

Chapter 4 Project setting

The Sydney Basin airspace is likely the most complex and busiest in Australia, and most parts of the Sydney Basin including Western Sydney currently experience some level of daily aircraft overflight. The Sydney Basin airspace has an extensive network of flight paths associated with existing airports, Defence facilities, flying training, recreational aviation activities (gliders, ballooning and parachuting), emergency aviation activities (for example, medical or bushfire), helicopter activity and transiting flights. This chapter describes the existing Sydney Basin airspace, as well as the major airports and airspace activities operating within it.

WSI and its surrounds are located within the Western City District. Areas surrounding WSI are a mix of rural-residential, residential, agricultural, industrial, recreational and conservation land uses. Areas immediately surrounding WSI will transform under the NSW Government's overarching vision for the Western Parkland City, which will be established on the strength of WSI and the Aerotropolis. This includes the new Bradfield City Centre. This chapter provides an introduction to the existing regional context of WSI, a description of the Stage 1 Development (and the current status of construction), and the Matters of National Environmental Significance within 45 nautical miles (nm) (83 kilometres (km)) of the Airport Site.

4.1 The Sydney Basin airspace

4.1.1 Existing Sydney Basin airspace

The Sydney Basin airspace refers to the airspace area within the Greater Sydney region, bordered by Sutherland and Bargo in the south, Lake Macquarie and the Hawkesbury River in the north and Mount Victoria in the west. It encompasses an extensive network of flight paths associated with existing airports, Defence facilities, flying training, recreational aviation activities (gliders, ballooning and parachuting), emergency aviation activities (for example, medical or bushfire), helicopter activity and transiting flights.

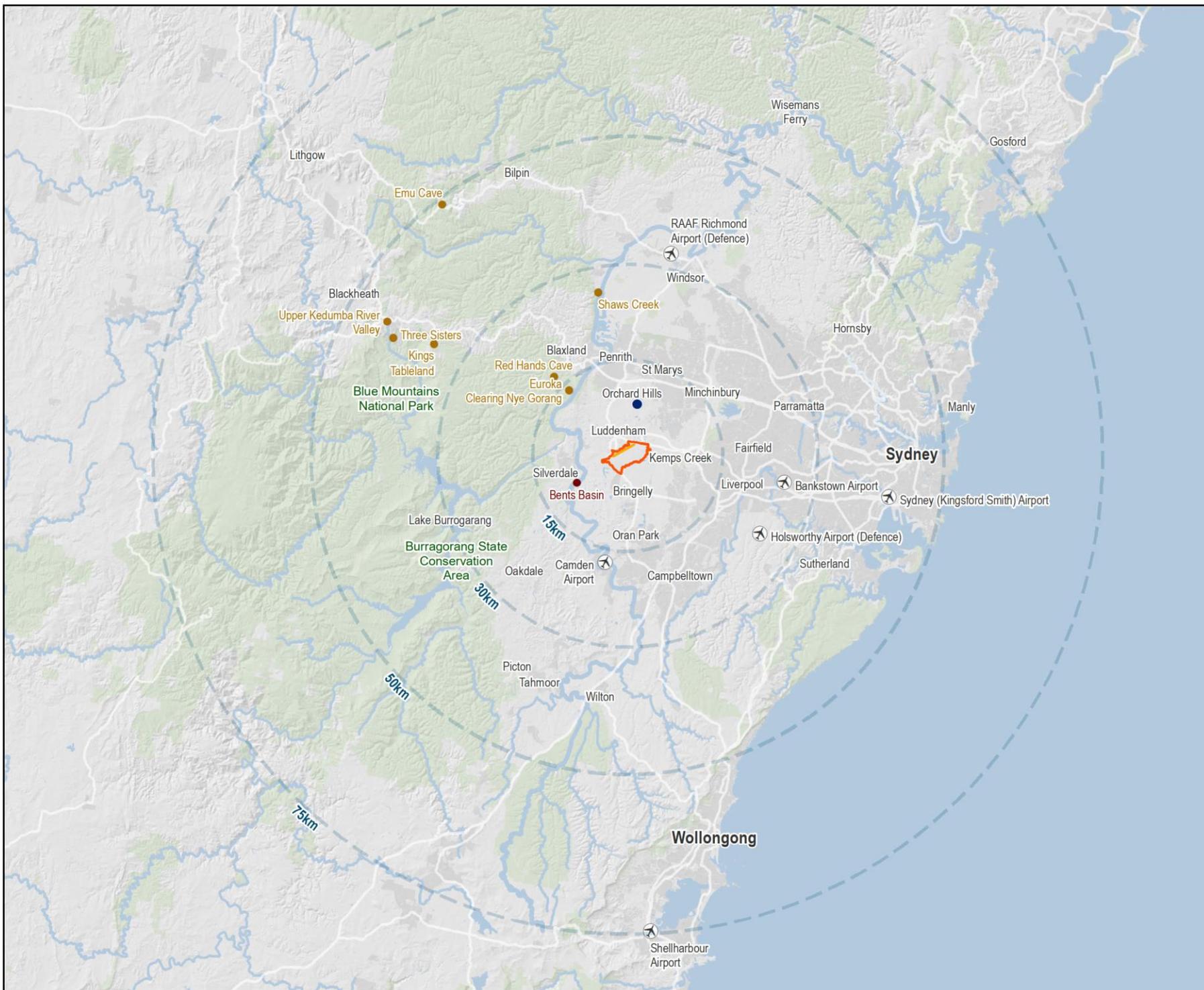
Key airports or sites that influence the Sydney Basin airspace include:

- Sydney (Kingsford Smith) Airport
- Bankstown Airport, Camden Airport and Shellharbour Airport
- Defence airports – Royal Australian Air Force (RAAF) Base Richmond and Australian Army Holsworthy Airport
- Defence Establishment Orchard Hills – This facility is operated by the RAAF and comprises munitions storage base and the Defence Explosive Ordnance Training School. Airspace over this facility is restricted when the site is in use.

Figure 4.1 shows the location of the key airports and sites within the Sydney Basin airspace relative to WSI.

Figure 4.1

Location of WSI, key airports and airspace users



Legend

- WSI Runway
- Western Sydney International (Nancy-Bird Walton) Airport land boundary
- Radial distances
- Orchard Hills Defence Establishment
- Aboriginal Places raised during consultation (NPW Act)
- Site of Aboriginal significance



0 10 20 km

Coordinate system: GDA 1994 NSW Lambert

Scale ratio correct when printed at A4

1:800,000 Date: 8/06/2023

Data sources: - DITROC, DCS, Geoscience Australia, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS User Community, Airbus, USGS, NOAA, NASA, CGAR, NCEAS, NLS, OI, NMA, GeodesyAustralia, GSA, GSI and the GIS User Community

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The Sydney Basin airspace is likely the most complex and busiest in Australia. In 2019 there were more than 700,000 air traffic movements associated with the Sydney (Kingsford Smith), Bankstown and Camden airports. The actual flight tracks of individual aircraft within the Sydney Basin airspace are recorded by Airservices Australia using information from surveillance radars operated by air traffic control (noting this only captured aircraft that carry a transponder and can be tracked by Airservices Australia). Most parts of the Sydney Basin including Western Sydney currently experience some level of aircraft overflight. The level of existing aircraft activity within the Sydney Basin airspace is evident in reviewing actual flight tracks flown by aircraft from Sydney (Kingsford Smith), Bankstown, Camden and RAAF Base Richmond airports over a one week period in 2019 (refer to Figure 4.2). This figure does not include aircraft activities associated with the Australian Army Holsworthy Airport.

Figure 4.2 emphasises the already congested nature of air traffic movements in the Sydney Basin. Aircraft that already operate within the Sydney Basin range from large widebody jets (Airbus A380, Boeing B777, Boeing B787) through to narrowbody jets (Boeing B737, Airbus A320), turboprops (Dash 400, SAAB 340), military aircraft, to single/twin-engine piston aircraft and various helicopter models. Aircraft within the Sydney Basin can be on descent from around 15,000 feet (ft) (4.5 kilometres (km)) or on climb to around 20,000 ft (6 km) depending on aircraft type, its origin or destination within the Sydney Basin, and the associated Standard Instrument Arrival (STAR) or Standard Instrument Departure (SID) being flown. For the smaller aircraft they may also be at a low cruise altitude down to around 1,500 ft (460 metres (m)) or lower for helicopters.

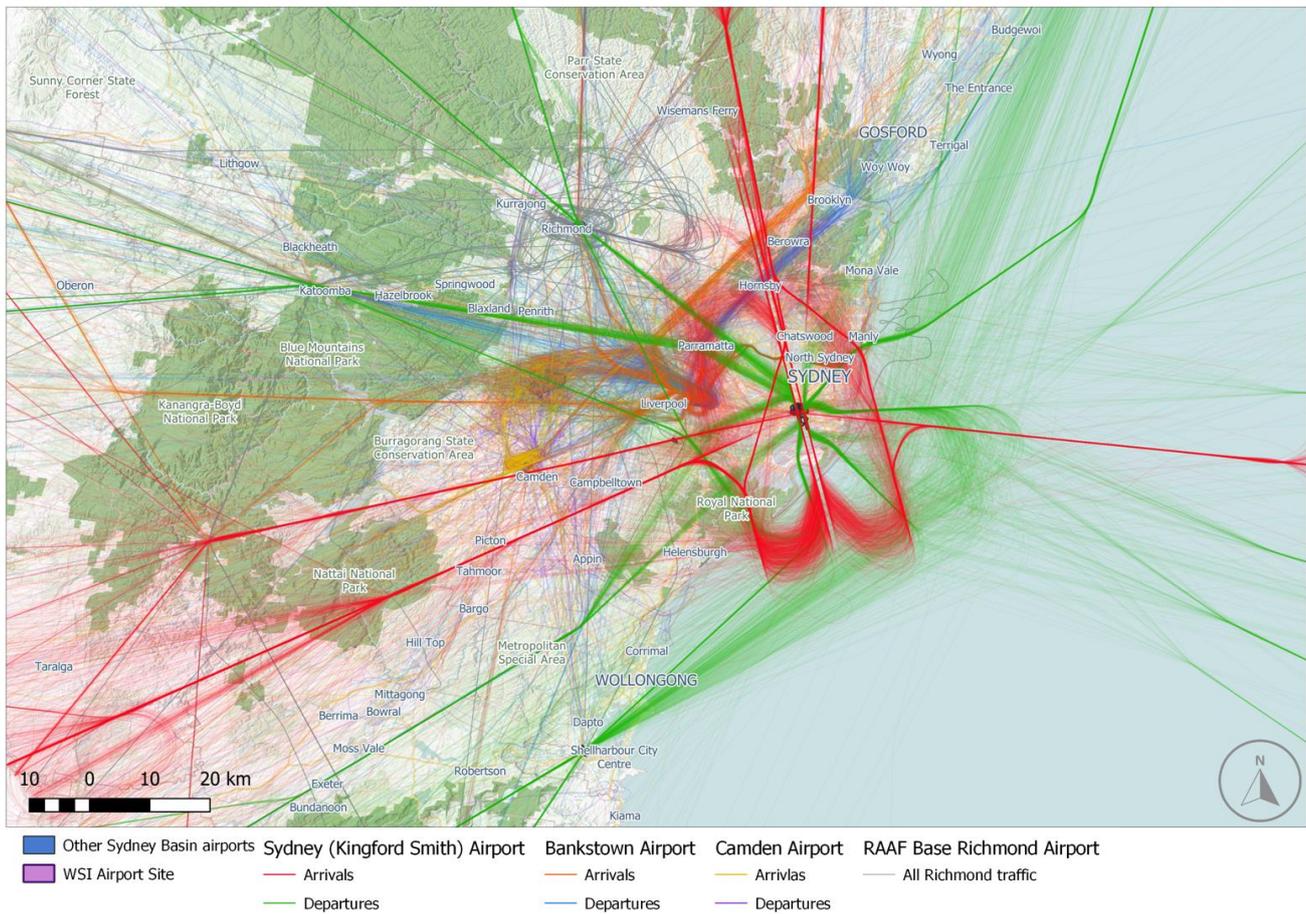


Figure 4.2 Sydney Basin airspace with one week of flight track movement activity in 2019 associated with Sydney (Kingsford Smith), Bankstown and Camden and RAAF Base Richmond airports

Figure 4.3 depicts aircraft movements operating under Visual Flight Rules (VFR) over a one month period (March 2019). These tracks represent around 1,600 departures, around 2,000 arrivals and around 820 circuit operations associated with Bankstown and Camden airports.

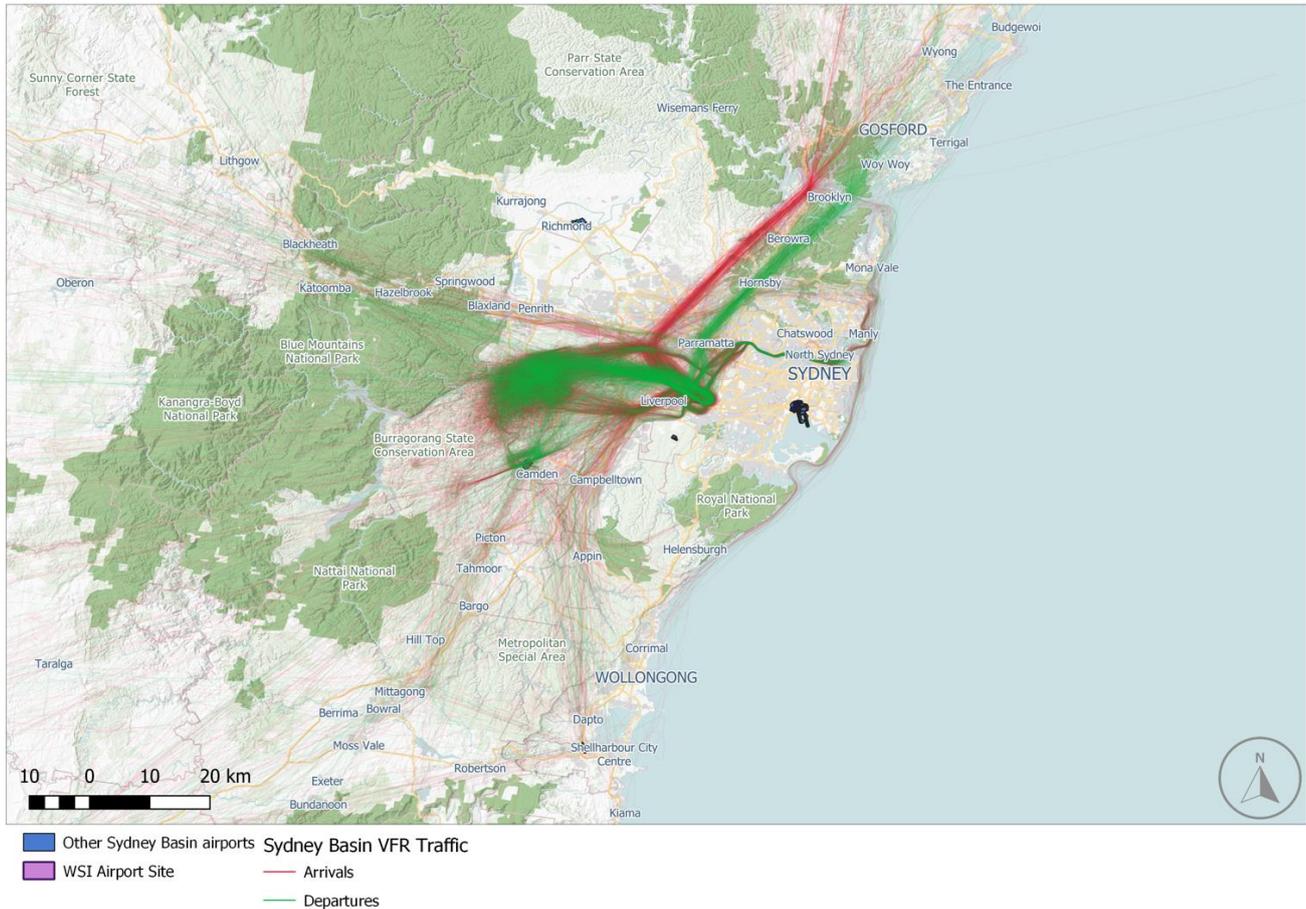


Figure 4.3 VFR tracks in the Sydney Basin over a one month period (March 2019)

4.1.1.1 Airspace classes

The Sydney Basin airspace comprises several airspace classes (as outlined in Chapter 3 (Introduction to airspace)) that are established to control the safety and efficiency of the airspace. A control zone extends from ground level to a specified altitude in the airspace surrounding an airport, whereas a control area extends upwards from a specified altitude. These include:

- Class A control area
- Class C control zone and control area
- Class D control zone
- Class G (uncontrolled airspace)
- restricted areas
- danger areas, which include training areas for Bankstown and Camden airports.

There are currently no prohibited areas (no-fly zones) in the Sydney Basin airspace.

Further information on airspace and how it is managed (such as an explanation of the different classes of airspace, controlled and uncontrolled airspace) refer to Chapter 3 (Introduction to airspace).

There are 3 control zones in the Sydney Basin (refer to Figure 4.4):

- the Sydney (Kingsford Smith) Airport control zone. The control zone is classified as Class C and extends from the ground to 2,500 ft (760 m) Above Mean Sea Level (AMSL). It is irregular in shape, extending approximately 4 nautical miles (nm) (7.5 km) to the north and approximately 11 nm (20 km) to the south-west from Sydney (Kingsford Smith) Airport
- the Bankstown control zone. This is classified as Class D during control tower hours and Class G outside of control tower hours, and extends from the surface to 1,500 ft (around 460 m) AMSL. It extends around 3 nm (6 km) north and 2 nm (4 km) south of Bankstown Airport. Its eastern extremity abuts the Sydney control zone
- the Camden control zone. This is classified as Class D during control tower hours and Class G outside of control tower hours, and extends from the surface to 2,000 ft (610 m) AMSL. It is centred on Camden Airport with a radius of 2 nm (4 km).

In addition to these control zones, the Sydney terminal control area covers a radius of 45 nm (83 km) from Sydney (Kingsford Smith) Airport. This has several different control areas stepped at different altitudes. The Sydney terminal control area is controlled by Airservices Australia. The control areas within the Sydney region are mainly Class C. Some Class A airspace exists at high level above the Class C.

Uncontrolled or Class G airspace exists below the Sydney terminal control area. It extends from the surface to the control area lower limits and close to Sydney (Kingsford Smith) Airport. It supports a range of typically smaller aircraft operations, including flying training (fixed-wing and helicopters), parachute operations, emergency services and sports and private general aviation. The volume of Class G airspace within the Sydney Basin will also vary depending on the activation of various restricted areas (which are utilised for Defence activities and are discussed further in Section 4.1.4) and control zones which are activated to accommodate operations at the smaller general aviation airports.

Further information on the existing air traffic control management, airports and other Sydney Basin airspace users is provided in Sections 4.1.1.2 to 4.1.5.

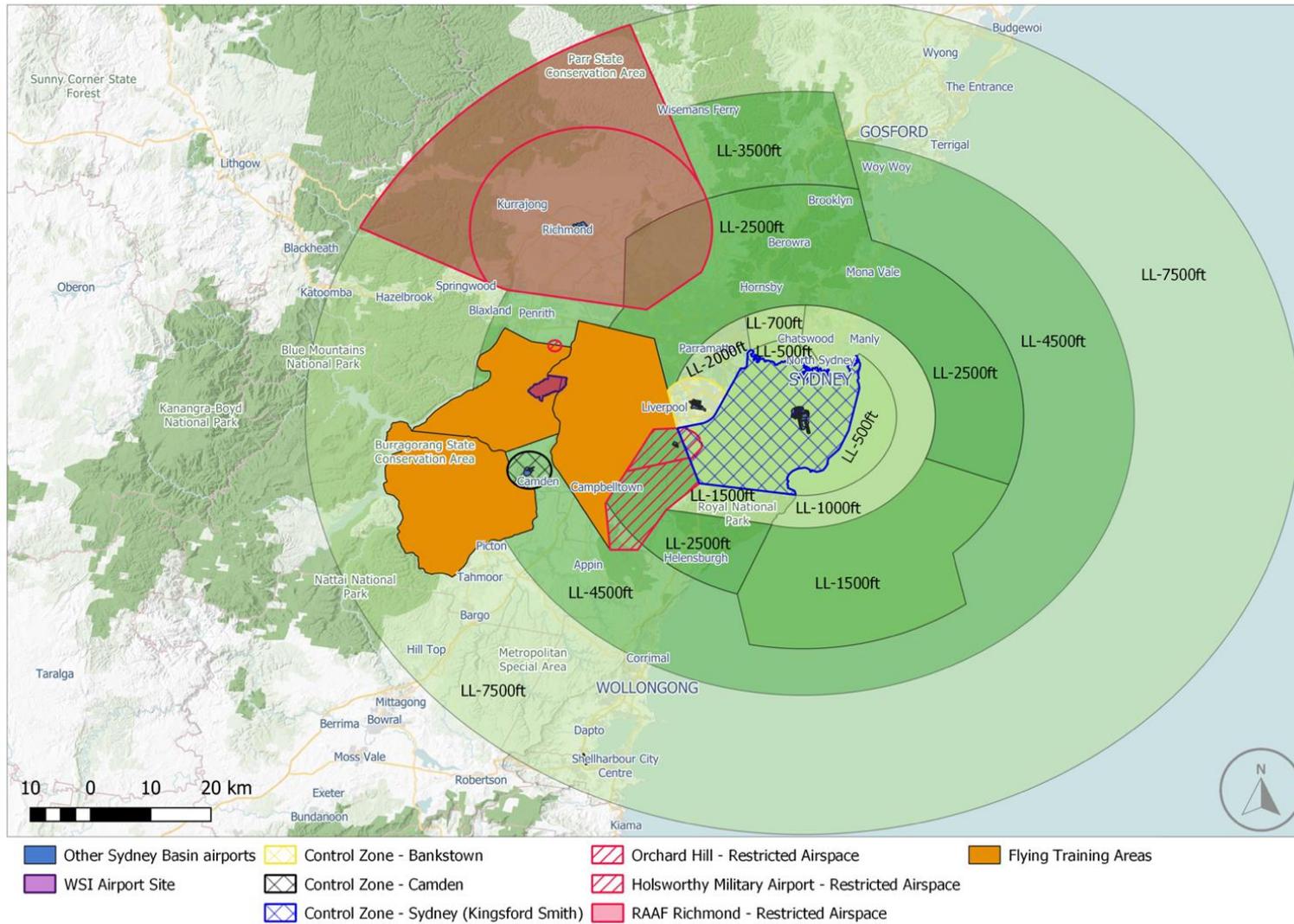


Figure 4.4 The Sydney Basin control area, control zones and lower level of controlled airspace

4.1.1.2 Air traffic control management

Air traffic control towers exist at Sydney (Kingsford Smith) Airport, Bankstown Airport, Camden Airport and RAAF Base Richmond.

The control function exercised from the Sydney (Kingsford Smith) Airport air traffic control towers is limited to the runways and taxiways of the airport itself.

At Bankstown and Camden airports, and RAAF Base Richmond, the control function exercised from the air traffic control towers manages the operations of the runways and taxiways of the airport itself, as well as local flying activity. The towers independently manage the initial departure phases of flight, the final arrival phases of flight and circuit flying at those airports.

A Terminal Control Unit (TCU), physically located at Sydney (Kingsford Smith) Airport, is responsible for exercising control in the airspace surrounding the airport out to about 45 nm (83 km) radius and up to 28,000 ft (8.5 km). The TCU controls all departing and arriving aircraft at Sydney (Kingsford Smith) Airport, as well as:

- any departures and arrivals from Bankstown and Camden airports and RAAF Base Richmond for aircraft that plan to fly inside the controlled airspace
- aircraft that are planning to fly through parts of the controlled airspace that have an origin or destination to an airport without an air traffic control tower (for example, Shellharbour Airport)
- helicopters from non-airport facilities (for example, Westmead Hospital) that are planning to fly in controlled airspace.

The TCU also provides:

- a separation service for transiting flights (that is, those crossing the 45 nm (83 km) airspace radius and not landing in it or departing from within it) when flying in controlled airspace
- traffic and flight information for aircraft operating under Instrument Flight Rules (IFR) in uncontrolled airspace.

Enroute controllers located in Melbourne and Brisbane are responsible for managing all aircraft traffic except aircraft within areas where the TCU or air traffic control towers have responsibility.

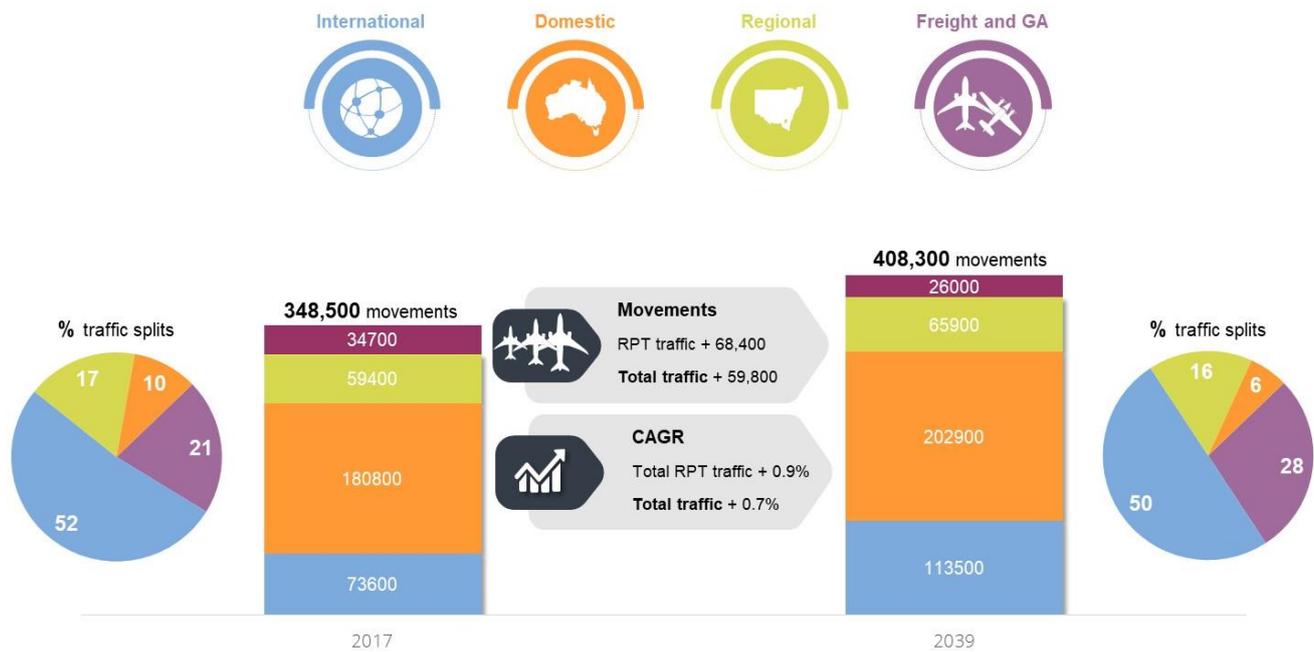
4.1.2 Sydney (Kingsford Smith) Airport

Sydney (Kingsford Smith) Airport is Australia's busiest airport in terms of passenger movements and freight. The airport is located in Mascot, approximately 24 nm (45 km) east of WSI and approximately 4nm (7.5 km) south of Sydney's Central Business District (CBD). There are currently over 50 international, domestic and regional airlines operating from the airport, which together service over 100 destinations.

In 2019 there were approximately 325,000 aircraft movements, 44.4 million passenger movements and 520,000 tonnes of international air freight (BITRE, 2022). As with most airports around the world, aircraft and passenger movements were temporarily reduced by a significant amount during the COVID-19 pandemic. In 2021 approximately 125,000 aircraft movements, 7.9 million passenger movements and 568,000 tonnes of international air freight passed through Sydney Airport (BITRE, 2022).

Figure 4.5 presents the traffic growth forecasts adapted from the current 2039 Master Plan for Sydney (Kingsford Smith) Airport including the compound annual growth rate. The forecasts were independently prepared for Sydney Airport Corporation Limited (SACL) by a third party in consultation with major international, domestic and regional airlines, and airline associations.

Growth in total aircraft movements is expected to increase by around 17 per cent from 348,520 movements in 2017 to 408,260 in 2039, an annual increase of 0.7 per cent. Of that, Regular Passenger Transport (RPT) services are projected to be 382,305 in 2039, representing around 94 per cent of total air traffic movements. This reflects airline feedback and expectations on the continued up-gauging of aircraft and increases in seat density and load factors across the Sydney (Kingsford Smith) Airport route network. It is understood that all forecasts assume that from late 2026, the Sydney Basin's aviation demand will be served by 2 international airports – WSI and Sydney (Kingsford Smith) Airport.



Sydney Airport Corporation Limited (SACL), 2019

Figure 4.5 Sydney (Kingsford Smith) Airport aircraft movement growth forecast (adapted from the Sydney Airport Master Plan 2039)

Sydney (Kingsford Smith) Airport has 3 runways, comprising 2 parallel runways on an approximate north-south alignment and a cross runway on an east-west alignment, as shown on Figure 4.6. The 3 runways are:

- Runway 16R/34L (the main runway)
- Runway 16L/34R (the parallel runway)
- Runway 07/25 (the cross runway).

The Long Term Operating Plan for Sydney (Kingsford Smith) Airport and Associated Airspace (Airservices Australia, 1996) (LTOP) was developed (as one of a suite of policies and procedures) for the airport to manage aircraft noise impacts through a preferential runway selection system in conjunction with the following legislation:

- the *Sydney Airport Curfew Act 1995*, which imposes a curfew on aircraft operations between 11 pm and 6 am. During the curfew, departures are confined to Runway 16R and arrivals to Runway 34L. A limited number of aircraft types are allowed to operate during the curfew, including emergency service aircraft and any aircraft that needs to land for safety reasons. Some small jets, propeller-driven aircraft and freight movements are also allowed. Under this legislation, a limited number of international passenger aircraft are also permitted each day to operate between 5 am and 6 am, and 11 pm and 12 am. During periods of major runway works Runway 16L departures/34R arrivals are available conditional on government approval
- the *Sydney Airport Demand Management Act 1997*, which caps the scheduled arrivals and departures to 80 runway hourly movements.

The LTOP for Sydney (Kingsford Smith) Airport ensures that aircraft movements are maximised over water and non-residential land. When this is not possible, the LTOP shares the noise from aircraft operations across residential land. The LTOP provides 10 runway operation modes that Airservices Australia can select, taking into consideration safety, weather, traffic demand and the noise sharing targets. This model is not available for WSI as there is only one runway, and is not applied at other airports.



Photo credit: Sydney Airport Corporation Limited (SACL)

Figure 4.6 Sydney (Kingsford Smith) Airport

4.1.2.1 Arrivals and departures

Sydney (Kingsford Smith) Airport operates principally under IFR. It has many published flight paths that allow aircraft to safely navigate to and from the airport at times of low visibility.

During peak periods, both the main and the parallel runways are used at the same time (either Mode 9 or Mode 10) (subject to weather). Peak periods are generally from 7 am to 11 am and 3 pm to 8 pm. Outside of peak periods, the runway mode of operation would be dictated by safety, weather and demand. These modes include different combinations of the runways (including direction). The cross runway can only be used at the lower traffic volumes given it intersects the main and parallel runways. The cross runway can also become the only available runway during the infrequent situation of very high cross-wind conditions on the 16/34 parallel runway direction (Mode 12 and Mode 13). During the curfew, aircraft are only permitted to arrive and depart from the main runway (except for emergency medical flights) (Mode 1).

Figure 4.7 shows the runway modes of operation (RMOs) at Sydney (Kingsford Smith) Airport.

Mode 1 - Curfew

D 16R
A 34L

Departures to South
Arrivals from South



SODPROPS

D 16L, 16R(h)
A 34L

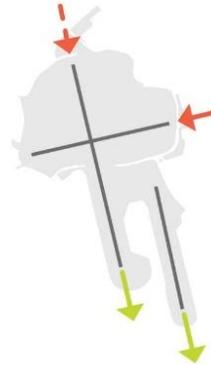
Departures to South
Arrivals from South



Mode 5

D 16L, 16R
A 25, 16R(h)

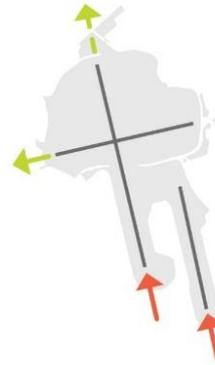
Departures to South
Arrivals from East



Mode 7

D 25, 34L(h)
A 34L, 34R

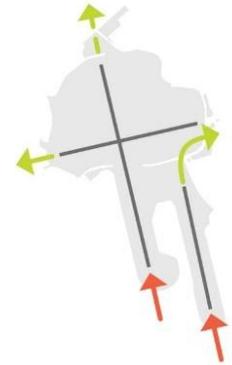
Departures to West
Arrivals from South



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

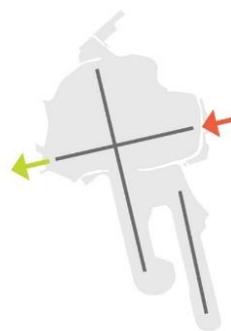
Departures to East
Arrivals from West



Mode 13

D 25
A 25

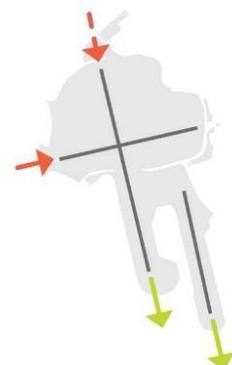
Departures to West
Arrivals from East



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 →

Sydney Airport Corporation Limited (SACL), 2019

Figure 4.7 Runway modes of operation at Sydney (Kingsford Smith) Airport

4.1.3 General aviation airports

General aviation refers to all civil aviation operations that are not commercial air transport services. This includes aerial work (such as agriculture, photography, surveying, search and rescue), instructional flying and recreational flying.

The 2 main general aviation airports in the Sydney Basin are Bankstown and Camden airports (refer to Figure 4.1).

There are several other smaller aeroplane landing areas within the Greater Sydney region. These facilities cater for activities such as private flying, aerial work, and sports and recreational aviation.

4.1.3.1 Bankstown Airport

Bankstown Airport is located approximately 14 nm (26 km) east of WSI and 14 nm (26 km) south-west of the Sydney CBD. It is operated and managed by Aeria Management Group and has 3 parallel runways (11L/29R, 11C/29C and 11R/29L). Bankstown Airport operates 24-hours, 7 days a week.

It caters for a wide range of general aviation activities (both fixed-wing and helicopter) including flying training, charter flights, aircraft sales and maintenance, air freight and emergency services. There are currently no regular scheduled passenger services at the airport, although the terminal building is used on an occasional basis for passenger processing for charter flights. Bankstown Airport also serves as a base for the NSW Police Air Wing, the NSW National Parks and Wildlife Service, the Royal Flying Doctor Service, Forestry Corporation of NSW, Sydney Basin Helicopter Medical Service and the Aviation Studies program of the University of NSW.

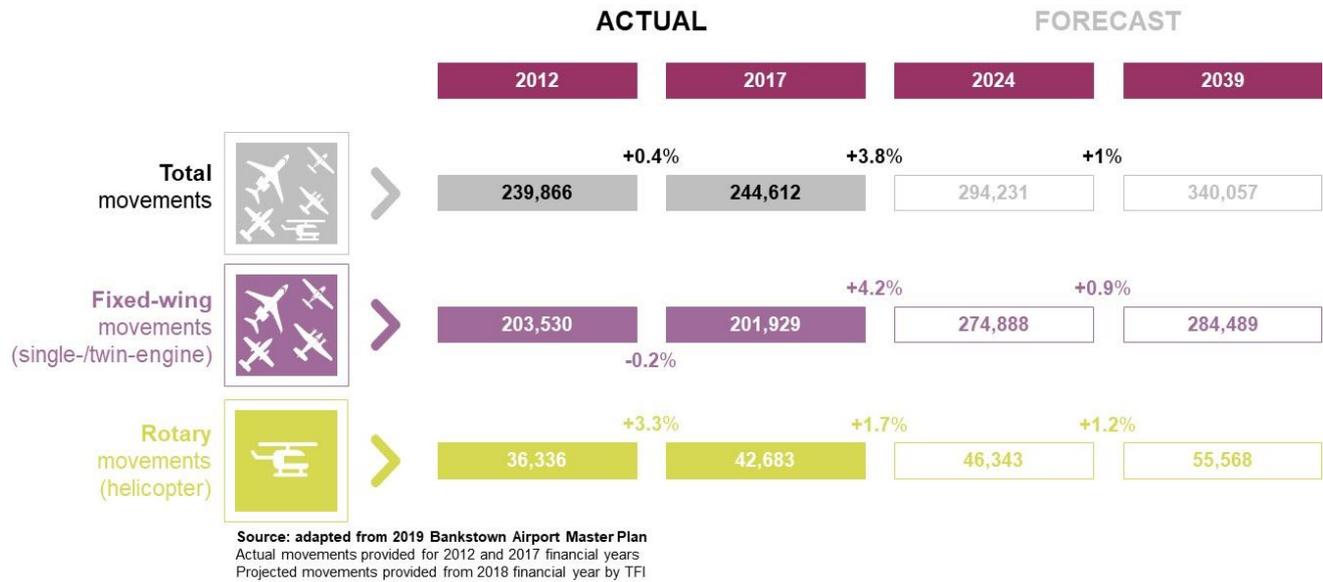
The airport currently accommodates around 700 aircraft movements per day on average. Around 80 per cent of aircraft operating at the airport are single-engine and twin-engine piston aircraft, typically engaged in flying training, private flying and related activities. Rotary aircraft (helicopters) account for 16 per cent of aircraft activity and are typically involved in emergency services and government agency operations, flying training, charter or freight activity. A further 4 per cent of aircraft are turboprop aircraft, which are typically involved in charter, business, corporate and other aerial work activities. Jet aircraft activity contributes only one per cent of aircraft operating at Bankstown Airport and typically includes business and private activities as well as maintenance of other aircraft.

The 3 parallel runway system at Bankstown Airport provides an estimated annual capacity of approximately 450,000 aircraft movements. With current movements around 247,500 annually (combined fixed-wing aircraft and helicopters), the runways have significant additional capacity available beyond a 20-year horizon.

Figure 4.8 summarises the forecasts presented in the Bankstown Airport Master Plan 2019 (Bankstown Airport Limited, 2019).

A set of noise abatement procedures are in place at Bankstown Airport. These detail the preferred runway and circuit directions to be flown and limitations during prescribed hours of the day and night. The noise abatement procedures are published in the Australian AIP and are applicable to all aircraft operations at Bankstown Airport.

Bankstown Airport also has an established a voluntary Fly Neighbourly Procedures Program. It was established in 2018 and is a joint program between the airport operator, Aeria Management Group and the aviation community (i.e., operators, tenants and flying training schools) based at the airport.



Bankstown Airport Limited, 2019

Figure 4.8 Bankstown Airport daily forecasts

Arrivals and departures

Most aircraft that arrive or depart from Bankstown Airport operate under Visual Flight Rules (VFR) and contain their operations to the control zone (circuit training), the associated flying training areas or in the surrounding Class G airspace. However, aircraft operating under Instrument Flight Rules (IFR) that arrive or depart from this airport do so through a combination of flight in both Class G and the overlying Class C airspace in the Sydney Basin.

Arriving aircraft operating under IFR plan to fly directly from the last enroute waypoint. Once the flight is established in visual conditions and above the lowest safe altitude for the remainder of the flight, the Sydney TCU provides the aircraft with a direct track to Bankstown Airport, subject to separation with other aircraft in the Sydney Basin. This includes clearance to leave the controlled airspace on descent, either into uncontrolled airspace or directly into the Bankstown control zone. If visual conditions cannot be encountered before reaching the lowest safe altitude for that route segment, then aircraft are radar vector controlled into a position where an instrument approach can be conducted.

Three non-precision approach procedures are established for Bankstown Airport. Two procedures provide approaches from the west and south, whereas one provides approaches from the north-east.

For IFR aircraft departures, a SID exists for Runway 11C/29C that provides an initial track to the north-west. Once the aircraft is clear of the Bankstown control zone, aircraft will be directed to contact the Sydney TCU for onwards clearance. This would either comprise clearance to track to the first enroute waypoint (subject to aircraft separation) or a series of radar vectors until the aircraft can be cleared to the enroute waypoint.

For VFR aircraft departing in the Runway 11 direction, aircraft initially travel straight in a south-east direction until turning to the left at around 500 ft. Aircraft then climb to around 800 ft to 1,000 ft, then turn left in order to travel in a north-west direction until the aircraft leaves the Bankstown control zone. For VFR aircraft departing in the Runway 29 direction, aircraft travel straight in a north-west direction, and progressively climb until the aircraft leaves the Bankstown control zone.

For VFR aircraft arriving at Bankstown Airport, there are no specific tracks for flights originating from the west or south but aircraft are required to arrive via the TWO RN radio mast (south of Liverpool) or Prospect Reservoir. For aircraft originating from the north, aircraft should track via Brooklyn Road bridge to the South Dural tanks and then to Prospect Reservoir. For aircraft originating from the east, aircraft would require clearance from the Sydney (Kingsford Smith) control zone or remain in uncontrolled airspace.

Commonly flown VFR arrival and departure routes beyond the control zones associated with Bankstown and Camden airports are depicted in Figure 4.9.

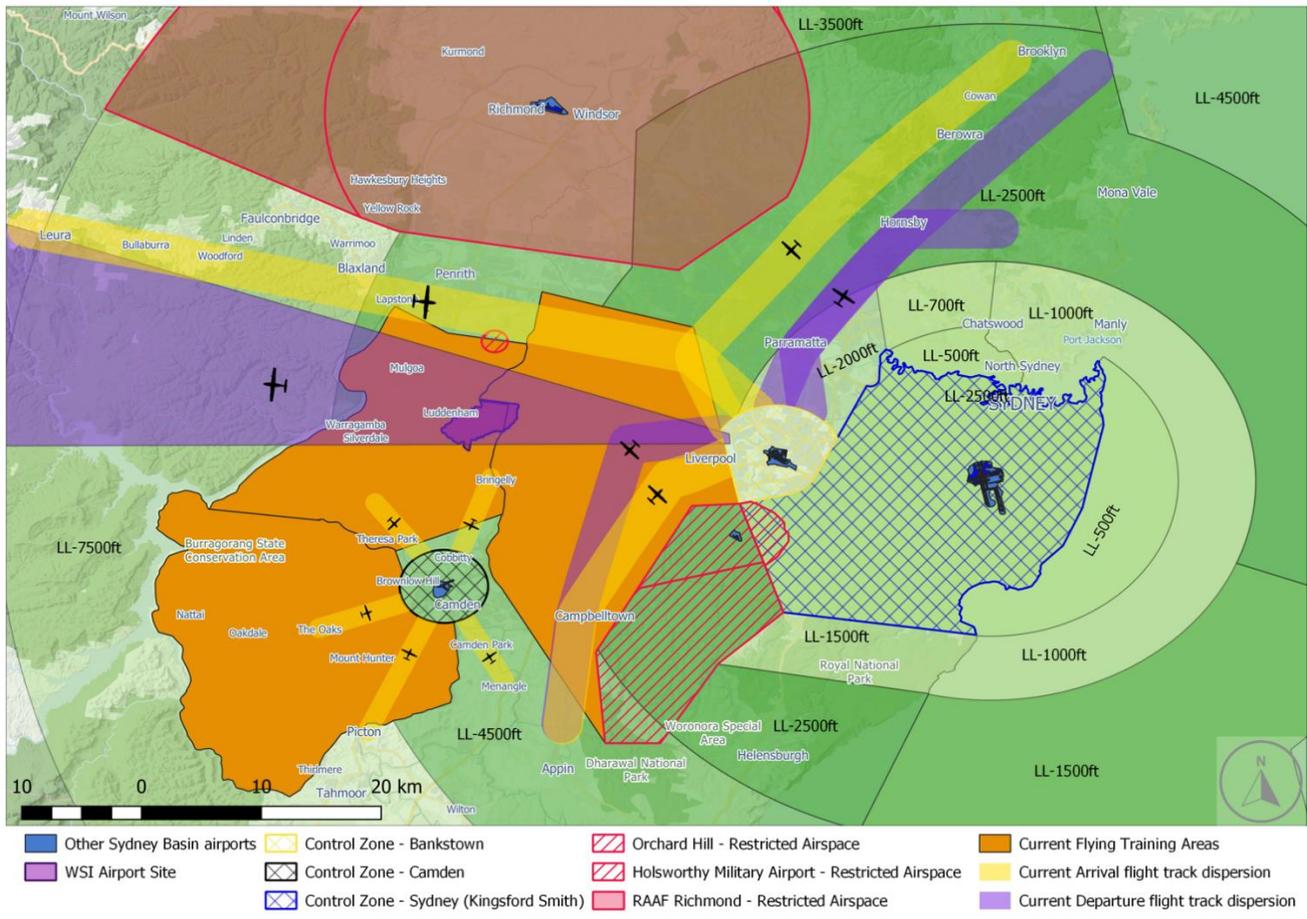


Figure 4.9 Commonly used VFR departure and arrival routes beyond the control zones for Bankstown and Camden airports

Flying training areas

Aircraft can access the 3 flying training areas in the Sydney Basin as depicted in Figure 4.4. The flying training areas include:

- 2 areas to the west of the Bankstown control zone which extend to approximately 23 nm (46 km) west of Bankstown Airport
- one area located immediately to the west of the Camden control zone boundary, which extends to approximately 13 nm (24 km) west of Camden Airport.

4.1.3.2 Camden Airport

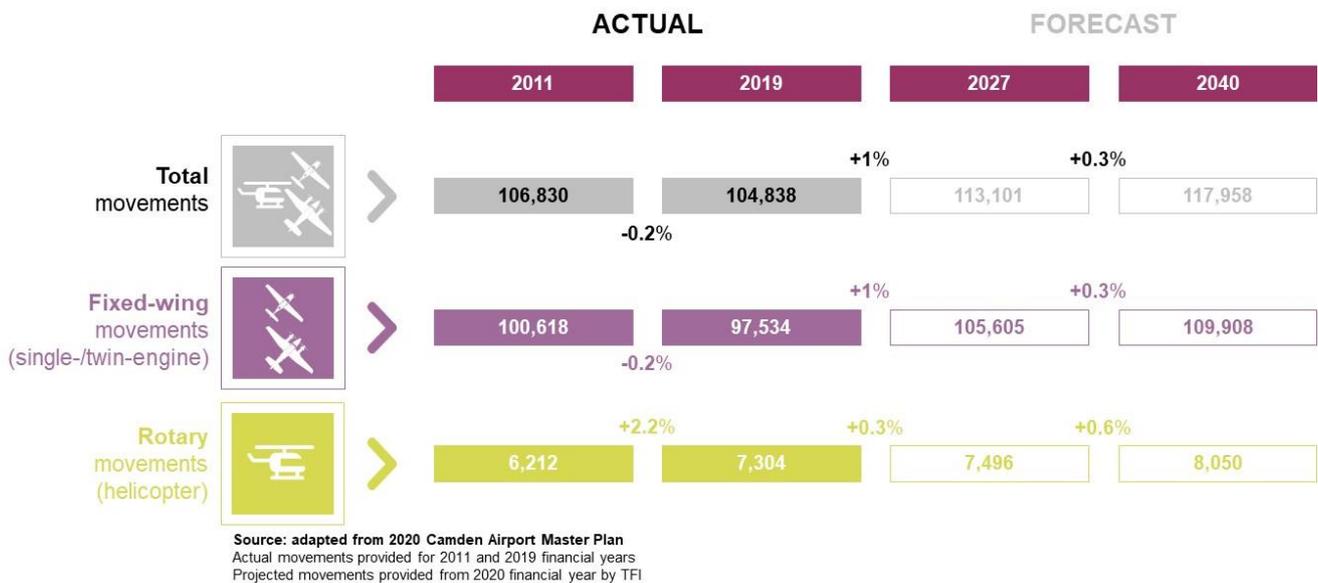
Camden Airport is located approximately 25 nm (17 km) south of WSI and approximately 27 nm (50 km) south-west of the Sydney CBD. It is operated and managed by Aeria Management Group. It has an air traffic control tower, 4 runways (2 for powered fixed-wing aircraft and 2 for gliders) and one designated helicopter landing site. Runway 06/24 is the main runway at Camden Airport. It operates 24-hours, 7 days a week.

The airport is used for flying training, emergency services, gliding, private flying and ballooning activities along with not-for-profit youth organisations and aviation maintenance facilities (Camden Airport Limited, 2021). It also serves as a base for helicopters involved in supporting seasonal bush firefighting activities.

Only one runway is sealed and equipped with runway lights. This is the main runway for aircraft movements. The remaining runways are grassed and can only be used during daylight hours under conditions of good visibility.

In 2019 Camden Airport had around 105,000 annual movements and accommodates an average of 290 aircraft movements per day (Camden Airport Limited, 2021). Aviation activity primarily consists of single-engine and twin-engine piston aircraft (around 93 per cent of aircraft movements), with helicopters accounting for the remainder (Camden Airport Limited, 2021). In addition to powered aircraft movements, there were more than 7,400 glider movements in 2018 (Camden Airport Limited, 2021).

Camden Airport has an estimated capacity of approximately 210,000 annual movements and is forecast to grow to around 118,000 movements by 2039/2040. The airport will have significant additional capacity available beyond a 20-year horizon. Figure 4.10 summarises the forecasts from the Camden Airport Master Plan 2020 (Camden Airport Limited, 2021).



Camden Airport Limited, 2021

Figure 4.10 Camden Airport daily forecasts

A voluntary Fly Neighbourly Procedures Program was established in 2020 and is a joint program between the airport operator and the aviation community based at the airport. The Fly Neighbourly Procedures program is consistent with that adopted by Bankstown Airport and contains neighbourly procedures for pilots to consider. It outlines flight procedures for fixed-wing aircraft and helicopters that will assist with noise related airport issues. This includes aircraft noise from airborne and ground-based activities, such as aircraft maintenance.

Arrivals and departures

Camden Airport operates principally under VFR conditions, although an instrument approach does exist for the limited number of instrument flights that operate there. In March 2019 there were approximately 120 total movements per day, of which 10 movements per day were by aircraft operating under IFR.

There are no specific routes for aircraft operating under VFR once they have departed the Camden control zone. Aircraft can track under pilot discretion to a flying training area or to the first waypoint of the travel plan.

For VFR aircraft arriving at Camden Airport, aircraft should track via Mayfield, Bringelly, Menangle, Picton or The Oaks (refer to Figure 4.9). Aircraft from these locations will be instructed by Camden Airport air traffic control on how to enter the control zone.

For IFR aircraft departures, departing aircraft must comply with any air traffic control instructions from the Camden Airport air traffic control tower until the aircraft departs the Camden control zone. Aircraft may then operate in uncontrolled airspace, as long as the aircraft remains outside the control area or other airport control zones. If aircraft wish to operate in the control area or other control zones, pilots are required to obtain clearance approvals before entering these areas.

For IFR aircraft arrivals, aircraft would fly directly to the airport from the last enroute waypoint, if operating in uncontrolled airspace, or as instructed under air traffic control if descending from the control area. Aircraft may make a visual approach (if conditions permit) under air traffic control guidance or will follow a required navigation performance (RNP) approach.

All circuit training occurs to the north-west of the airport. Glider towing operations take place to the south-east of the airport.

Flying training areas

Aircraft can access the 3 flying training areas in the Sydney Basin, as described for the Bankstown Airport.

4.1.4 Defence

There are 2 Defence airports within the Greater Sydney region as well as the Orchard Hills Defence Establishment. Restricted airspace associated with these facilities are shown on Figure 4.11.

4.1.4.1 Royal Australian Airforce (RAAF) Base Richmond

RAAF Base Richmond is located approximately 16 nm (32 km) north of WSI and approximately 27 nm (50 km) north-west of the Sydney CBD.

The airport is the headquarters for the Air Mobility Group and houses the military aviation activities of the RAAF Heavy Lift Group. The main aircraft type operated from the base is the Lockheed C-130 Hercules and C-27J Spartan. RAAF Base Richmond also serves as an alternative aerodrome for military fast jet operations that operate from RAAF Base Williamstown (north of Newcastle). Gliding activity is also permitted on weekends. The airport has a single sealed runway (10/28).

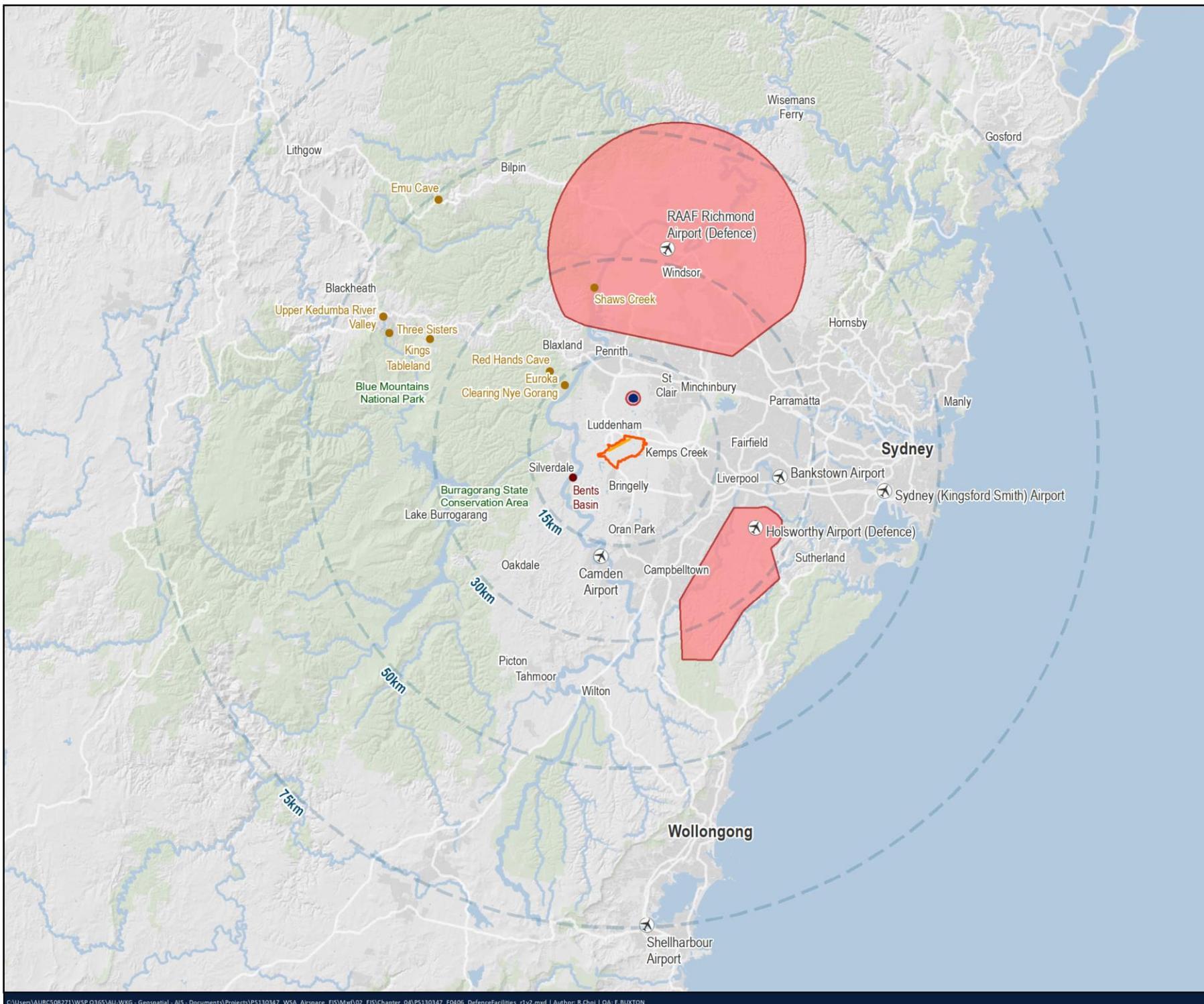
Operations are governed by a set of noise abatement procedures published in the Australian Aeronautical Information Publication. Wherever possible, and subject to operational necessity, RAAF Base Richmond applies a fly neighbourly approach to their operations to minimise the impact of aircraft operations on the local community. The airspace architecture for RAAF Base Richmond consists of 3 restricted areas:

- terminal area airspace (R470 and R469). R469 and R470 are activated in conjunction with each other and are generally active 15 hours per day, 7 days a week. There are multiple parachute zones that are active at various times of the week, as well as instrument approach training, tactical formation operations, circuit and low flying training. Both areas are classified Restricted Area 1, which allows civilian aircraft to use these areas for instrument training and transit if a clearance is available
- R494. This is the upper airspace and is primarily used as air-test airspace. Activation is by a Notice to Airmen (NOTAM). When the military airspace is active pilots are notified by an information system called NOTAM.

A Visual Flight Rules (VFR) lane exists to the west of RAAF Base Richmond to allow civilian aircraft to transit around active military activity. However, clearance through the terminal area via the VFR lane is required.

Figure 4.11

Key Defence facilities in the Sydney Basin and associated restricted airspace



Legend

-  WSI Runway
-  Western Sydney International (Nancy-Bird Walton) Airport land boundary
-  Restricted areas
-  Radial distances
-  Orchard Hills Defence Establishment
-  Aboriginal Places raised during consultation (NPW Act)
-  Site of Aboriginal significance



0 10 20 km

Coordinate system: GDA 1994 NSW Lambert



Scale ratio correct when printed at A4

1:800,000 Date: 8/06/2023

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4.1.4.2 Holsworthy Airport

Holsworthy Airport is operated by the Australian Army and is located within the Holsworthy Military Reserve, a training area and artillery range for the Australian Army. It is located appropriately 13.5 nm (25 km) south-east of WSI and approximately 14 nm (26 km) south-west of the Sydney CBD.

The airfield has a single sealed runway that is only suited to light aircraft and military helicopters. Access to the airport and the airspace (which extends over the reserve) is restricted. The Holsworthy restricted areas are provided to protect activities in support of both flying and non-flying operations. Holsworthy Barracks is home to special operations personnel and includes helicopter units based at its airport. Additionally, there are weapons firing and explosive demolitions.

A minor portion of the restricted area is active 24-hours, 7 days a week and prevents civilian entry to potentially hazardous military airspace. The remaining portions are a combination of Restricted Area 2 and Restricted Area 3, which apply as required to protect civilian operations from potentially dangerous military operations. Rescue and police operations are allowed into specific areas with prior notice.

4.1.4.3 Orchard Hills Defence Establishment

The Orchard Hills Defence Establishment is a RAAF operated facility. It is located approximately 2.2 nm (4 km) north of WSI. It has a restricted airspace that is approximately 1.2 nm (around 2.2 km) in diameter and exists to prevent aircraft overflying an explosive risk area.

The airspace is classified as Restricted Area 3 which means that a clearance to fly through this volume cannot be obtained due to the explosive risk and activation times which may vary. The restricted area is in place while the facility is in operation. These hours may vary, but this restriction is generally in place between Monday to Friday 9 am to 4 pm. Overflight is not permitted between ground level and 3,000 ft.

4.1.5 Other aviation facilities, operations and airspace controls

4.1.5.1 Additional restricted areas

An additional restricted area is located at the Australian Nuclear Science and Technology Organisation's Lucas Heights facility. The restricted area is active 24-hours, 7 days a week.

Sydney Harbour is also a restricted area. Further afield is the Tasman Sea Military Flying Training restricted area.

4.1.5.2 Class G airspace

The Sydney Basin Class G airspace supports a range of typically smaller aircraft operations including flying training (fixed-wing and helicopters), parachute operations, emergency services, sports and private general aviation. A clearance from air traffic control to operate in Class G airspace is not required. Aircraft operating with instrument flight rule (IFR) receive a flight information service from air traffic control, including movement information on other operating IFR aircraft.

To aid visual flying in the Sydney Basin, the Civil Aviation Safety Authority (CASA) in consultation with Airservices Australia, has published the Sydney Basin Visual Pilot Guide 2020, Sydney General Flying Guide 2021 and Visual Flight Rules Guide 2022. To support light aircraft and helicopter flights between the control zones and for those operations over the Sydney CBD and along the coast, rules of entry have been established for VFR aircraft in Class G airspace.

4.1.5.3 Danger areas

There are 10 danger areas located within 45 nm (83 km) of Sydney (Kingsford Smith) Airport. Five of these encompass VFR training areas and lanes of entry supporting operations to and from Bankstown and Camden airports. Other danger areas support parachuting and unmanned aerial vehicle testing activities.

Indicative locations of the danger areas within 45 nm (83 km) of Sydney (Kingsford Smith) Airport are identified in red in Figure 4.4.

4.1.5.4 Transit routes

There are numerous flights which transit the Sydney Basin airspace each day. Aircraft transiting above 28,000 ft (8.5 km) are managed by the overlying enroute air traffic control sector. Lower level transiting aircraft are controlled by the Sydney TCU.

4.1.5.5 Helicopters

Helicopters operating from non-airport facilities, such as Westmead Hospital, that are planning part of their flight in controlled airspace would be controlled by the Sydney TCU. Transiting flights (i.e., those crossing the 45 nm (around 83 km) airspace radius) are also provided with air traffic control services.

4.1.5.6 Gliding and parachuting

Gliding and parachuting activity takes place in designated locations.

4.1.5.7 Commercial photography and surveys

Commercial activity including aerial photography and aerial surveys take place within the Sydney Basin. These activities do not occur on a programmed basis and have to be coordinated with air traffic control and are subject to air traffic control clearance for their operation.

4.2 The Airport Site

4.2.1 Stage 1 Development

As outlined in Chapter 1 (Introduction), the Stage 1 Development of WSI was approved in 2016 pursuant to the approval of the Sydney Airport Plan (and the subsequent variations to this plan in 2020 and 2021). This approval included the construction of the airfield, terminal and the landside layout and associated facilities (refer to Figure 4.12). This includes navigational aids (and associated systems) that would be provided at WSI to support airport operations, including:

- Category IIIB (CAT IIIB) Instrument Landing System (ILS) at each runway end to enable pilots to safely land aircraft in low visibility conditions (for example, fog and bushfires). An ILS is a highly accurate navigation aid that uses radio signals to give the pilot vertical and horizontal guidance on an approximately 3-degree descent profile to the runway for landing. An instrument approach would be required when there is low cloud or reduced visibility and the pilot relies on guidance to land being received from instruments located in both the aircraft and on the ground
- precision approach path indicator (PAPI)
- glide path (GP)
- localiser (LOC)
- high intensity approach lighting (HIAL). HIAL arrays may extend up to 900 m beyond the end of each runway however is expected that these would be largely contained within the Airport Site
- localiser far field monitor (FFM)
- runway visual range (RVR) monitors.

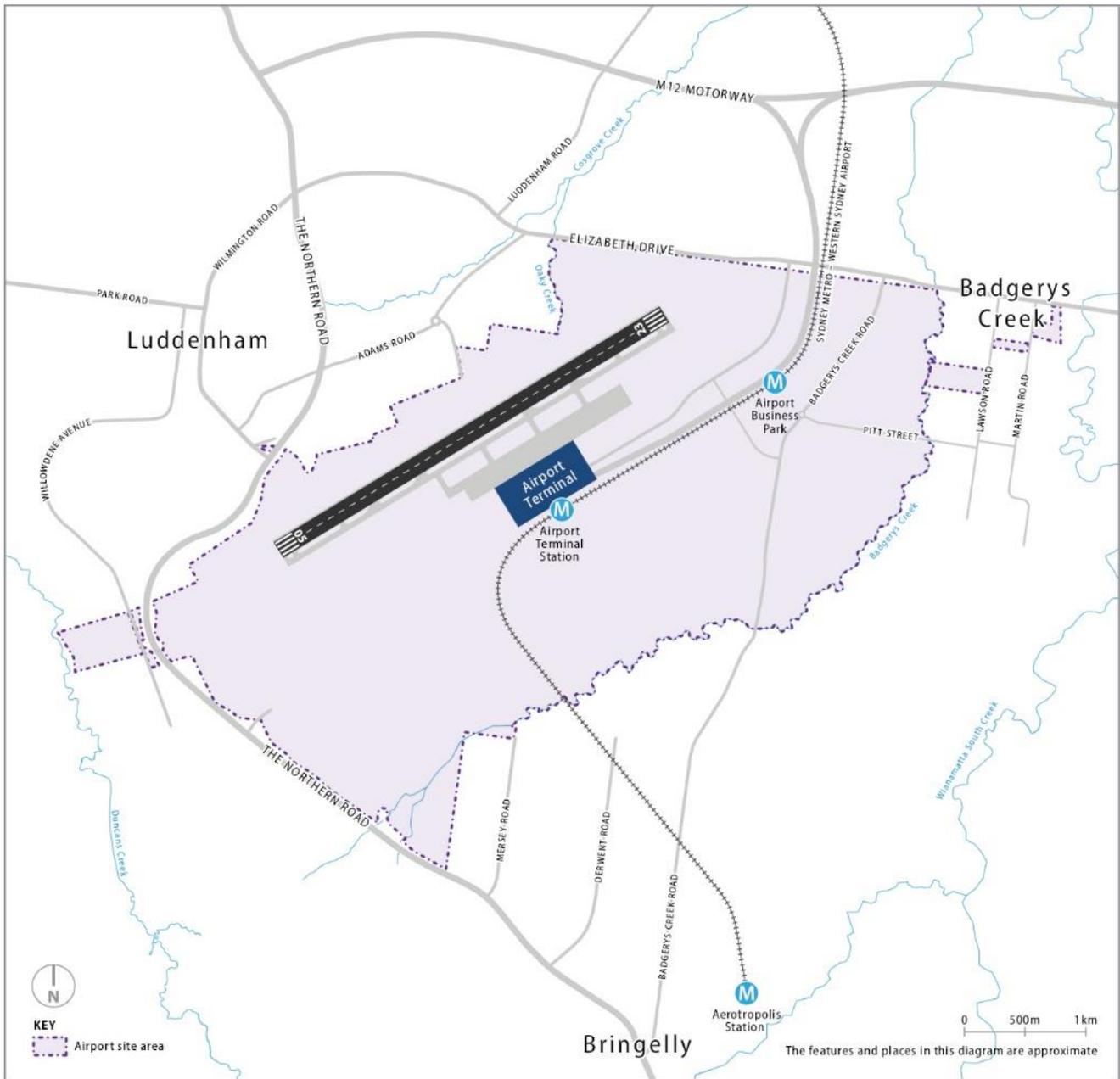


Figure 4.12 WSI – Stage 1 development

Construction commenced in 2018 and is scheduled to be completed in 2026 to enable operations to commence. Major earthworks and vegetation clearing across the construction impact zone have been completed. Construction work that is currently underway at the Airport Site includes construction of the airport terminal, airside civil and pavement works (for example, runway, taxiways and navigational aids), as well as terminal landside civil and building works. Construction work is being supported by various temporary infrastructure and plant, including internal haulage roads, external road upgrades, site compounds and batching plants.

Figure 4.13 and Figure 4.14 shows the construction and terminal construction activity at WSI, respectively.

Since the completion of the major earthworks, most of the construction impact zone is generally level (excluding drains and basins) with a surface elevation of around 90 mAHD (elevation in metres with respect to the Australian Height Datum) at the western end of the runway to 75 mAHD at the eastern end.



Source: WSA Co, April 2023

Figure 4.13 Construction activity at WSI



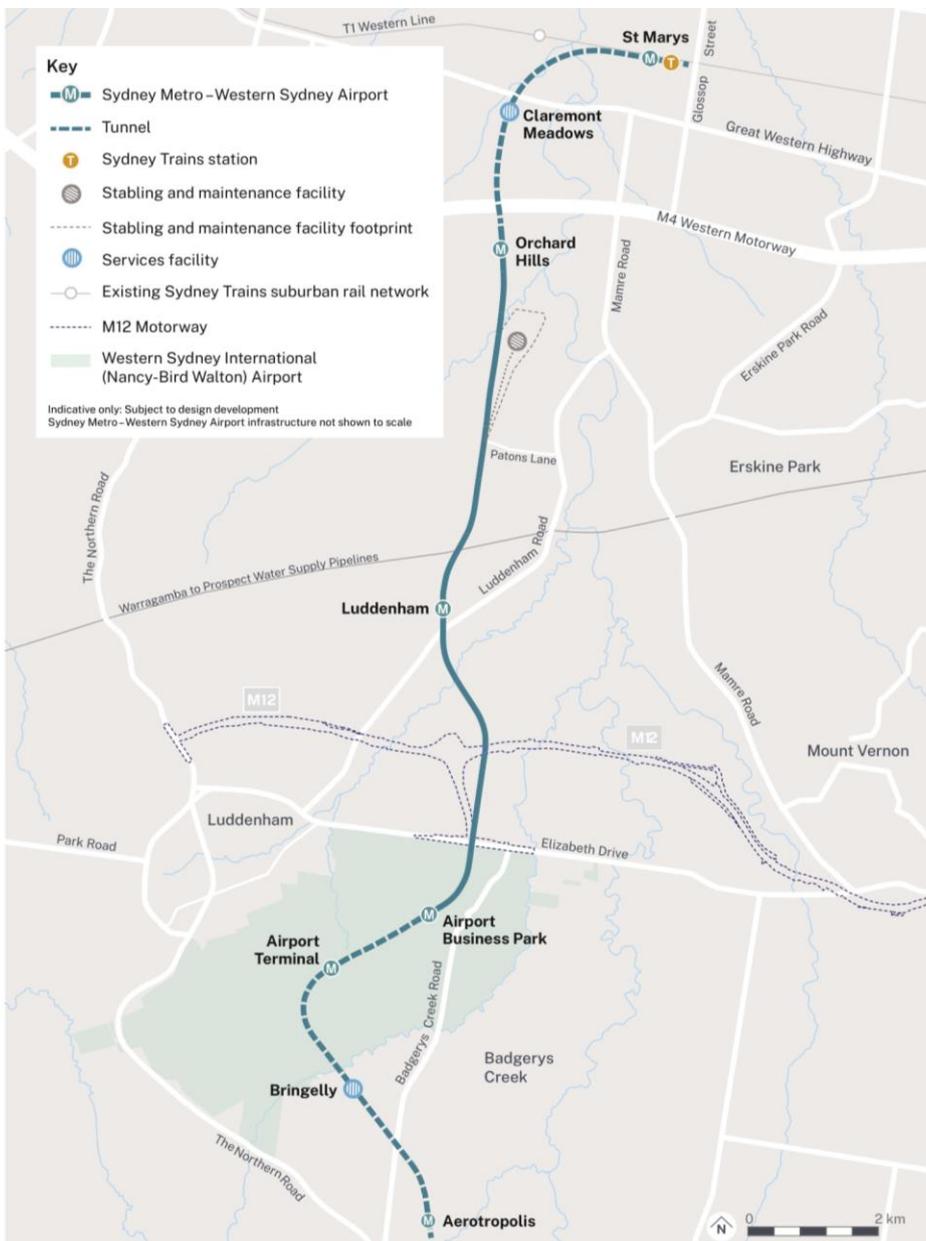
Source: WSA Co, April 2023

Figure 4.14 Terminal construction activity at WSI

An environmental conservation zone protects various locations around the edges of the Airport Site. This includes a vegetation corridor associated with the Badgerys Creek riparian zone, which predominately consists of native grassy woodland and exotic grassland. Habitat augmentation and enhancement works is progressing in the environmental conservation zone, including nest box installations, replacing exotic vegetation with native vegetation and rehabilitating areas of native remnant vegetation.

4.2.2 Sydney Metro – Western Sydney Airport

Sydney Metro – Western Sydney Airport is a new metro railway line that will service Greater Western Sydney, connecting WSI and the Western Sydney Aerotropolis with St Marys and the existing Sydney Trains suburban T1 Western Line. Two stations are proposed to be built within the Airport Site (Airport Business Park and Airport Terminal). The future metro line within the Airport Site is primarily located below the surface level of the airport infrastructure (refer to Figure 4.15).



Source: Sydney Metro, 2022

Figure 4.15 Sydney Metro – Western Sydney Airport overview

The metro railway line, where it is located within the WSI site, was approved in 2021 through an amendment to the Airport Plan.

Major construction, including station excavation, commenced in late 2022. Construction sites have been established within the Airport Site to support tunnelling and the construction of the 2 station boxes. Construction works for the metro railway line within the WSI Airport Site are contained within the construction impact zone for WSI.

Construction is scheduled to be completed to enable operation of the railway line to commence in 2026.

4.3 Regional context

WSI is located within the Western City District, which includes the Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly Local Government Areas (LGA). Blacktown LGA, located around 8 km from the Airport Site, is within the Central City District, alongside Cumberland, Parramatta and The Hills LGAs.

Western Sydney, which encompasses the Western City District and Central City District of Sydney, is one of Australia's fastest growing regions and currently is home to around 2 million people. With the population of Sydney forecast to grow to 8 million over the next 40 years, almost half of the population is expected to reside in areas west of Parramatta (Greater Sydney Commission, 2018b). In the Western City District alone, the population is forecast to be around 1.1 million by 2036 (Greater Sydney Commission, 2018b). This represents an increase of around 360,000 people from 2016.

Western Sydney is Australia's third largest economy. Key employment generating industries include manufacturing, retail, health care and social assistance, transport, warehousing, and construction. In the Blue Mountains, tourism is the second largest employment generating industry.

Western Sydney also supports a diverse and competing range of current and proposed land uses, for example, growth areas, urban renewal corridors, the Western Economic Corridor and large infrastructure projects (planned or currently under construction).

Large population centres, such as Penrith, Liverpool and the Camden LGA, are experiencing significant population growth that is being driven by major infrastructure and land use initiatives in Western Sydney. WSI and the Aerotropolis will be the key catalyst for driving further growth and development in Western Sydney.

Areas surrounding WSI are a mix of rural, rural-residential, urban residential, agricultural, commercial and industrial land uses. Further detail is provided in Section 4.3.1 and 4.3.2.

Detail on the social, economic and cultural environment is provided in Chapter 17 (Heritage), Chapter 18 (Social) and Chapter 19 (Economic).

4.3.1 Current setting

4.3.1.1 Rural-residential and residential

Rural-residential and rural areas broadly surround WSI. The landscape to the north-west of WSI includes the Mulgoa and Wallacia Significant Rural Landscape (Penrith City Council, 2020), which is characterised by its predominately rural landscape and undulating agricultural land. These areas form part of the larger Metropolitan Rural Area of Sydney, a region broadly located in the western, northern and southern areas of the Western City District.

Residential areas in the vicinity of WSI include:

- the villages of Luddenham, Wallacia, Mulgoa and Cobbitty, with Luddenham village located immediately west of the Airport Site, and the residential estate associated with the Twin Creeks Golf and Country Club directly north of WSI
- residential suburbs to the west (such as Silverdale and Warragamba), north (such as Glenmore Park, St Clair and Erskine Park), east (such as Middleton Grange, Hoxton Park, Cecil Hills and Abbotsbury) and south (such as Oran Park and Camden).

To the south of WSI is the South West Growth Area (SWGA), which comprises approximately 10,000 hectares adjoining the Western Sydney Aerotropolis and the Glenfield to Macarthur Urban Renewal Corridor. This area will continue to transition from a rural/rural-residential landscape to suburban, such as Oran Park and Leppington (in the Camden LGA).

Within the Blue Mountains, low-density residential areas are located along either side of the major road and rail infrastructure (Great Western Highway, Main Western Rail Line and Hawkesbury Road), and generally extend along ridgelines. Springwood and Katoomba are key town centres within the Lower and Upper Blue Mountains, respectively. Small village centres are along the urban spine, such as Glenbrook, Hazelbrook, Wentworth Falls and Blackheath. Further north, land uses are typically rural-residential concentrated along The Bells Line of Road and connecting roads.

4.3.1.2 Employment areas

Significant agricultural activities occur in the vicinity of WSI and more broadly within the Metropolitan Rural Area. These support a broad range of agricultural activities, including food production, irrigated horticulture, turf farming and nurseries.

Industrial land uses within Western Sydney are concentrated in Penrith, Fairfield, Liverpool, Campbelltown, Blacktown, Parramatta and Cumberland LGAs. Industrial land uses in the immediate vicinity of WSI support a range of activities, including advanced manufacturing, trade and freight logistics. These are primarily concentrated in the Western Sydney Employment Area, which encompasses areas within Erskine Park, Eastern Creek, Horsley Park and Kemps Creek.

The Kemps Creek Resource Recovery Park is immediately to the north of WSI and extractive industries that supply construction materials (sand, clay and shale) are located throughout the Western City District.

Major commercial and retail centres closest to WSI are located at Penrith, Liverpool, Campbelltown and Blacktown. Small-medium commercial and industrial enterprises are scattered throughout the areas surrounding WSI and beyond. This includes retail and service industries.

4.3.1.3 Recreation, open space and conservation areas

Numerous parks and open spaces are located throughout Western Sydney. In addition to local parks and open spaces scattered throughout urban areas, other recreational and open space areas include:

- several golf courses such as Twin Creeks Golf and Country Club, Wallacia Panthers Country Club, Penrith Golf Course and Camden Lakeside Golf Course
- Robert Green Oval (including Sales Park) at Luddenham
- Workers Hubertus Country Club, Luddenham
- Nepean River
- Bents Basin State Conservation Area, Greendale
- Wianamatta-South Creek corridor, which will be developed further to provide a significant green corridor to local communities
- Western Sydney Parklands, which provides a green, recreational corridor and stretches for 27 km. This includes Sydney Zoo, Sydney Motorsport Park, Prospect Reservoir (public access restricted), walking and cycling trails
- Burragarang State Conservation Area, noting only limited areas can be accessed with this area accounting for 80 per cent of Sydney's water supply
- the Greater Blue Mountains Area (GBMA), comprising several national parks and conservation areas. The area supports a range of recreational and tourism activities (such as lookouts, picnic areas, camping, hiking, cycling, rock climbing and canyoning) in addition to its conservation and wilderness values. Further detail on the GBMA is provided in Section 4.4.1.

4.3.1.4 Health and education

There are numerous education, health, and emergency facilities throughout Western Sydney. This includes the Penrith health and education precinct (a major cluster of health and educational land uses) and several rural properties associated with the science, veterinary and agricultural schools and institutes of the University of Sydney at Camden, Kemps Creek and Bringelly.

Education and health facilities such as high schools, primary schools, pre-schools, child care centres, hospitals, medical specialist and general practitioner surgeries are located throughout the region, generally in proximity to residential areas. The closest school to WSI is Luddenham Public School (primary), located in Luddenham Village.

4.3.1.5 Key infrastructure

WSI is the catalyst for much of Western Sydney's planned road and public transport projects. Strategic planning for WSI and the Aerotropolis has been prepared concurrently with the NSW Government's *Future Transport Strategy 2056* and Infrastructure NSW's *State Infrastructure Strategy 2018–2038* to integrate land use, transport and infrastructure across the region.

Existing major transport infrastructure in Western Sydney includes:

- the M4 Western Motorway and the Great Western Highway
- the M7 Motorway
- the Northern Road (A9) (currently being upgraded) which runs north-south (past the Airport Site) from the M4 Western Motorway to Camden Valley Way
- Elizabeth Drive, which runs east-west from Luddenham to the M7 Motorway
- Bringelly Road, which runs east-west from The Northern Road (Bringelly) to Camden Valley Way
- Main Western Rail Line, connecting Sydney and the Blue Mountains
- The Inner West and Leppington Rail Line (previously called the South West Rail Link), which terminates at Leppington
- Sydney Metro – Western Sydney Airport (under construction).

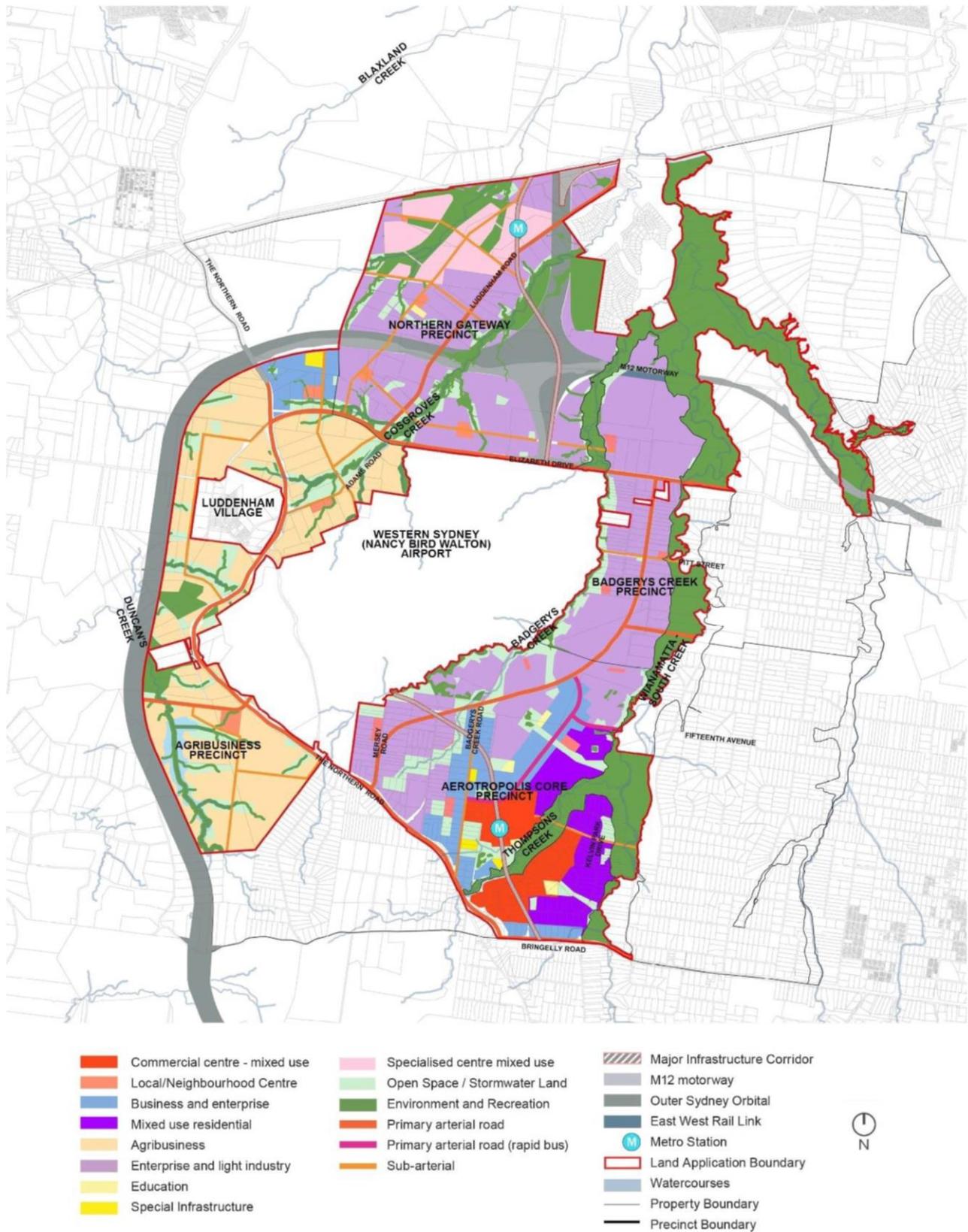
Warragamba Dam and Lake Burragorang is located around 8 km to the west of WSI within the Wollondilly LGA. It supplies around 80 per cent of Sydney's water supply. Prospect Reservoir, located around 13 km to the north-east of WSI, remains as a back-up water supply for Sydney and is rarely used.

4.3.2 Future setting

Under the NSW Government's overarching vision for Sydney, the Western Parkland City will be the primary focus of the Western City District and will be established on the strength of WSI and the Aerotropolis. It will be a polycentric city capitalising on the established centres of Liverpool, Greater Penrith and Campbelltown.

The Aerotropolis is a 11,200-hectare area surrounding WSI (refer to Figure 4.16). The Aerotropolis will become a hub of industry and innovation, creating more than 100,000 new job opportunities across the Aerotropolis Core, Badgerys Creek, Northern Gateway and Agribusiness precincts by 2056. It will also include Bradfield City Centre, which will be established within the Aerotropolis Core and centred on the new Sydney Metro station. Luddenham Village, located at the core of the Agribusiness precinct, is set to become a tourist and cultural hub for the Aerotropolis, while servicing employees within the Agribusiness Precinct.

Urban development will be limited within the Metropolitan Rural Area under the Greater Sydney Region Plan and Western City District Plan. These plans seek to maintain and enhance the values of the Metropolitan Rural Area and the distinctive character of each rural village.



Source: NSW DPE, 2023a

Figure 4.16 Western Sydney Aerotropolis Precinct Plan

4.4 Matters of National Environmental Significance

There are numerous Matters of National Environmental Significance within 45 nm (83 km) of the Airport Site. These include:

- 6 World Heritage Areas – the GBMA, Australian Convict Sites (multiple sites located in eastern Sydney CBD, Parramatta and north-west Sydney) and the Sydney Opera House
- 19 National heritage places – including the GBMA, multiple sites in eastern Sydney (extending from the Royal National Park to the Ku-ring-gai Chase National Park) and sites in Parramatta (Old Government House and the Parramatta Female Factory and Institutions Precinct)
- 24 listed Threatened Ecological Communities (including 16 critically endangered ecological communities)
- 238 threatened fauna and flora species
- 90 migratory fauna species
- one wetland of international importance (Ramsar Wetlands), at Towra Point Nature Reserve.

Threatened species, threatened ecological communities and migratory fauna species that have a high and moderate likelihood of occurrence within the biodiversity study area is detailed in Chapter 16 (Biodiversity).

The Towra Point Nature Reserve is located around 24 nm (45 km) to the east of the airport runway and directly across Botany Bay from Sydney (Kingsford Smith) Airport.

Further detail on the listed heritage places or areas within 45 nm (83km) of the Airport Site is provided in the following sections, and considered in Chapter 17 (Heritage).

4.4.1 World Heritage Areas

4.4.1.1 Greater Blue Mountains Area

The GBMA is listed as a World and National Heritage place. It was inscribed on the World Heritage list in 2000 as it satisfies 2 of the criteria for natural values of outstanding universal value:

- Criterion (ix) – to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal and marine ecosystems and communities of plants and animals.
- Criterion (x) – to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science of conservation.

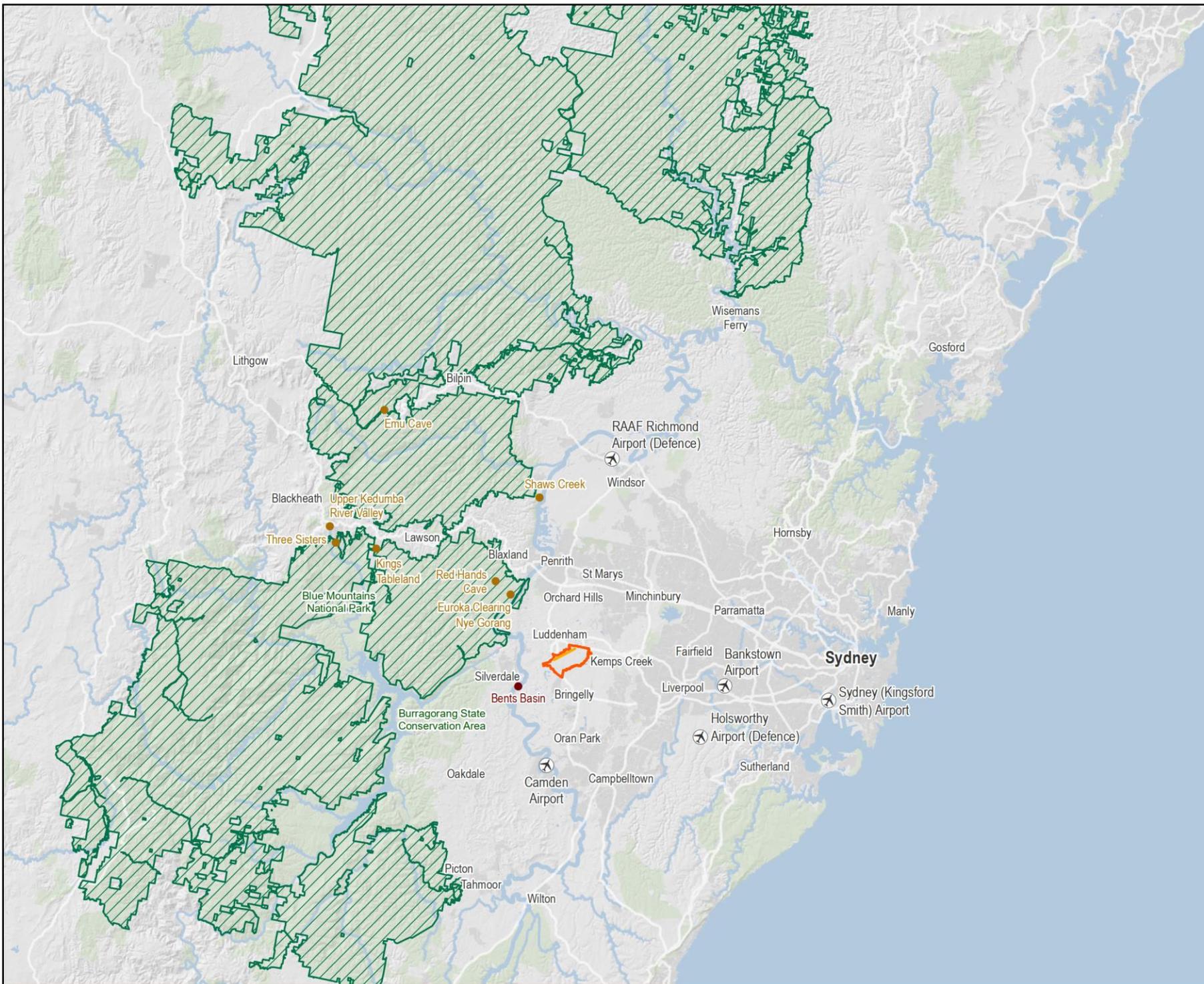
In addition to meeting at least one of the criteria for outstanding universal value, a world heritage area property that is listed for natural values also needs to meet conditions of integrity. Integrity is a measure of the ‘wholeness and intactness’ of the natural heritage and its attributes (UNESCO, 2021). The integrity of the GBMA:

- relates to its size and connectivity, its high wilderness quality for most of the natural bushland area, and the protection afforded by its natural barriers and regulatory protections (including wilderness declarations and land adjacent to the GBMA)
- depends upon the complexity of its geological structure, geomorphology and water systems, which require the same level of protection
- includes its cultural context with the conservation of the custodial relationships and associations with the area.

Chapter 23 (Matters of National Environmental Significance) provides a full description of how the GBMA satisfies the above criteria and the statement of integrity. The GBMA in the vicinity of the Airport Site is provided in Figure 4.17.

Figure 4.17

The Greater Blue Mountains World Heritage Area and surrounds



Legend

-  WSI Runway
-  Western Sydney International (Nancy-Bird Walton) Airport land boundary
-  Greater Blue Mountains World Heritage Area
-  Aboriginal Places raised during consultation (NPW Act)
-  Site of Aboriginal significance



Coordinate system: GDA 1994 NSW Lambert

Scale ratio correct when printed at A4

1:800,000 Date: 8/06/2023

Data sources: - DTTRDC, DCS, Geoscience Australia
 Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
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In addition to the attributes recognised by the World Heritage Committee in 2000, the GBMA has several other important values that complement and interact with its World Heritage values (NSW DECC, 2009). Protection of these values is integral in managing individual protected areas and the GBMA as a whole. These include:

- geodiversity and biodiversity
- water catchment
- indigenous heritage values
- historic heritage values
- recreation and tourism
- wilderness
- social and economic
- research and education
- scenic and aesthetic
- bequest, inspiration, spirituality and existence.

Other World heritage places

The project area covers a large portion of the Sydney Basin airspace and areas beyond. Table 4.1 summarises the places listed on the World Heritage List within the project study area.

Table 4.1 World Heritage places within the project study area

| Name | Place ID ¹ | Status | World Heritage Criteria ² | Address |
|---|-----------------------|----------------------------------|--------------------------------------|--|
| Australian Convict Sites (Old Great North Road and Buffer Zone) | 106209 | Declared property Buffer zone | iv, vi | The Old Great Northern Rd, Wisemans Ferry NSW |
| Australian Convict Sites (Old Government House and Domain) | 106209 | Declared property | iv, vi | Corner of Pitt Street and Macquarie Street, Parramatta NSW |
| Australian Convict Sites (Cockatoo Island Convict Site) | 106209 | Declared property | iv, vi | Cockatoo Island, Sydney Harbour |
| Australian Convict Sites (Hyde Park Barracks) | 106209 | Declared property | iv, vi | Queens Square, Macquarie Street, Sydney |
| Sydney Opera House | 105914 | Declared property | i | Pitt Street and Macquarie Street, Parramatta |

1. Australian Heritage Database ID Number

2. Criterion descriptions:

- Criterion i – to represent a masterpiece of human creative genius
- Criterion iv – to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history
- Criterion vi – to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance

4.4.2 National Heritage items

Australia's most valued Indigenous and historic heritage sites are listed on the National Heritage List in accordance with the criteria contained in the statutory provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and regulations. These places reflect the richness of Australia's heritage and the story of its development, from its original inhabitants to present day, and its unique landscapes.

19 National Heritage items are located within 45 nm (83 km) of the Airport Site and are listed in Table 4.2.

The GBMA was added to the National Heritage List in 2007 for similar values for which it was included on the World Heritage list. The Australian Heritage Council is currently assessing whether the GBMA National Heritage place has additional nationally significant heritage values, and whether to expand it to include adjacent areas. The values relate to geodiversity, biodiversity and historic values that satisfy the National Heritage criterion of events and processes, rarity and aesthetic characteristics. The Australian Heritage Council has identified engagement with First Nations People is required before it can identify any Aboriginal cultural heritage values that satisfy National Heritage criteria. Consent would also be sought to list any such values.

Table 4.2 Places on the National Heritage List within 45 nm (83 km) of the Airport Site

| Nationally listed place | Distance from WSI (km) |
|--|------------------------|
| Bondi Beach Campbell Parade/Bondi Surf Pavilion | 51 |
| Cockatoo Island | 42 |
| First Government House Site | 45 |
| Hyde Park Barracks | 45 |
| Ku-ring-gai Chase National Park, Lion, Long and Spectacle Island Nature Reserves | 55 |
| North Head – Sydney North Head Scenic Drive | 54 |
| Old Great North Road/The Old Great Northern Road | 62 |
| Royal National Park and Gawarra State Conservation Area | 40 |
| Sydney Opera House | 46 |
| Centennial Park | 47 |
| Cyprus Hellene Club – Australian Hall | 45 |
| Governors' Domain and Civic Precinct | 46 |
| Kamay Botany Bay: botanical collections sites | 46 |
| Kurnell Peninsula Headland | 49 |
| Old Government House and the Government Domain Parramatta | 27 |
| Parramatta Female Factory and Institutions | 27 |
| Sydney Harbour Bridge Bradfield Highway | 45 |
| GBMA | 10 |

4.5 Commonwealth land

The Commonwealth holds land parcels in all Australian states and territories.

The Commonwealth Government acquired approximately 1,780-hectares of land at Badgerys Creek for the proposed Western Sydney Airport in the 1980s and 1990s. All land within the airport boundary will be used for airport operations.

There are around 3,700 Commonwealth land holdings within 45 nm of the Airport Site. The majority are managed by Defence (around 80 per cent), including Defence housing. The remaining holdings include operations associated with communications, research and science, postal services, treasury and transport.

There are 2 Defence airports within the Greater Sydney region (Holsworthy Airport and RAAF Base Richmond), as well as the Orchard Hills Defence Establishment. Details on these sites is included within Section 4.1.4.

4.6 Commonwealth heritage sites

There are 89 Commonwealth heritage sites located within 45 nm of the Airport Site (being sites of heritage value managed by an Australian agency). The sites are predominately historic heritage sites, but also include sites listed for cultural landscape and/or natural heritage values (for example, Cubbitch Barta National Estate Area at Holsworthy or the Orchard Hills Cumberland Plain Woodland).

The majority of Commonwealth heritage sites are located within eastern Sydney. The closest listed item is the Orchard Hills Cumberland Plain Woodland, located around 2 nm (4 km) to the north of the Airport Site.