway Operation
2300 to 0600	1	Curfew – Departures 16R / Arrivals 34L (Mode 1)
0600 to 0700 Saturday	1	SODPROPS – Departures 16L / Arrivals 34L
0600 to 0800 Sunday	2	Departures 16L&R / Arrivals 34L (Shoulder Curfew). If traffic permits.
	3	Departures 16L&R / Arrivals 25 (Mode 5), or
		Departures 16L&R / Arrivals 07 (Mode 14A), or
		Departures 34R, 25 & 34L / Arrivals 34L&R (Mode 8), or
		Departures 25 / Arrivals 34L&R (Mode 7)
	4	34 (Mode 9) or 16 (Mode 10)
	5	07 (Mode 12) or 25 (Mode 13)
0700 to 2200 Saturday	1	SODPROPS – Departures 16L / Arrivals 34L or
0800 to 2200 Sunday	2	Departures 16L&R / Arrivals 07 (Mode 14A), or
		Departures 34R, 25 & 34L / Arrivals 34L&R (Mode 8), or
		Departures 25 / Arrivals 34L&R (Mode 7), or
		Departures 16L&R / Arrivals 25 (Mode 5)
	3	34 (Mode 9) or 16 (Mode 10)
	4	07 (Mode 12) or 25 (Mode 13)
2200 to 2245	1	SODPROPS – Departures 16L (Mandatory) / Arrivals 34L
	2	Departures 16L&R (Mandatory) / Arrivals 34L (Shoulder Curfew) unless there would be significant delays to either departing or arriving aircraft or traffic complexity requires a variation or weather conditions are not suitable.
	3	Departures 16L&R / Arrivals 25 (Mode 5)
	4	Departures 16L&R / Arrivals 07 (Mode 14A)
	5	Departures 34R, 25 & 34L / Arrivals 34L&R (Mode 8)
	6	Departures 25 / Arrivals 34L&R (Mode 7)
	7	34 (Mode 9) or 16 (Mode 10)
	8	07 (Mode 12) or 25 (Mode 13)
2245 to 2300	1	SODPROPS – Departures 16L&R (Mandatory) / Arrivals 34L
	2	Departures 16L&R (Mandatory) / Arrivals 34L (Shoulder Curfew) unless there would be significant delays to either departing or arriving aircraft or traffic complexity requires a variation or weather conditions preclude the use of 34L.
	3	Departures 16L&R / Arrivals 25 (Mode 5), or
		Departures 16L&R / Arrivals 07 (Mode 14A)
	4	16 (Mode 10)

Notes:

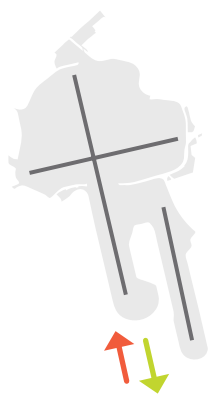
1. Runway 34 and Runway 16 parallel runway operations should only be considered for use if required for traffic management purposes during the following hours:
 - a. 0700 to 1100 Monday to Saturday
 - b. 0800 to 1100 Sunday
 - c. 1500 to 2000 Sunday to Friday.
2. In order to take advantage of suitable traffic dispositions, variations to these times will occur.
3. 20 knot crosswind and 5 knot downwind criteria apply to all dry runway conditions
4. This is not an operational document. It has been prepared for information purposes only and is subject to change without notice.

Source: Airservices, Sydney Airport Operational Statistics, January 2018

Mode 1 - Curfew

D 16R
A 34L

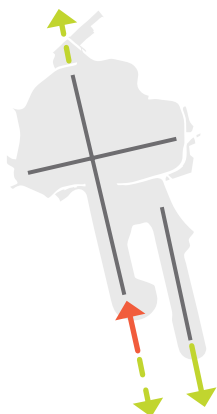
Departures to South
Arrivals from South



SODPROPS

D 16L, 16R(h)
A 34L

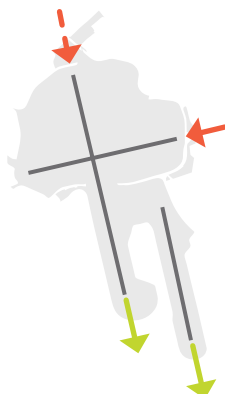
Departures to South
Arrivals from South



Mode 5

D 16L, 16R
A 25, 16R(h)

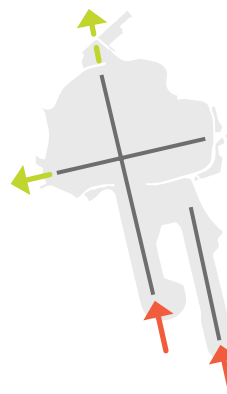
Departures to South
Arrivals from East



Mode 7

D 25, 34L(h)
A 34L, 34R

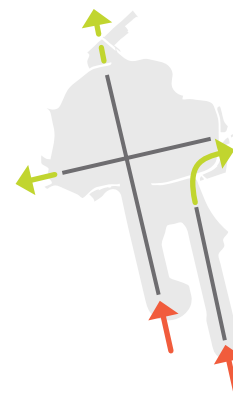
Departures to West
Arrivals from South



Mode 8

D 25, 34R, 34L(h)
A 34L, 34R

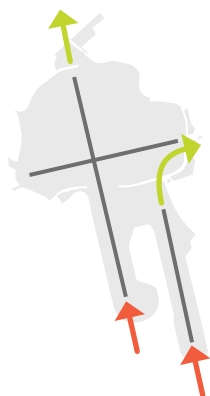
Departures to West,
East & North East
Arrivals from South



Mode 9

D 34L, 34R
A 34L, 34R

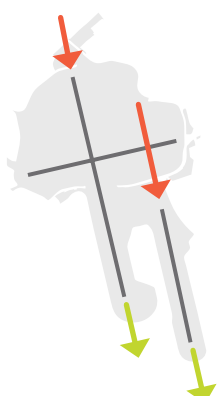
Departures to North & East
Arrivals from South



Mode 10

D 16L, 16R
A 16L, 16R

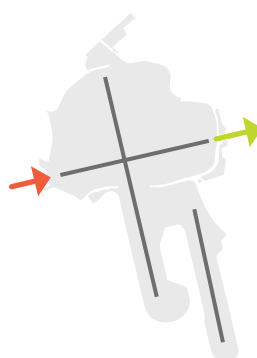
Departures to South
Arrivals from North



Mode 12

D 07
A 07

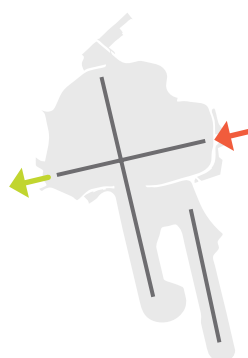
Departures to East
Arrivals from West



Mode 13

D 25
A 25

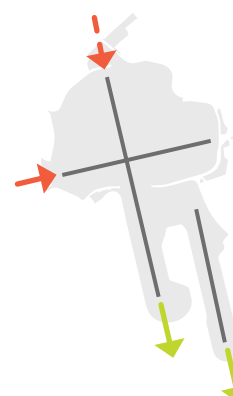
Departures to West
Arrivals from East



Mode 14a

D 16L, 16R
A 07, 16R(h)

Departures to South
Arrivals from West



Departure

Long Haul (h) Departure

Arrival

Long Haul (h) Arrival

Source: Airservices, Sydney Airport Operational Statistics, January 2018

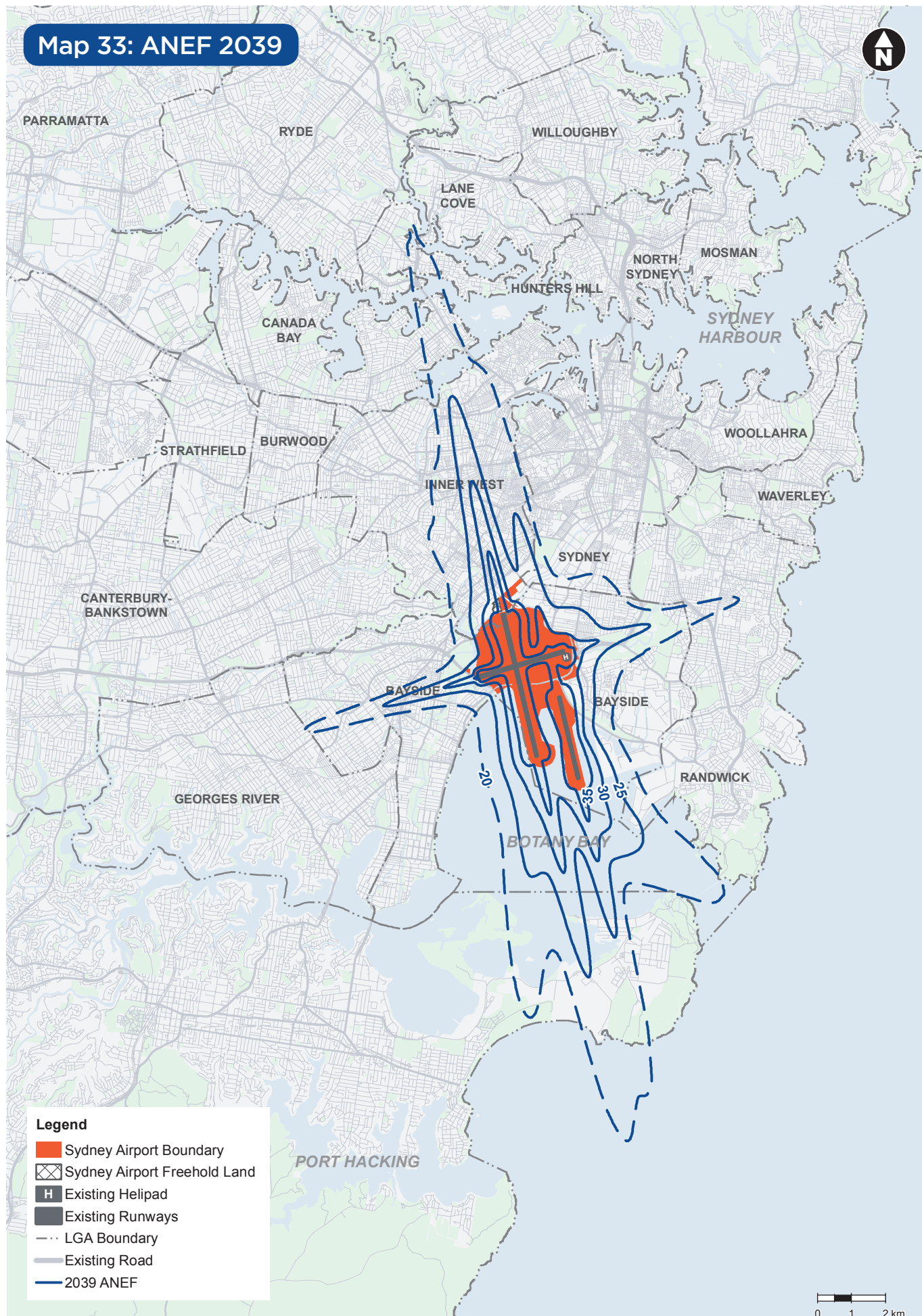
Figure F1-1: Runway modes of operation

Appendix G

ANEF



Map 33: ANEF 2039



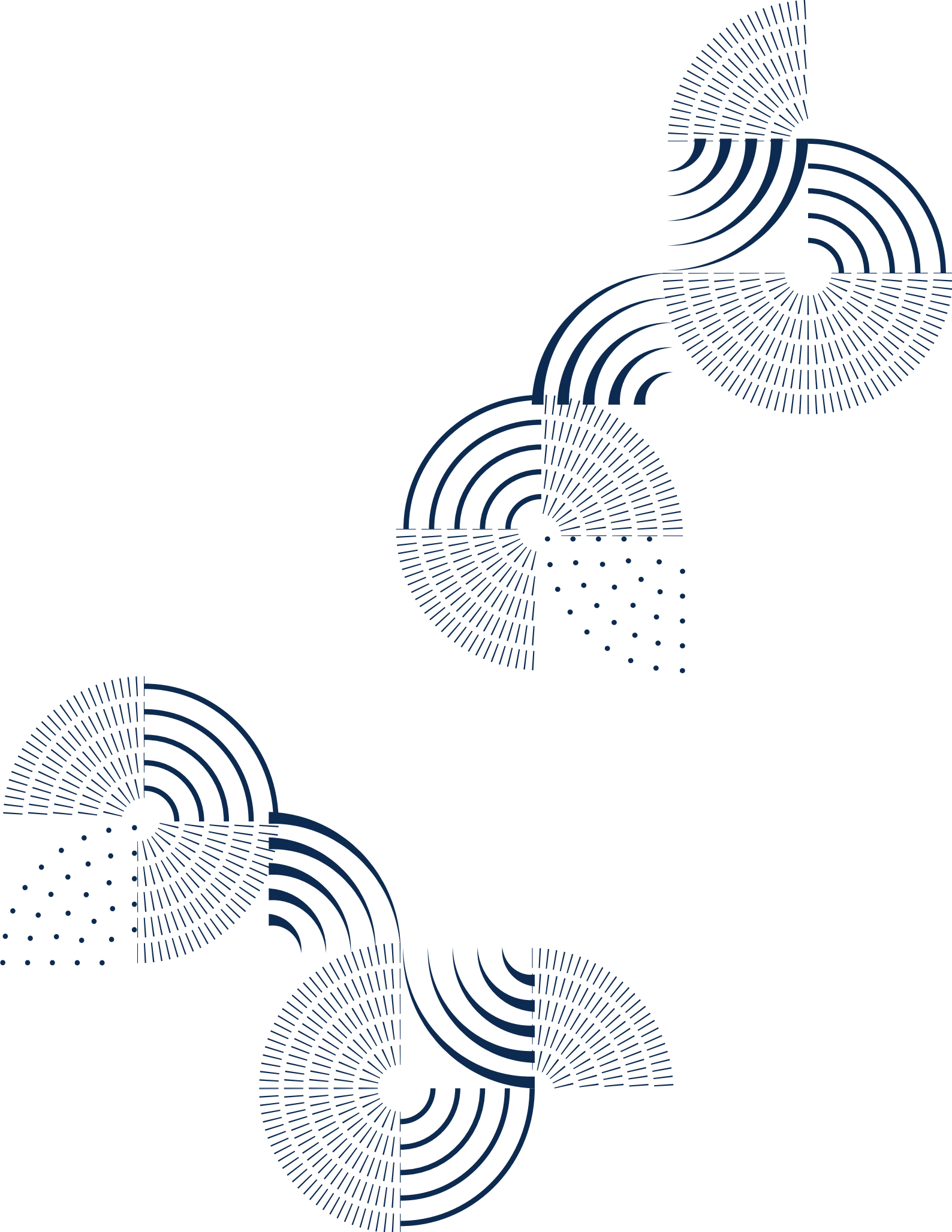
2026 Daily Movements by Runway														
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 07							Runway 25						
737800	9.44	1.42	10.85	4.88	0.60	5.48	16.33	7.80	1.81	9.62	5.49	0.92	6.42	16.03
737MAX	3.15	0.47	3.62	1.63	0.20	1.83	5.44	2.60	0.60	3.21	1.83	0.31	2.14	5.34
747400	0.20	0.00	0.20	0.11	0.02	0.13	0.33	0.17	0.00	0.17	0.12	0.03	0.15	0.32
777200	1.32	0.06	1.39	0.28	0.07	0.35	1.74	0.81	0.11	0.92	0.63	0.13	0.76	1.68
777300	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	0.03	0.03	0.08	0.00	0.08	0.11
7773ER	0.41	0.10	0.51	0.49	0.02	0.51	1.02	0.29	0.11	0.41	0.55	0.05	0.60	1.01
7878R	0.98	0.34	1.32	0.56	0.13	0.69	2.01	0.76	0.29	1.06	0.81	0.34	1.15	2.21
A320-232	1.65	0.45	2.10	0.94	0.10	1.04	3.14	1.36	0.58	1.94	1.03	0.15	1.19	3.13
A320NEO	0.55	0.15	0.70	0.31	0.03	0.35	1.05	0.45	0.19	0.65	0.34	0.05	0.40	1.04
A321-232	1.54	0.27	1.81	0.52	0.15	0.66	2.47	1.20	0.37	1.57	0.65	0.24	0.89	2.46
A321NEO	0.51	0.09	0.60	0.17	0.05	0.22	0.82	0.40	0.12	0.52	0.22	0.08	0.30	0.82
A330-343	3.22	0.46	3.68	1.34	0.22	1.57	5.25	2.64	0.60	3.24	2.21	0.27	2.48	5.72
A340-642	0.08	0.00	0.08	0.07	0.00	0.07	0.15	0.05	0.00	0.05	0.04	0.00	0.04	0.10
A380-841	0.27	0.06	0.32	0.23	0.05	0.28	0.60	0.22	0.12	0.34	0.33	0.10	0.43	0.77
A380-861	0.11	0.02	0.14	0.10	0.02	0.12	0.26	0.09	0.05	0.15	0.14	0.04	0.19	0.33
CNA441	0.00	0.38	0.38	0.00	0.04	0.04	0.43	0.00	0.52	0.52	0.00	0.17	0.17	0.69
CNA680	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.03	0.03	0.00	0.02	0.02	0.05
DHC830	2.30	0.07	2.37	1.58	0.15	1.73	4.10	2.29	0.16	2.45	1.90	0.16	2.06	4.51
DO228	0.08	0.03	0.12	0.09	0.02	0.11	0.22	0.09	0.04	0.13	0.10	0.03	0.13	0.25
DO328	1.01	0.06	1.07	0.38	0.08	0.47	1.54	0.86	0.08	0.94	0.48	0.07	0.56	1.50
F10062	0.40	0.00	0.40	0.11	0.00	0.11	0.51	0.23	0.00	0.23	0.09	0.00	0.09	0.33
GV	0.00	0.02	0.02	0.00	0.02	0.02	0.04	0.00	0.07	0.07	0.00	0.33	0.33	0.40
LEAR35	0.00	0.15	0.15	0.08	0.00	0.09	0.23	0.00	0.17	0.17	0.06	0.03	0.09	0.25
MD11GE	0.07	0.00	0.07	0.06	0.00	0.06	0.13	0.06	0.00	0.06	0.04	0.00	0.04	0.09
SF340	3.30	0.08	3.38	1.52	0.17	1.69	5.07	2.73	0.07	2.80	1.65	0.16	1.81	4.61
BAE146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	30.58	4.71	35.30	15.48	2.15	17.63	52.93	25.11	6.14	31.25	18.80	3.69	22.49	53.74
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 16L							Runway 34R						
737800	39.56	14.33	53.88	55.14	17.53	72.67	126.55	33.00	11.63	44.63	40.43	15.55	55.98	100.61
737MAX	13.19	4.78	17.96	18.38	5.84	24.22	42.18	11.00	3.88	14.88	13.48	5.18	18.66	33.54
747400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
777200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
777300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7773ER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7878R	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A320-232	6.01	2.25	8.26	10.20	3.51	13.71	21.98	5.37	2.14	7.51	7.74	2.98	10.72	18.24
A320NEO	2.00	0.75	2.75	3.40	1.17	4.57	7.32	1.79	0.71	2.50	2.58	0.99	3.57	6.08
A321-232	6.07	2.91	8.98	7.33	3.86	11.19	20.17	5.34	2.85	8.19	5.94	3.37	9.31	17.50
A321NEO	2.02	0.97	2.99	2.44	1.29	3.73	6.72	1.78	0.95	2.73	1.98	1.12	3.10	5.83
A330-343	5.45	0.87	6.33	11.48	2.07	13.55	19.88	4.60	1.16	5.76	8.55	1.69	10.24	16.00
A340-642	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A380-841	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A380-861	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CNA441	0.00	2.58	2.58	0.00	3.83	3.83	6.41	0.00	2.75	2.75	0.00	3.97	3.97	6.72
CNA680	0.00	0.52	0.52	0.00	0.43	0.43	0.95	0.00	0.43	0.43	0.00	0.56	0.56	0.99
DHC830	13.27	2.14	15.42	11.96	1.55	13.51	28.92	10.87	1.61	12.47	9.41	1.32	10.73	23.21
DO228	0.58	0.43	1.01	0.46	0.55	1.01	2.02	0.30	0.55	0.85	0.50	0.40	0.90	1.74
DO328	1.51	0.00	1.51	1.71	0.60	2.30	3.81	1.76	0.00	1.76	1.21	0.41	1.62	3.39
F10062	0.74	0.00	0.74	1.15	0.00	1.15	1.89	0.63	0.00	0.63	0.65	0.00	0.65	1.27
GV	0.00	0.52	0.52	0.00	0.93	0.93	1.45	0.00	0.43	0.43	0.00	0.62	0.62	1.05
LEAR35	0.00	1.04	1.04	0.57	0.43	1.01	2.05	0.00	1.43	1.43	0.29	0.55	0.84	2.27
MD11GE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SF340	4.49	0.00	4.49	5.85	0.00	5.85	10.34	4.48	0.00	4.48	4.31	0.00	4.31	8.79
BAE146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	94.89	34.11	129.00	130.07	43.68	173.75	302.75	80.91	30.53	111.43	97.07	38.73	135.80	247.23

2026 Daily Movements by Runway														
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 16R							Runway 34L						
737800	22.80	8.20	30.99	15.53	3.51	19.04	50.03	17.13	8.39	25.52	12.96	2.95	15.91	41.44
737MAX	7.60	2.73	10.33	5.17	1.17	6.35	16.68	5.71	2.80	8.51	4.32	0.98	5.30	13.81
747400	2.16	0.00	2.16	1.43	0.75	2.18	4.33	1.48	0.00	1.48	1.00	0.54	1.55	3.02
777200	5.27	2.51	7.78	7.29	2.71	10.00	17.78	6.60	2.32	8.92	5.79	2.08	7.88	16.80
777300	0.00	0.85	0.85	0.93	0.00	0.93	1.78	0.00	1.12	1.12	0.98	0.00	0.98	2.09
7773ER	3.02	2.64	5.66	6.47	1.06	7.53	13.20	3.28	4.15	7.42	4.49	0.87	5.35	12.77
7878R	7.65	4.26	11.91	9.56	4.66	14.22	26.13	7.61	5.11	12.71	7.07	3.78	10.85	23.56
A320-232	3.98	2.35	6.33	2.47	0.00	2.47	8.80	2.60	2.01	4.60	1.62	0.00	1.62	6.22
A320NEO	1.33	0.78	2.11	0.82	0.00	0.82	2.93	0.87	0.67	1.53	0.54	0.00	0.54	2.07
A321-232	3.57	0.85	4.42	1.24	1.89	3.13	7.55	2.11	0.66	2.77	0.83	1.74	2.57	5.35
A321NEO	1.19	0.28	1.47	0.41	0.63	1.04	2.52	0.70	0.22	0.92	0.28	0.58	0.86	1.78
A330-343	18.02	4.55	22.57	15.69	4.21	19.90	42.47	16.65	5.77	22.42	12.92	3.35	16.26	38.69
A340-642	0.58	0.00	0.58	0.57	0.00	0.57	1.15	0.28	0.00	0.28	0.31	0.00	0.31	0.60
A380-841	2.93	2.93	5.86	4.29	2.21	6.49	12.35	2.19	3.90	6.08	3.55	1.84	5.39	11.47
A380-861	1.25	1.26	2.51	1.84	0.95	2.78	5.29	0.94	1.67	2.61	1.52	0.79	2.31	4.92
CNA441	0.00	0.88	0.88	0.00	1.43	1.43	2.31	0.00	2.89	2.89	0.00	0.55	0.55	3.44
CNA680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DHC830	11.18	0.54	11.72	12.30	2.10	14.40	26.11	8.18	0.40	8.57	8.85	1.73	10.57	19.15
DO228	0.44	0.56	1.00	0.99	0.00	0.99	2.00	0.51	0.39	0.90	0.86	0.00	0.86	1.76
DO328	4.29	1.65	5.94	4.87	1.19	6.06	12.00	3.57	1.21	4.79	4.14	0.85	4.99	9.77
F10062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GV	0.00	0.54	0.54	0.00	0.10	0.10	0.65	0.00	0.41	0.41	0.00	0.00	0.00	0.41
LEAR35	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.00	0.21	0.21	0.00	0.56	0.56	0.77
MD11GE	0.58	0.00	0.58	0.57	0.00	0.57	1.15	0.29	0.00	0.29	0.33	0.00	0.33	0.62
SF340	16.15	1.67	17.81	16.05	3.66	19.71	37.52	14.86	1.18	16.04	12.61	3.01	15.62	31.66
BAE146	0.00	0.00	0.00	0.00	3.00	3.00	3.00	0.00	3.00	3.00	0.00	0.00	0.00	3.00
TOTAL	113.98	40.04	154.02	108.50	35.64	144.15	298.17	95.54	48.45	144.00	84.97	26.21	111.18	255.17

2039 Daily Movements by Runway														
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 07							Runway 25						
737800	6.15	0.90	7.05	3.00	0.35	3.35	10.40	4.98	1.15	6.12	3.41	0.55	3.96	10.08
737MAX	6.15	0.90	7.05	3.00	0.35	3.35	10.40	4.98	1.15	6.12	3.41	0.55	3.96	10.08
747400	0.13	0.00	0.13	0.16	0.00	0.16	0.28	0.09	0.00	0.09	0.09	0.00	0.09	0.18
777200	1.80	0.37	2.17	0.47	0.12	0.59	2.76	0.97	0.29	1.26	0.71	0.24	0.95	2.21
777300	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.02	0.04	0.00	0.04	0.05
7773ER	1.34	0.15	1.48	0.83	0.08	0.91	2.40	1.09	0.29	1.38	1.38	0.39	1.77	3.15
7878R	3.27	0.60	3.87	1.60	0.28	1.88	5.75	2.37	0.64	3.01	2.25	0.57	2.82	5.83
A320-232	0.92	0.28	1.20	0.42	0.06	0.48	1.68	0.73	0.34	1.08	0.47	0.09	0.56	1.64
A320NEO	0.92	0.28	1.20	0.42	0.06	0.48	1.68	0.73	0.34	1.08	0.47	0.09	0.56	1.64
A321-232	0.86	0.19	1.05	0.43	0.10	0.53	1.59	0.64	0.25	0.90	0.42	0.16	0.58	1.48
A321NEO	0.86	0.19	1.05	0.43	0.10	0.53	1.59	0.64	0.25	0.90	0.42	0.16	0.58	1.48
A330-343	0.28	0.27	0.55	0.19	0.06	0.25	0.80	0.44	0.26	0.69	0.53	0.11	0.64	1.33
A380-841	0.51	0.07	0.58	0.24	0.05	0.29	0.87	0.28	0.13	0.41	0.38	0.10	0.48	0.89
A380-861	0.22	0.03	0.25	0.10	0.02	0.12	0.37	0.12	0.05	0.17	0.16	0.04	0.20	0.38
CNA441	0.09	0.41	0.49	0.19	0.02	0.22	0.71	0.12	0.52	0.65	0.19	0.11	0.30	0.95
CNA680	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.01	0.00	0.01	0.03
DHC830	5.57	0.14	5.71	3.08	0.32	3.40	9.11	4.96	0.19	5.15	3.46	0.32	3.78	8.93
DO228	0.08	0.03	0.12	0.09	0.02	0.11	0.22	0.09	0.04	0.13	0.10	0.03	0.13	0.25
F10062	1.23	0.05	1.27	0.56	0.08	0.64	1.91	0.98	0.05	1.03	0.59	0.07	0.66	1.69
GV	0.07	0.03	0.11	0.08	0.01	0.09	0.19	0.05	0.02	0.08	0.05	0.03	0.08	0.16
LEAR35	0.01	0.15	0.15	0.09	0.00	0.09	0.24	0.04	0.15	0.19	0.12	0.00	0.12	0.31
SF340	0.01	0.00	0.01	0.02	0.00	0.02	0.03	0.05	0.00	0.05	0.05	0.00	0.05	0.10
TOTAL	30.48	5.03	35.52	15.40	2.10	17.50	53.02	24.37	6.15	30.52	18.69	3.61	22.30	52.83

2039 Daily Movements by Runway														
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 16L							Runway 34R						
737800	24.51	8.14	32.64	34.04	9.49	43.53	76.18	21.41	6.55	27.97	24.78	8.33	33.11	61.08
737MAX	24.51	8.14	32.64	34.04	9.49	43.53	76.18	21.41	6.55	27.97	24.78	8.33	33.11	61.08
747400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
777200	0.50	0.00	0.50	0.59	0.00	0.59	1.08	0.45	0.00	0.45	0.35	0.00	0.35	0.80
777300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7773ER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7878R	6.45	2.35	8.80	11.35	2.96	14.30	23.10	5.41	2.67	8.08	9.31	2.22	11.54	19.62
A320-232	2.25	0.56	2.80	4.86	2.00	6.87	9.67	2.28	0.63	2.91	3.55	1.60	5.15	8.06
A320NEO	2.25	0.56	2.80	4.86	2.00	6.87	9.67	2.28	0.63	2.91	3.55	1.60	5.15	8.06
A321-232	4.11	2.35	6.45	3.77	2.60	6.37	12.82	2.95	2.11	5.06	2.57	2.22	4.79	9.85
A321NEO	4.11	2.35	6.45	3.77	2.60	6.37	12.82	2.95	2.11	5.06	2.57	2.22	4.79	9.85
A330-343	2.16	0.00	2.16	0.59	0.43	1.03	3.19	1.49	0.00	1.49	0.33	0.55	0.87	2.37
A380-841	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A380-861	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CNA441	1.50	3.29	4.80	2.26	3.08	5.34	10.14	1.29	3.57	4.86	1.76	3.38	5.14	10.00
CNA680	0.00	0.53	0.53	0.42	0.00	0.42	0.95	0.00	0.44	0.44	0.57	0.00	0.57	1.00
DHC830	17.75	2.16	19.91	16.80	1.55	18.35	38.25	15.48	1.62	17.10	12.83	1.32	14.15	31.25
DO228	0.58	0.43	1.01	0.46	0.55	1.01	2.02	0.30	0.55	0.84	0.50	0.40	0.90	1.74
F10062	2.64	0.00	2.64	6.48	1.68	8.16	10.80	2.44	0.00	2.44	4.53	1.18	5.71	8.15
GV	0.58	0.56	1.14	0.58	0.52	1.10	2.24	0.29	0.39	0.67	0.30	0.43	0.73	1.40
LEAR35	0.46	0.62	1.08	1.45	0.00	1.45	2.53	0.50	0.87	1.37	1.34	0.00	1.34	2.71
SF340	0.55	0.00	0.55	0.60	0.00	0.60	1.15	0.39	0.00	0.39	0.34	0.00	0.34	0.72
TOTAL	94.89	32.02	126.92	126.91	38.96	165.87	292.79	81.33	28.68	110.01	93.94	33.79	127.73	237.74
Aircraft	Arrivals			Departures				Arrivals			Departures			
	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 16R							Runway 34L						
737800	12.61	5.96	18.57	9.54	3.19	12.73	31.30	9.21	5.93	15.15	8.24	2.58	10.82	25.97
737MAX	12.61	5.96	18.57	9.54	3.19	12.73	31.30	9.21	5.93	15.15	8.24	2.58	10.82	25.97
747400	1.16	0.00	1.16	1.15	0.00	1.15	2.31	0.62	0.00	0.62	0.60	0.00	0.60	1.22
777200	6.09	3.98	10.07	7.18	5.34	12.52	22.60	6.19	3.36	9.55	4.71	4.30	9.00	18.56
777300	0.41	0.00	0.41	0.43	0.00	0.43	0.84	0.57	0.00	0.57	0.53	0.00	0.53	1.10
7773ER	10.65	6.89	17.54	16.25	3.70	19.95	37.50	10.92	6.67	17.59	12.54	2.82	15.36	32.95
7878R	19.64	8.68	28.32	17.97	7.88	25.85	54.17	17.25	8.68	25.93	14.33	7.27	21.60	47.53
A320-232	2.15	1.63	3.78	0.88	0.00	0.88	4.67	1.34	1.39	2.73	0.56	0.00	0.56	3.29
A320NEO	2.15	1.63	3.78	0.88	0.00	0.88	4.67	1.34	1.39	2.73	0.56	0.00	0.56	3.29
A321-232	1.68	0.53	2.21	1.35	1.27	2.62	4.83	0.92	0.41	1.33	0.96	1.15	2.11	3.44
A321NEO	1.68	0.53	2.21	1.35	1.27	2.62	4.83	0.92	0.41	1.33	0.96	1.15	2.11	3.44
A330-343	3.32	3.25	6.56	5.66	2.42	8.08	14.64	3.32	3.23	6.55	4.70	2.42	7.13	13.67
A380-841	3.69	3.06	6.75	4.75	2.35	7.10	13.85	3.21	3.05	6.26	4.21	1.93	6.13	12.39
A380-861	1.58	1.31	2.89	2.04	1.01	3.04	5.94	1.38	1.31	2.68	1.80	0.83	2.63	5.31
CNA441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.00	0.00	0.21
CNA680	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DHC830	26.39	1.65	28.04	27.94	5.76	33.70	61.73	21.92	1.17	23.09	20.89	4.74	25.63	48.72
DO228	0.44	0.56	1.00	0.99	0.00	0.99	2.00	0.51	0.39	0.90	0.86	0.00	0.86	1.76
F10062	4.87	1.11	5.98	1.41	0.00	1.41	7.40	3.83	0.79	4.63	1.43	0.00	1.43	6.05
GV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LEAR35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.00	0.00	0.00	0.21
SF340	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	111.12	46.72	157.85	109.31	37.39	146.70	304.55	92.67	44.51	137.19	86.12	31.77	117.89	255.08

HELIPAD								
Year	Helicopter	Arrivals			Departures			
		Day	Night	Total	Day	Night	Total	All
2026	EC130	22.19	1.35	23.54	22.19	1.35	23.54	47.08
2039	EC130	25.70	1.57	27.26	25.70	1.57	27.26	54.53



Appendix H

Operational Laws and Regulations



OPERATIONAL LAWS AND REGULATIONS

Sydney Airport is subject to various airport specific and general laws and regulations. Set out below is an explanation of some of the key operational laws and regulations that apply at Sydney Airport.

H1 Overnight curfew on aircraft movements

The *Sydney Airport Curfew Act 1995* and associated instruments (curfew laws) restrict take-offs and landings during the curfew period from 11pm to 6am to:

- Small propeller and jet aircraft that comply with specified noise standards
- Limited numbers of medium size freight jets meeting specified noise standards

During the curfew period, all aircraft must operate over Botany Bay rather than residential areas. Arrivals are required to operate to the north on Runway 34L. Departures are required operate to the south on Runway 16R.

Under the *Sydney Airport Curfew Regulations 1995*, international passenger aircraft are permitted to arrive in the curfew shoulder period between 5am and 6am. However, no more than 24 international passenger aircraft arrivals are permitted per week (and no more than 5 per day).

The curfew restrictions do not apply in the case of emergency. In exceptional circumstances, the Minister for Infrastructure and Transport may grant dispensations for other aircraft to operate during the curfew period.

H2 Aircraft movement limit and slot management scheme

The *Sydney Airport Demand Management Act 1997* and associated instruments (slot laws) establish:

- A maximum aircraft movement limit, or movement cap, of no more than 80 aircraft movements at Sydney Airport per operational hour
- A framework for the allocation and management of slots within the movement cap

All commercial and private aircraft require a slot to land or take-off from Sydney Airport. Military, emergency and helicopter movements are exempt. Airport Coordination Australia (ACA) allocates slots and manages slot coordination at Sydney Airport.

ACA allocates slots to airlines on a seasonal basis in accordance with the following:

- ACA will first allocate slots to airline operators with historical precedence
- ACA will then allocate slots to new entrant and incumbent airlines
- Any remaining slots may be allocated to regional airlines, non-scheduled and general aviation operators. However, the slot laws contain a mechanism that preserves a certain number of slots for regional airlines in an effort to guarantee access to Sydney Airport for regional communities

In allocating slots, ACA must consider any advice provided by Airservices Australia as to the likely effect of allocation on the operational efficiency of Sydney Airport.

H3 Noise sharing and the long term operating plan

The Sydney Airport LTOP was introduced following extensive consultation in 1996 and 1997 as a program of aircraft noise management. The LTOP seeks to ensure that aircraft movements are maximised over water and non-residential land. Where flights over residential areas cannot be avoided, the LTOP aims to safely share the noise between communities.

Ten RMO are currently available for use at Sydney Airport to facilitate noise sharing consistent with LTOP. [Appendix F](#) sets out the RMO in use at Sydney Airport.

The implementation of noise sharing arrangements is monitored by the SACF and an IMC. SACF is the main body for community consultation on Sydney Airport flight paths and their impacts. SACF includes representatives from all levels of government, industry and community.

H4 Aviation security

Australia's aviation security regime has been progressively enhanced following the terrorist attacks in the USA in September 2001.

The *Aviation Transport Security Act 2004* and *Aviation Transport Security Regulations 2005* (aviation security laws) require security controlled airports, including Sydney Airport, to:

- Prepare and implement a Transport Security Program
- Conduct security screening of all passengers, staff and visitors, including random explosive trace detection and body scanning
- Conduct security screening of all carry-on baggage
- Screen all checked bags
- Control airside access and secure areas
- Implement enhanced inspection area controls

H5 Aviation safety

The *Civil Aviation Safety Regulations 1998* and associated instruments (aviation safety regulations) set out Sydney Airport's safety standard obligations and the requirement for Sydney Airport to comply with the Manual of Standards (MOS). The MOS comprises the specifications and standards that are necessary for the safety of air navigation at aerodromes. These include standards in relation to:

- Airport emergency planning
- Aerodrome lighting
- Operational requirements
- Inspections, audits and certification
- Wildlife management
- Safety management systems

MOS Part 139 sets out the standards and operating procedures for certified, registered aerodromes and other aerodromes used in air transport operations.

Appendix I

Public Exhibition of
Preliminary Draft
Master Plan 2039



I1 Public notification

Notification of the public and key stakeholders occurred in three phases: direct correspondence; digital engagement; and advertising.

- Correspondence was sent to more than 700 key stakeholders on the first day of public exhibition to notify them that the period had commenced. Included was a summary of Master Plan 2039, how to access background and information materials, where to direct any questions, and how to make a submission. Stakeholders included the Sydney Airport Community Forum, key ministers, shadow ministers and agencies of the NSW and Australian Governments, members of parliament, mayors and general managers of local councils, business, tourism and industry groups and airline and other aviation industry representatives
- Sydney Airport utilised social media to reach almost 160,000 followers to promote the beginning of public exhibition, and included links to the Master Plan 2039 website
- On 27 August 2018, a quarter page advertisement appeared on page 7 of the Sydney Morning Herald to advise the broader community that Master Plan 2039 was available for review and comment. It included details such as:
 - What Master Plan 2039 is and the issues it covers
 - Where to view and how to download the Master Plan 2039 and associated materials
 - How to make a submission
 - How to seek further information via email or phone

I2 Public display of the Master Plan 2039

Throughout exhibition, the full Master Plan 2039, Environment Strategy 2019-2024 and a range of materials were available on Sydney Airport's Master Plan 2039 website.

Sydney Airport also arranged for various locations across Sydney to host copies of Master Plan 2039 and Environmental Strategy 2019-2024 so members of the public could view the document in their local communities. Refer to Figure I1-1 for a list of all locations. Map 34 provides a visual representation of all the locations.

At these locations there were posters and postcards advising the community that Master Plan 2039 was available online.

Sydney Airport also prepared other documents to assist with the consultation and engagement process, including:

- A 16-page Master Plan 2039 summary booklet
- Fact sheets covering issues of community interest, including:
 - About Sydney Airport
 - Managing Aircraft Noise
 - Safeguarding Sydney Airport
 - Future Development of the Airport
 - Environment
 - Climate Change
 - Sustainability
 - Sydney Airport and the Local Community, and
 - Stakeholder and Community Engagement
- Frequently asked questions and answers
- Master Plan 2039 information postcard, with links to the website and community information line

Figure I1-1 Static Displays - For duration of public exhibition period

	Location	Council/LGA
S1	Sydney Airport - International T1	Basyside
S2	Sydney Airport - Domestic T2	Basyside
S3	Campsie Library	Canterbury Bankstown
S4	Kogarah Library	Georges River
S5	Leichhardt Library	Inner West
S6	Bowen Library	Randwick
S7	Lane Cove Library	Lane Cove
S8	Chatswood Library	Willoughby
S9	Five Dock Library	Canada Bay
S10	Sutherland Library	Sutherland Shire
S11	Campsie Council Customer Service Centre	Canterbury Bankstown
S12	Glebe Contact Centre	City of Sydney
S13	Woollahra Council Customer Service Office	Woollahra
S14	Leichhardt Service Centre	Inner West
S15	Lane Cove Council Civic Centre	Lane Cove
S16	Sutherland Shire Council Customer Service Centre	Sutherland
S17	Willoughby City Council	Willoughby
S18	Kings Cross Contact Centre	City of Sydney
S19	Town Hall Contact Centre	City of Sydney
S20	St Peters Library	Sydenham
S21	Marrickville Library	Inner West
S22	Greenwich Library	Lane Cove
S23	Rockdale Customer Service Centre	Bayside
S24	Eastgardens Customer Service Centre	Bayside

I3 Website information

As required under the Act, Master Plan 2039 was hosted online and was available to download free of charge. Sydney Airport also developed a standalone website, on which Master Plan 2039 and other supporting documents were made available throughout the public exhibition period, and in the weeks following.

At www.masterplan2039.com.au, information about Master Plan 2039, details of community information sessions, downloadable copies of Master Plan 2039 and associated information resources, interactive maps and an online submission form were available.

Hard copies of Master Plan 2039 were mailed on request.

I4 Digital engagement

The release of Master Plan 2039 was advertised across Sydney Airport's social media platforms, with the airport's main website hosting a link to the dedicated Master Plan 2039 website.

A number of local councils also used their own social media resources to advertise planned community information sessions.

Sydney Airport also designed and executed a Google AdWords campaign for the duration of the public exhibition period. This ensured the top position when relevant search terms were used.

During the public exhibition period, the advertisement was seen by more than 68,000 people. Of these, over 3,800 (5.55 per cent) clicked on the advertisement and were directed to the Master Plan 2039 website.

15 Community updates

As well as notification through digital engagement, the community was kept informed via state, local and community language newspapers.

In addition to formal notification in the Sydney Morning Herald, Sydney Airport placed at least one quarter page advertisement in a range of local community newspapers across Sydney, including:

- Blacktown Advocate
- Blue Mountains Gazette
- Canterbury-Bankstown Express
- Central Courier
- Fairfield Advance
- Hawkesbury Gazette
- Hills Shire Times
- Hornsby Advocate
- Inner West Courier
- Liverpool Leader
- Macarthur Chronicle
- Manly Daily
- Mosman Daily
- North Shore Times
- Northern District Times
- Parramatta Advertiser
- Penrith Press
- Rouse Hill Times
- Southern Courier
- St George and Sutherland Shire Leader
- Wentworth Courier

To ensure information on Master Plan 2039 was available for people living in rural and regional communities across NSW, community updates were also prominently placed in The Land, NSW's major regional newspaper.

During the public exhibition period, Sydney Airport was conscious of the need to ensure that the consultation process for Master Plan 2039 addressed the diversity in the local community, particularly as there are significant non-English speaking communities living in many areas close to the airport. Two quarter page advertisements were translated and placed in the following community language newspapers:

- La Fiamma (Italian)
- Extra Informativo (Spanish)
- The Greek Herald (Greek)
- Viet Luan (Vietnamese)
- Al-Furat (Arabic)
- The Chinese Herald (Chinese)
- Sydney Korean Herald (Korean)
- Indomedia (Indonesian)

16 Community information sessions

One of the most effective methods to disseminate information, raise awareness, respond to queries and receive feedback is to meet members of the community, in a one-on-one and face-to-face context.

To facilitate this, twelve community information sessions were held across Sydney during the public exhibition period. At these sessions, community members were able to discuss relevant matters with the Sydney Airport team. They were also free to review the full suite of documents in hard copy, take materials home for further reading, and receive the full Master Plan 2039 on USB. For a majority of these sessions, a senior Sydney Airport staff member was present to answer questions.

The issues raised by members of the community varied across sessions, however some of the recurring issues included aircraft noise management, ground transport and the expected future role of Western Sydney Airport.

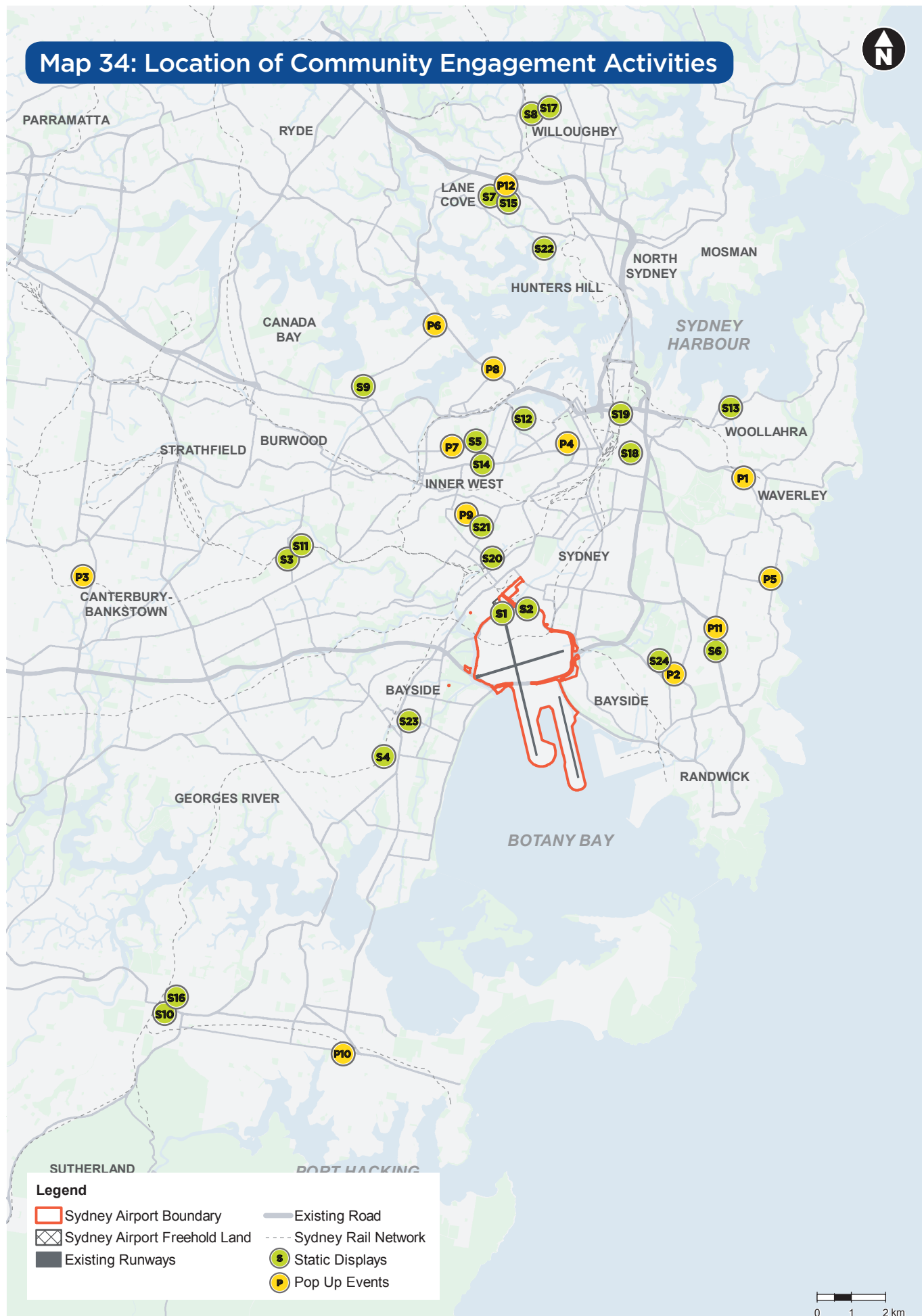
The community information sessions were held in the following areas on the following dates:

Figure I1-2 Community information Sessions

	Location	Council/LGA	Date
P1	Eastgate Shopping Centre	Waverley	5 September 2018
P2	Eastgardens Library	Bayside	30 October 2018
P3	Bankstown Square Shopping Centre	Canterbury Bankstown	23 September 2018
P4	Glebe Markets	City of Sydney	20 October 2018
P5	Taste of Coogee Festival	Randwick	2 September 2018
P6	Sutton Place Drummoyne	Canada Bay	12 November 2018
P7	Norton Street Plaza	Inner West	1 September 2018
P8	Rozelle Market	Inner West	7 October 2018
P9	Marrickville Market	Inner West	9 September 2018
P10	Caringbah Shopping Village	Sutherland Shire	12 October 2018
P11	Pacific Square Maroubra	Bayside	18 October 2018
P12	Lane Cove Plaza	Lane Cove	15 September 2018

A public meeting was also organised by Hunters Hill Council and held on 25 October 2018, at which Sydney Airport representatives were on hand to answer questions from members of the public about Master Plan 2039.

Map 34: Location of Community Engagement Activities



17 Informing communities living in the vicinity of Sydney Airport or underneath or near flight paths

After release of Master Plan 2039 for public comment, around 270,000 households were letterboxed. These households received the Master Plan 2039 postcard, alerting them to the public exhibition, how to access materials, and where to seek further information.

18 Master Plan 2039 community information line and email

A Master Plan 2039-specific 1800 community information line and email address were established to provide the community and other stakeholders with an easily accessible point of contact to ask questions or seek further information.

The 1800 number and email address appeared on Master Plan 2039 collateral (excluding summary booklet), including in all advertisements.

19 calls were made to the 1800 line during the public exhibition period. The majority of these sought assistance with making a submission, with other contacts seeking responses to specific questions.

Nearly 280 emails were received, the majority lodging submissions, with others seeking further information.

19 Briefings and presentations during public comment period

In the correspondence sent to key stakeholders at the commencement of Master Plan 2039 public exhibition period, Sydney Airport offered, on request, to provide a more detailed briefing and/or attend relevant meetings to provide more information and be available to answer questions.

As a result, several dozen meetings were held during the public exhibition period with a wide range of aviation industry, community, government and other stakeholders.

110 Submissions received and issued raised in submissions

Between 27 August and 20 November 2018, 135 submissions were received. A further 143 submissions were received after the public exhibition period concluded, making a total of 278 submissions.

All submitters received a written acknowledgement from Sydney Airport.

The submissions received and the comments within them raised a wide range of issues, varying across all stakeholder groups.

Individual members of the community, predominantly those living in areas close to the airport or underneath or near to flight paths, raised matters relating to the impact of operations at Sydney Airport on everyday life. Traffic, road congestion, carparking, the cost of public transport, the forecast increase in flights and the impacts of aircraft noise, local environmental impacts and sustainability were frequently raised, with specific comments differing largely by area or frequency of use of the airport itself, or the roads around it. Many community stakeholders also raised Sydney Airport's operating restrictions, and called for there to be no change to existing curfew arrangements.

A majority of all submissions received (from many individuals, local and peak bicycle user groups and local governments), raised the future of the existing Alexandra Canal cycleway, which passes along Airport Drive adjacent to the canal. Changes to Master Plan 2039 were made to clarify the future of this cycleway.

Consistent with its terms of reference, the Sydney Airport Community Forum (SACF) raised issues around aircraft noise and related matters. These included the forecast increase in flights and associated noise impacts, the effect that increases would have on the airport's ability to share noise in accordance with the

Long Term Operating Plan, the role of the future Western Sydney Airport in relation to ongoing operations at Sydney Airport and the way in which forecast noise impacts were communicated to the community via the master plan.

Business and industry stakeholders were concerned with a range of matters concerning the operations of Sydney Airport, including support for the significant economic activity and jobs Sydney Airport generates or facilitates and comments concerning future planned development at the airport and the impact this may have on various forms of off-airport development. As airport operations have direct planning implications for land around them, changes in this space are of great interest to these stakeholders. The need to consider reform of operating restrictions was also raised by some of these stakeholders.

Local government and local members of parliament were concerned with similar issues to those raised by the community and the SACF. Local government also raised climate change, environment and sustainability matters (including water and air quality) as well as future land use planning on the airport site. Significant feedback was also received from local government during the separate and targeted consultation process for the draft Australian Noise Exposure Forecast, which occurred in the lead up to Master Plan 2039 being released for public comment. A number of councils from rural and regional NSW emphasised the importance of ensuring continued guaranteed access to Sydney Airport for regional airlines.

The NSW Government raised a wide range of issues, predominantly focussed on ground transport (including road and public transport access), aircraft noise and related issues, on-airport land use planning, soil management and contamination, air and water quality, the importance of the visitor economy to NSW, potential impacts of non-aviation related development, the National Airports Safeguarding Framework, the relationship between operations at Sydney Airport and Port Botany and importance of regional airline access.

As required by the Act, Sydney Airport gave due regard to all comments (including late submissions) in the submissions when preparing the draft Master Plan 2039. Also as required by the Act, copies of all comments were submitted with the draft Master Plan 2039 to the Minister for Infrastructure, Transport and Regional Development.

The Minister approved the draft Master Plan 2039 on 28 March 2019, at which point it became the final Master Plan 2039.





