Chapter 1 Introduction

This chapter provides an overview of the background to Western Sydney International (Nancy-Bird Walton) Airport and the proposed airspace and flight path design for the airport. It also describes the key features and objectives of the project and identifies the purpose and structure of this Environmental Impact Statement (EIS).

1.1 Western Sydney International (Nancy-Bird Walton) Airport

1.1.1 Background

In 2016 the then Australian Minister for Urban Infrastructure approved development for a new airport for Western Sydney, now known as the Western Sydney International (Nancy-Bird Walton) Airport (WSI), under the *Airports Act 1996* (Commonwealth). The site of the new airport (the Airport Site) covers approximately 1,780 hectares (ha) at Badgerys Creek, as shown in Figure 1.1. The Airport Site is located within the Liverpool local government area (LGA).

Following the finalisation of the Western Sydney Airport – Environmental Impact Statement (2016 EIS), the Western Sydney Airport – Airport Plan (Airport Plan) (DITRDC, 2021) was approved in December 2016. The Airport Plan authorised the construction and operation of the Stage 1 Development of WSI (a single runway and terminal facility capable of initially handling up to 10 million passengers per year). It also set the requirements for the further development and assessment of the preliminary airspace design for WSI.

WSI will be a 24-hour, 7 days a week curfew-free international airport and will:

- cater for ongoing growth in demand for air travel, particularly in the rapidly expanding Western Sydney region, as well as providing additional aviation capacity in the Sydney region more broadly
- provide a more accessible and convenient international and domestic airport facility for the large and growing population of Western Sydney
- provide long term economic and employment opportunities in the surrounding area
- accelerate the development of critical infrastructure and urban development.

The Australian Government has committed to develop and deliver WSI to be ready for scheduled flight operations by late 2026.

The 2016 approval provides for the on-ground development for the Stage 1 Development of WSI with indicative 'proof of concept' flight paths. These flight paths, presented in the 2016 EIS, demonstrated that WSI could operate safely and efficiently in the Sydney Basin. For the purposes of this EIS, the Sydney Basin encompasses airspace that extends out to Katoomba to the west, the Hawkesbury River to the north, the southern boundary of the Royal National Park to the south and the coastline to the east.

The design and assessment process for the next phase of the airspace design (referred to as the preliminary airspace design) was set by Condition 16 of the Airport Plan. This included the future airspace design principles and the establishment of an Expert Steering Group. Key to these design principles was the need to optimise flight paths on the basis of safety, efficiency, capacity of WSI, and noise and environmental considerations, while minimising changes to existing airspace arrangements in the Sydney basin airspace. The airspace design must also meet the requirements of Airservices Australia and civil aviation safety regulatory standards.

Led by the Australian Government Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA), the Expert Steering Group has developed the preliminary flight paths and airspace arrangements for WSI (the project). Further discussion of this process is provided in Chapter 6 (Project development and alternatives). The preliminary airspace design is the subject of this EIS.

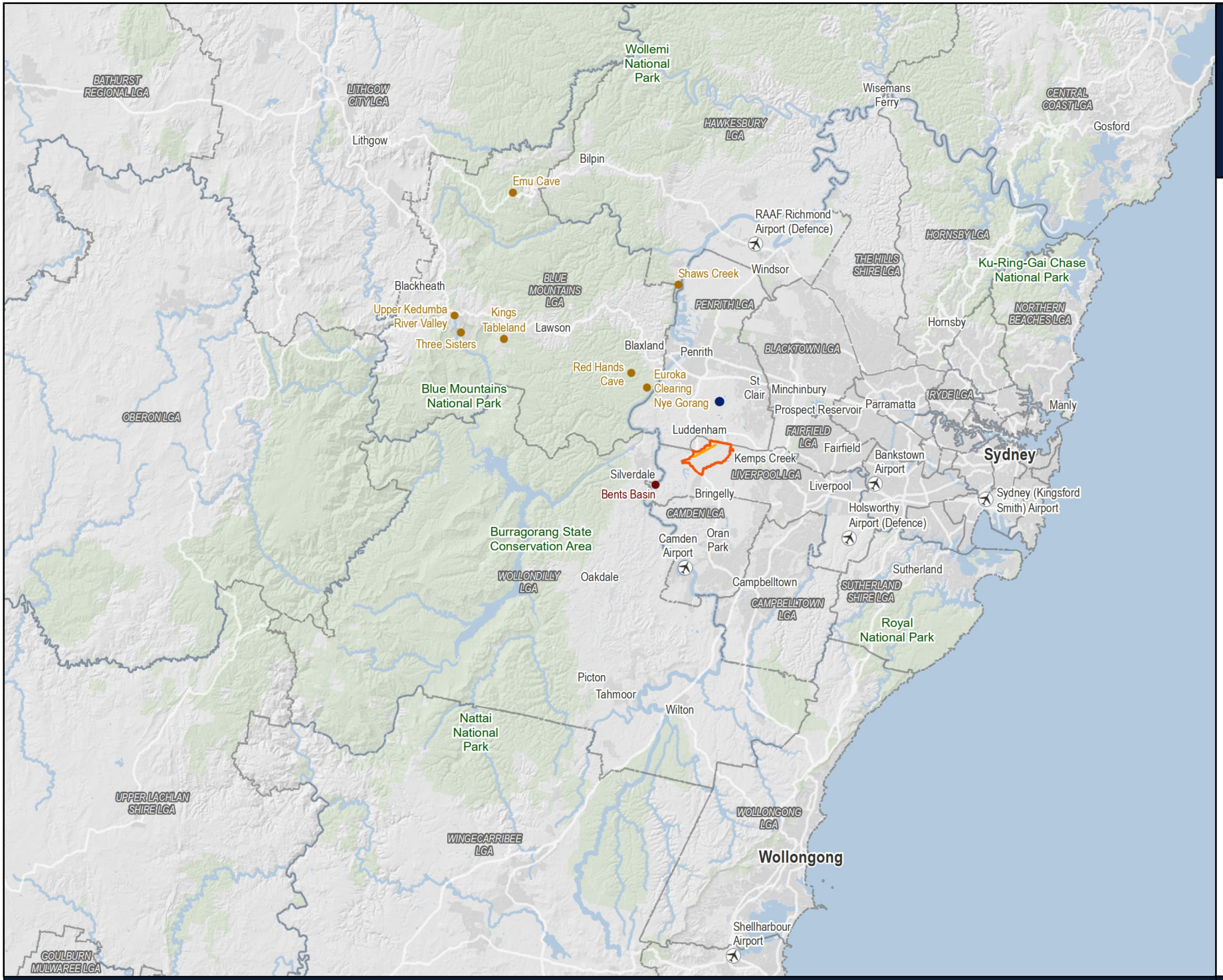


Figure 1.1

Regional Context of the Western Sydney International (Nancy-Bird Walton) Airport

Legend

- WSI Runway
- Western Sydney International (Nancy-Bird Walton) Airport land boundary
- State local government area (LGA)
- 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

1:750,000 Date: 27/06/2023

1.1.2 The Airport

1.1.2.1 Stage 1 Development

The Stage 1 Development of WSI has been approved and is limited to single runway operations. It will handle up to 10 million annual passengers and around 81,000 air traffic movements per year by 2033 including freight operations (a movement being a single aircraft arrival or departure). Single runway operations are expected to reach capacity at around 37 million annual passengers and around 226,000 air traffic movements per year in 2055.

The approval provides for the construction of the aerodrome (including the single runway), terminal and landside layout and facilities, and ground infrastructure such as the instrument landing systems and high intensity approach lighting arrays. Construction of the Stage 1 Development commenced in 2018. Figure 1.2 shows location of the single runway within the Airport Site.

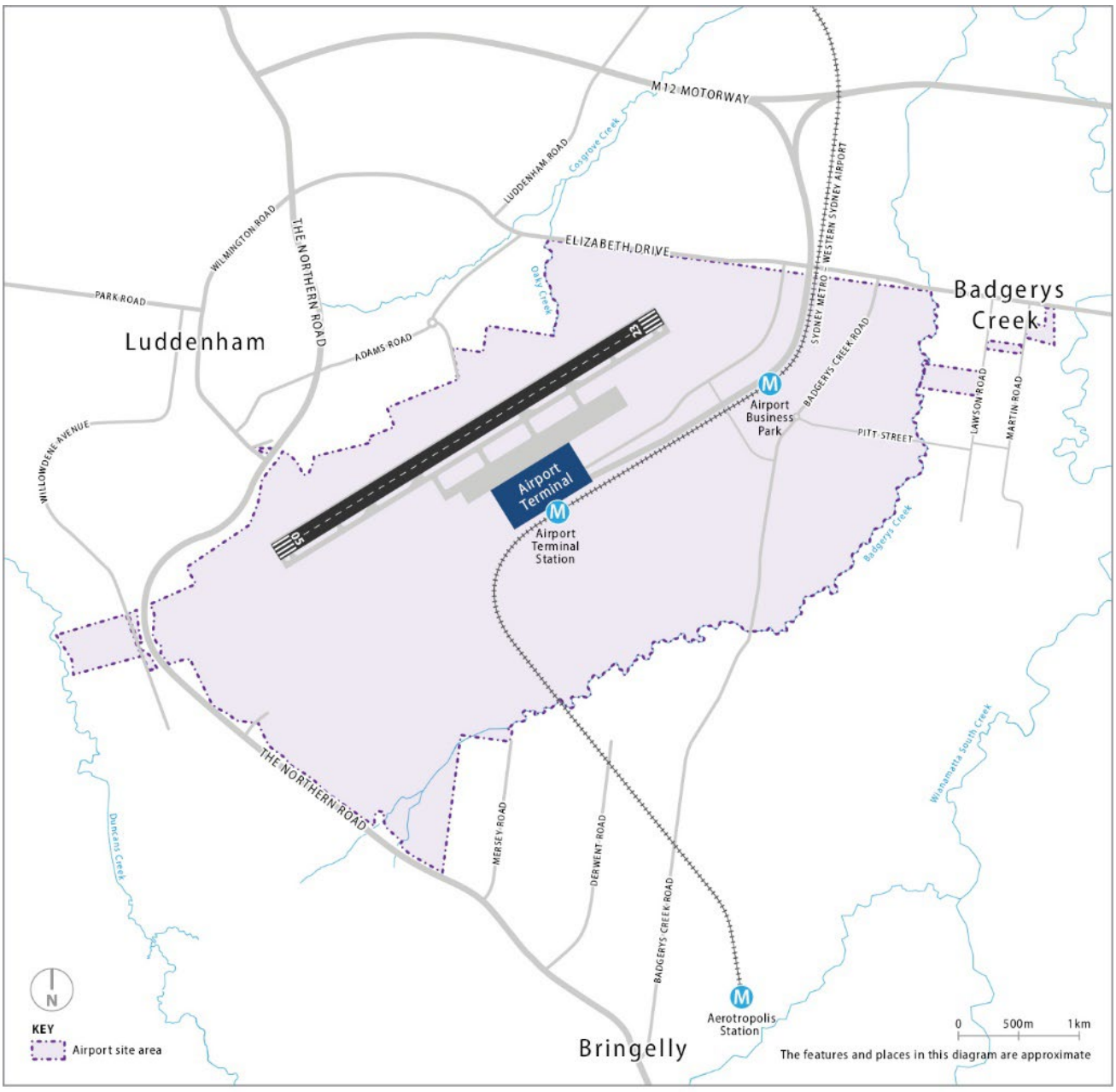


Figure 1.2 Western Sydney International Stage 1 Development

The single runway is 3,700 metres long and 45 metres wide, and is capable of handling both domestic and international services. The runway is orientated on an approximately north-east/south-west axis (refer to indicative schematic in Figure 1.3), which reflects the physical alignment of the runway and compass heading for aircraft operating to or from it – in this case 50 degrees north-east and 230 degrees south-west (magnetic).

The Airport Plan also contains operational conditions that govern the operational phase of the Stage 1 Development, including the requirement of a series of Operational Environment Management Plans (OEMPs) and a Community and Stakeholder Engagement Plan.

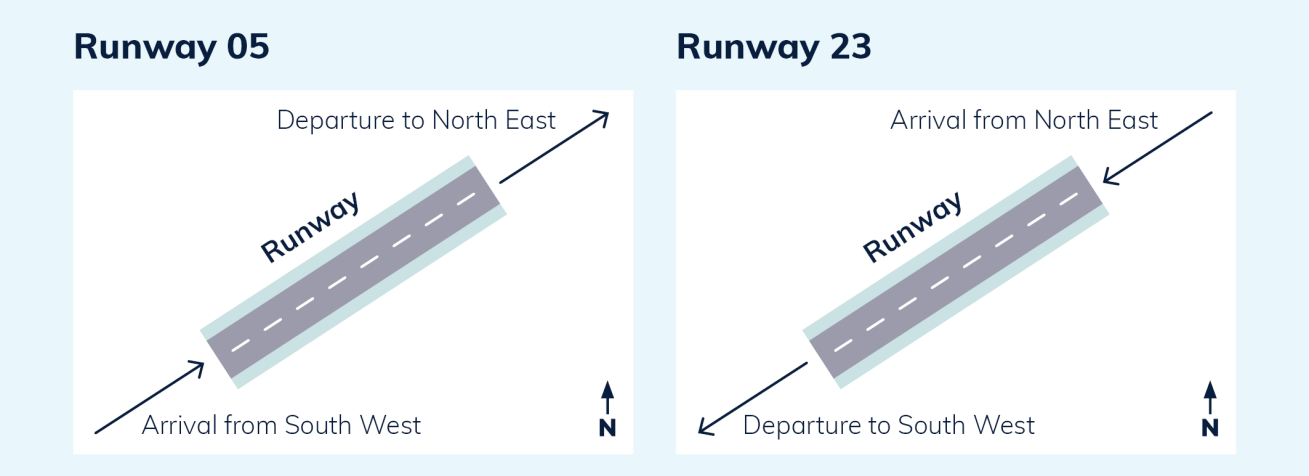


Figure 1.3 Runway 05 and Runway 23

1.1.2.2 Long term development

Incremental development and expansion of the airport facilities will be required at various stages as passenger demand increases. As demand grows over time, WSI is expected to include an expanded terminal, further supporting passenger and commercial facilities. When single runway operations approach capacity at around 37 million annual passengers and around 226,000 air traffic movements per year in 2055, a second parallel runway is expected to be required (DITRDC, 2021). By around 2063, under an ultimate capacity for a two-runway system, the total aircraft traffic movements per year is forecast to be around 370,000 air traffic movements per year, servicing approximately 82 million annual passengers.

Flexibility and expandability were considered in the geometry of the airport and facility layout to allow for its proposed development over the long term in line with increasing demand. Future development is subject to separate regulatory approvals in accordance with *Airports Act 1996* (Commonwealth), including any required environmental assessment.

1.1.3 Development of the airspace and flight path design for WSI

Designing flight paths for a new airport is a large, complex and technical task. The Sydney Basin airspace already comprises an extensive network of flight paths associated with civilian and Defence airports, and also caters for flying training, emergency aviation activities (including medical and firefighting), recreational aviation activities (such as gliders, ballooning and parachuting) and transiting flights (refer to Chapter 4 (Project setting) for further information).

The airspace and flight path design process for WSI has sought to optimise flight paths based on safety, efficiency, capacity, and noise and environmental considerations, while minimising changes to existing airspace arrangements in the Sydney Basin to the greatest extent practical. Any necessary changes and associated impacts to the flight paths at other airports to accommodate aircraft operations from WSI have been considered in terms of safety, national security (Defence), efficiency, equity of airspace access, existing aircraft operating standards and environmental impact.

There are 4 main phases to the airspace and flight path design process (refer to Figure 1.4). It is an iterative process informed by community and stakeholder engagement at each phase. The phased process also allows the final airspace arrangements (the Detailed Design Phase) to better reflect the operating environment closer to the time the airport opens, taking account of factors such as new aviation technology – aircraft design and propulsion systems and air traffic management improvements, and global aviation industry environmental improvement initiatives.

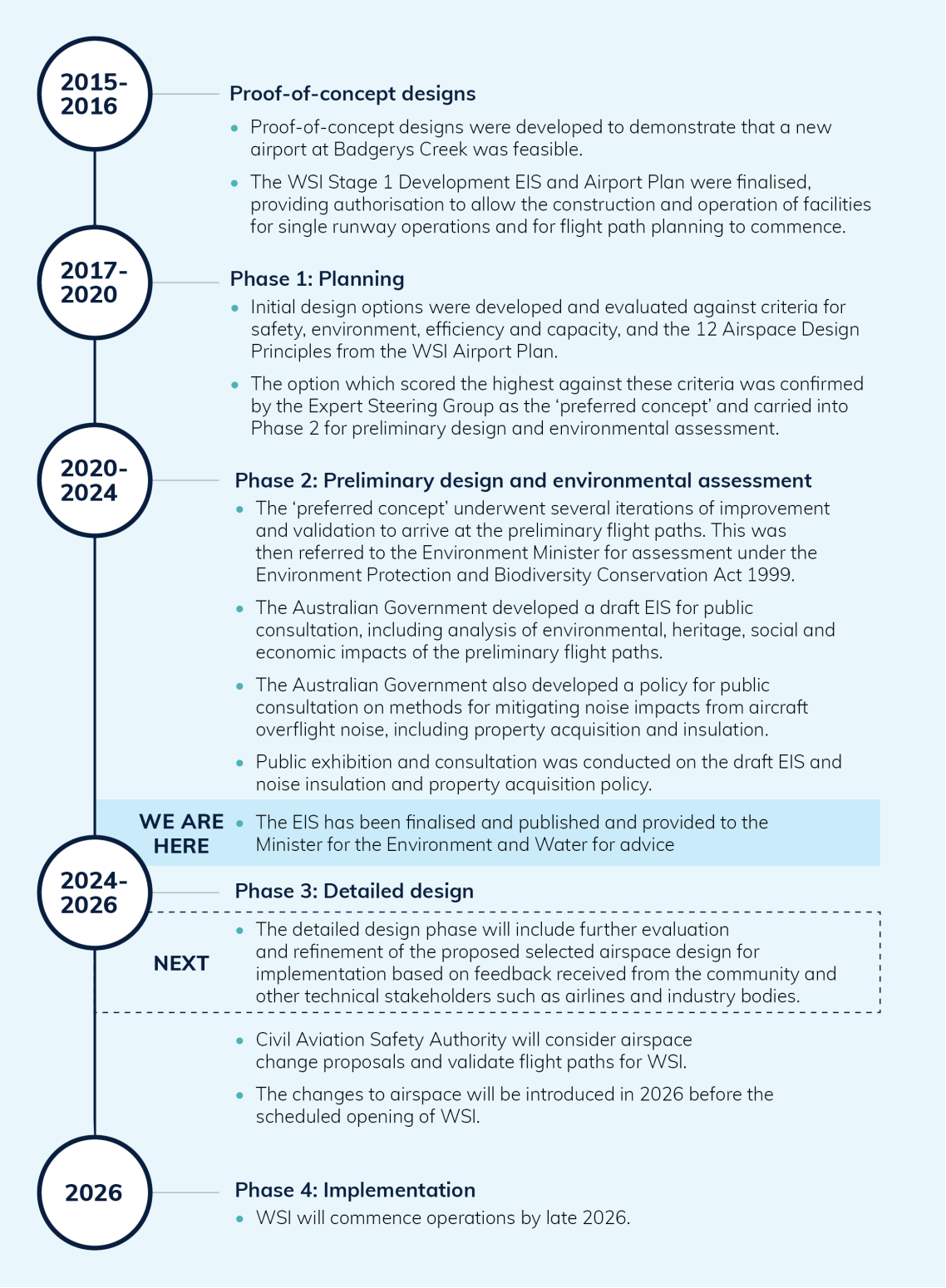


Figure 1.4 Flight path design pathway

The finalised EIS forms part of Phase 2: Preliminary design and environmental assessment. The EIS will be provided to the Australian Minister for the Environment and Water who will then provide advice to DITRDCA, Airservices Australia and CASA, including any recommended conditions. Airservices Australia will be responsible for submitting the Airspace Change Proposal that will be submitted to CASA for approval. This would need to consider the advice provided by the Australian Minister for the Environment and Water.

Further information on the airspace and flight path design process is provided in Chapter 6 (Project development and alternatives).

1.2 The project

1.2.1 Objectives of the project

The overall objectives for WSI are to:

- improve access to aviation services for Western Sydney
- resolve the long term aviation capacity constraints in the Sydney Basin
- maximise the economic benefit for Australia by maximising the value of the Airport as a national asset
- optimise the benefit of WSI for employment and investment in Western Sydney
- deliver sound financial, environmental and social outcomes for the Australian community.

The project will assist in achieving these overall objectives as it would enable single runway operations to commence at WSI through the introduction of new flight paths and a new controlled airspace volume.

The Airport Plan sets out 12 airspace design principles that the design process is required to follow. The principles were informed by and reflect community and industry feedback on the 2016 EIS. The principles seek to optimise proposed flight paths on the basis of safety, efficiency, capacity, and noise and environmental considerations while changes to existing airspace arrangements in the Sydney Basin. For further information on the airspace design principles refer to Chapter 6 (Project development and alternatives). These design principles are also supplemented by requirements for airspace design set out in Condition 16 of the approval of the Airport Plan.

1.2.2 Project flight paths

The project consists of the development and implementation of proposed flight paths and a new controlled airspace volume for single runway operations at WSI. The project also includes the associated air traffic control and noise abatement procedures for eventual use by civil, commercial passenger and freight aircraft. The airspace and flight paths would be managed by the Air Navigation Services Provider (ANSP), Airservices Australia.

The project involves flight paths for all-weather operations on Runway 05 and Runway 23 during the day (5:30 am to 11 pm) and night (11 pm to 5:30 am), as well as head-to-head Reciprocal Runway Operations (RRO) during night-time periods (when weather conditions are suitable and air traffic volumes are low enough to permit safe operations) to minimise the number of residences subjected to potential noise disturbance.

The flight paths differ during the day and night. Flight paths at night differ to take advantage of the additional airspace capacity offered when the curfew for Sydney (Kingsford Smith) Airport is in force. The proposed flight paths are shown in Figure 1.5 to Figure 1.10.

The project does not include any physical infrastructure or construction work.

Further information on the project, including the runway modes of operation, are provided in Chapter 7 (The project).

1.2.2.1 Refinements to the project since the exhibition of the Draft EIS

Refinements to the preliminary flight path design have been made in response to submissions received during the exhibition of the Draft EIS. This has included:

- minor refinement to preliminary flight path D10 to provide a more westerly alignment north of Linden
- removal of Required Navigation Performance – Approval Required approach (A13) south of Linden
- minor refinement to preliminary flight path A21 (RRO night approach to Runway 05) to provide a more southerly alignment
- refinements to the RRO runway mode of operation as follows:
  - the withdrawal of preliminary flight path D28 for jet operations and the reallocation of those aircraft to preliminary flight path D32
  - the introduction of a new RRO mode noise abatement procedure (RRO-NAP).

These changes have been incorporated into the project description as presented in Chapter 7 (The project).

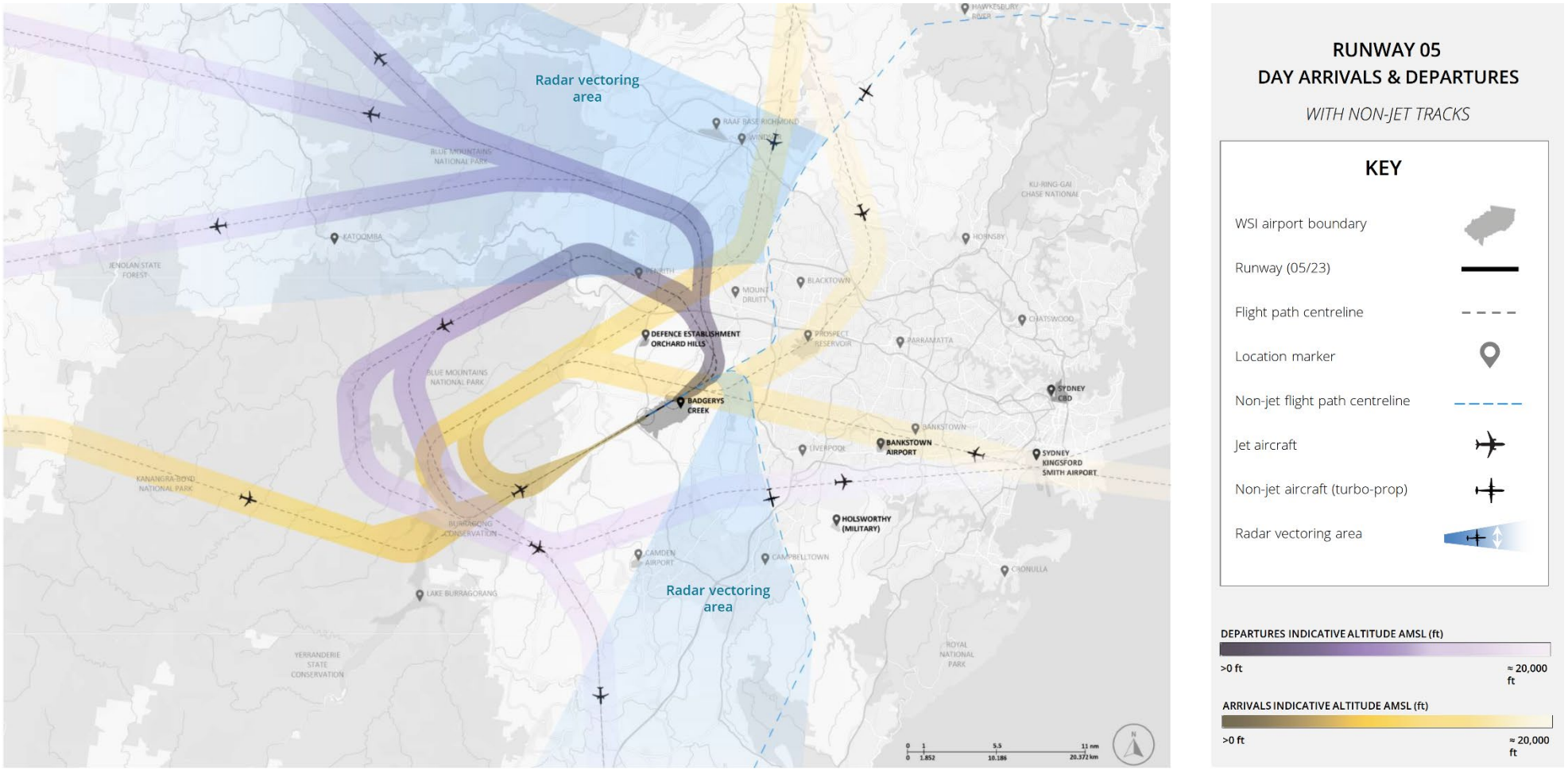
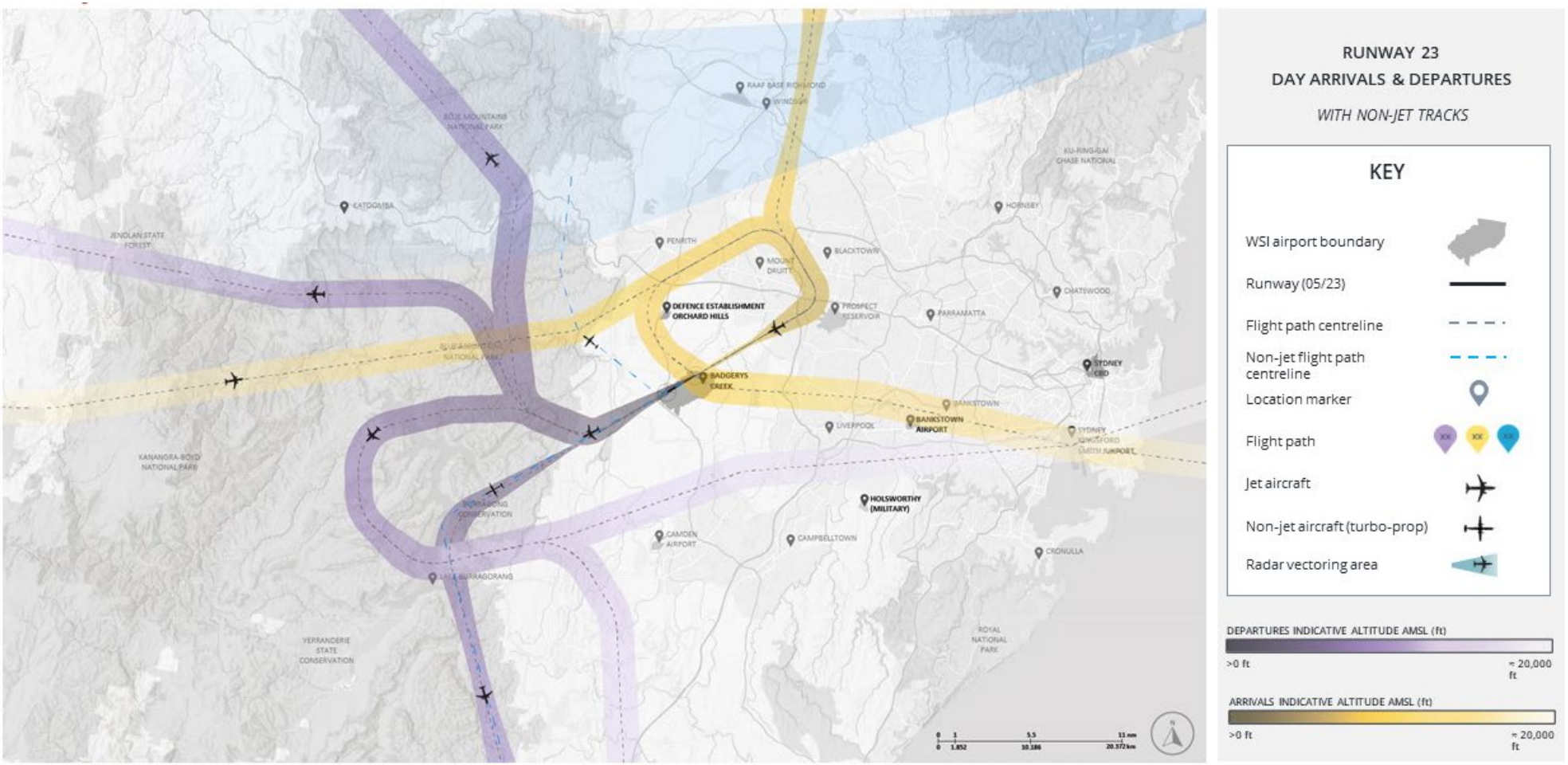
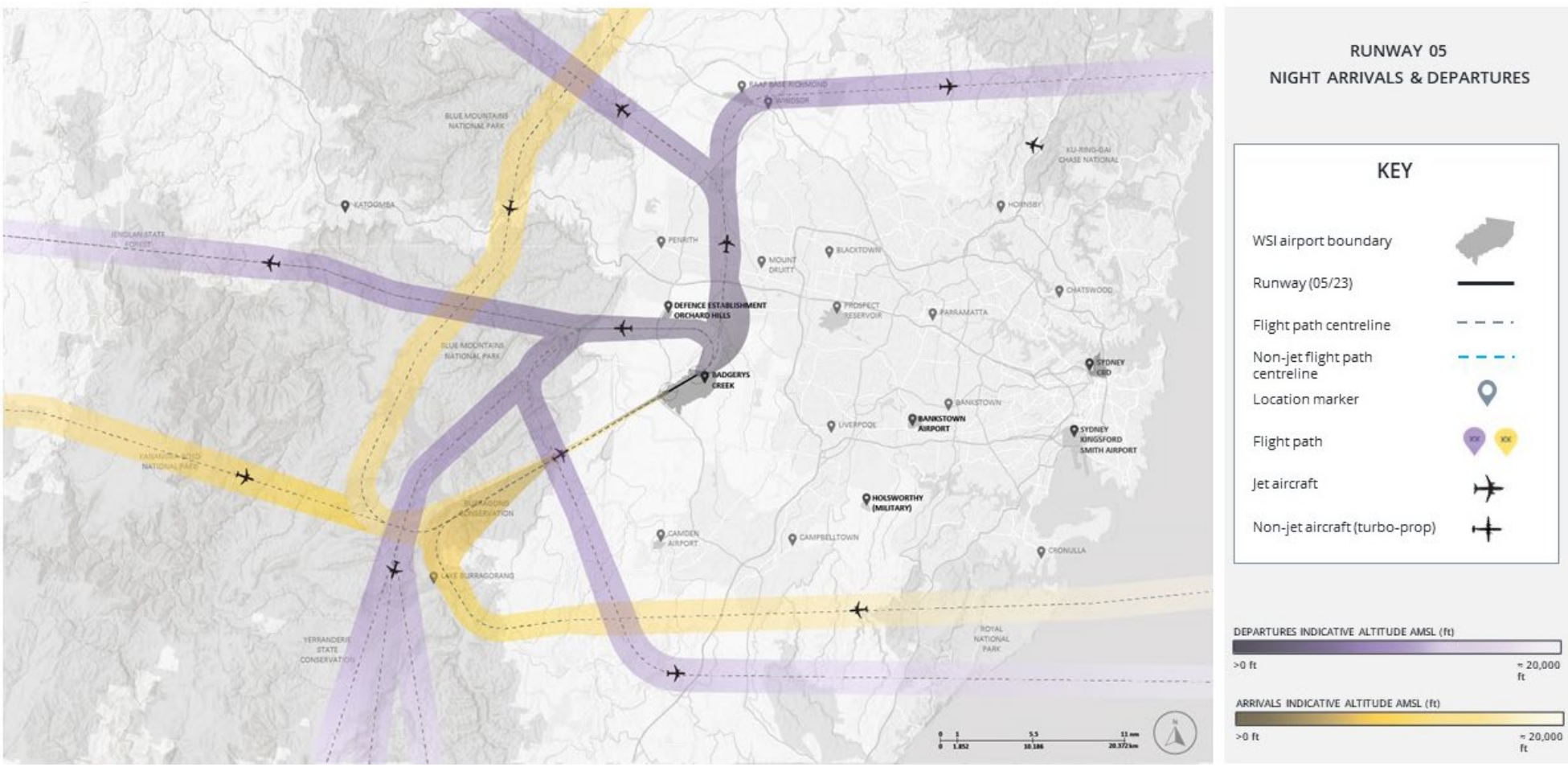


Figure 1.5 Proposed flight paths for Runway 05 (day)



Note: Since exhibition of the Draft EIS, a minor refinement to the north-west departure flight path for Runway 23 (Day) to provide a more westerly alignment north of Linden has been incorporated into the project and is reflected in the above image.

Figure 1.6 Proposed flight paths for Runway 23 (day)



Note: Since exhibition of the Draft EIS, the Required Navigation Performance – Approval Required approach for Runway 05 (night) south of Linden has been removed from the project and is reflected in the above image.

Figure 1.7 Proposed flight paths for Runway 05 (night)

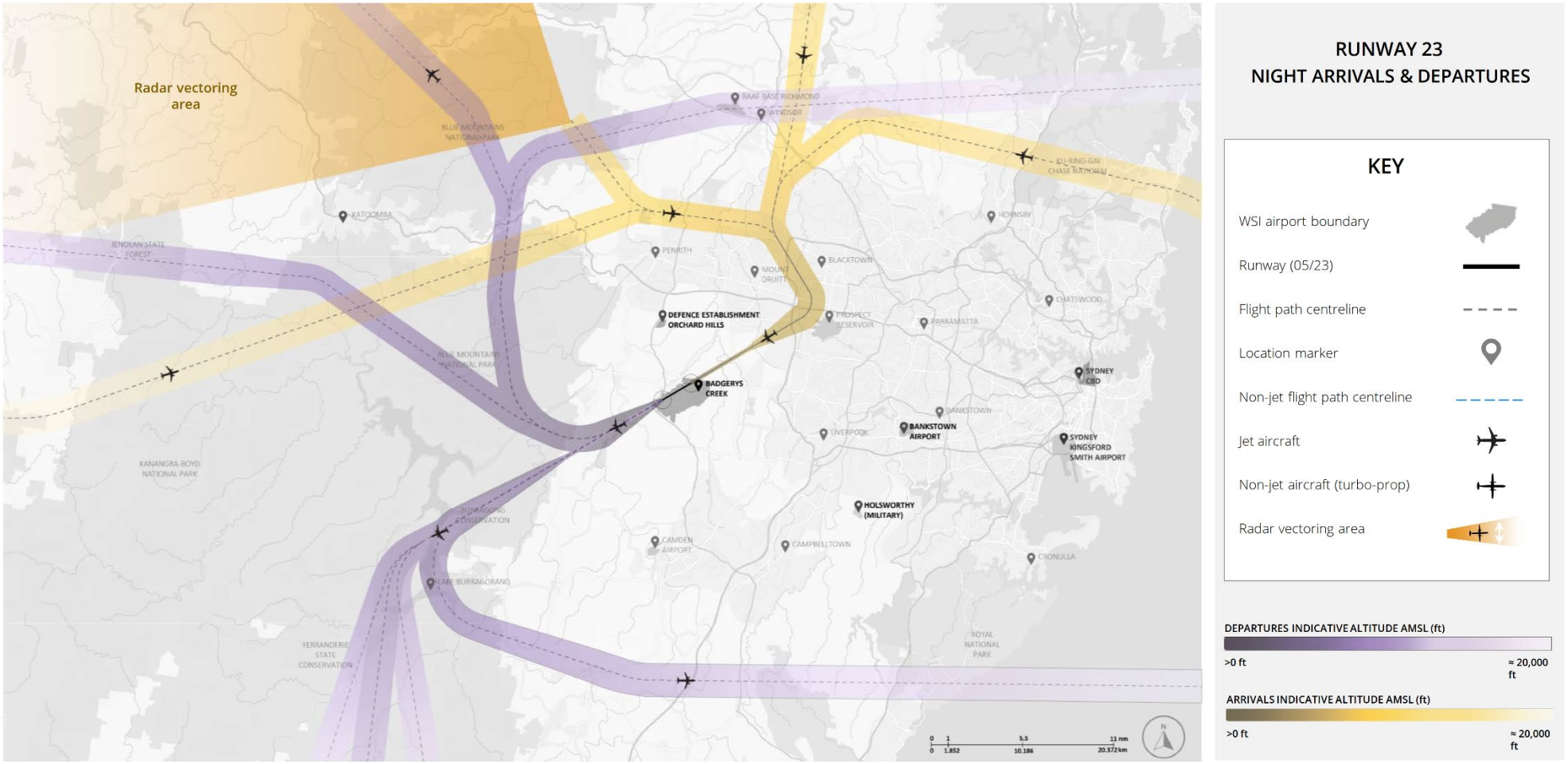
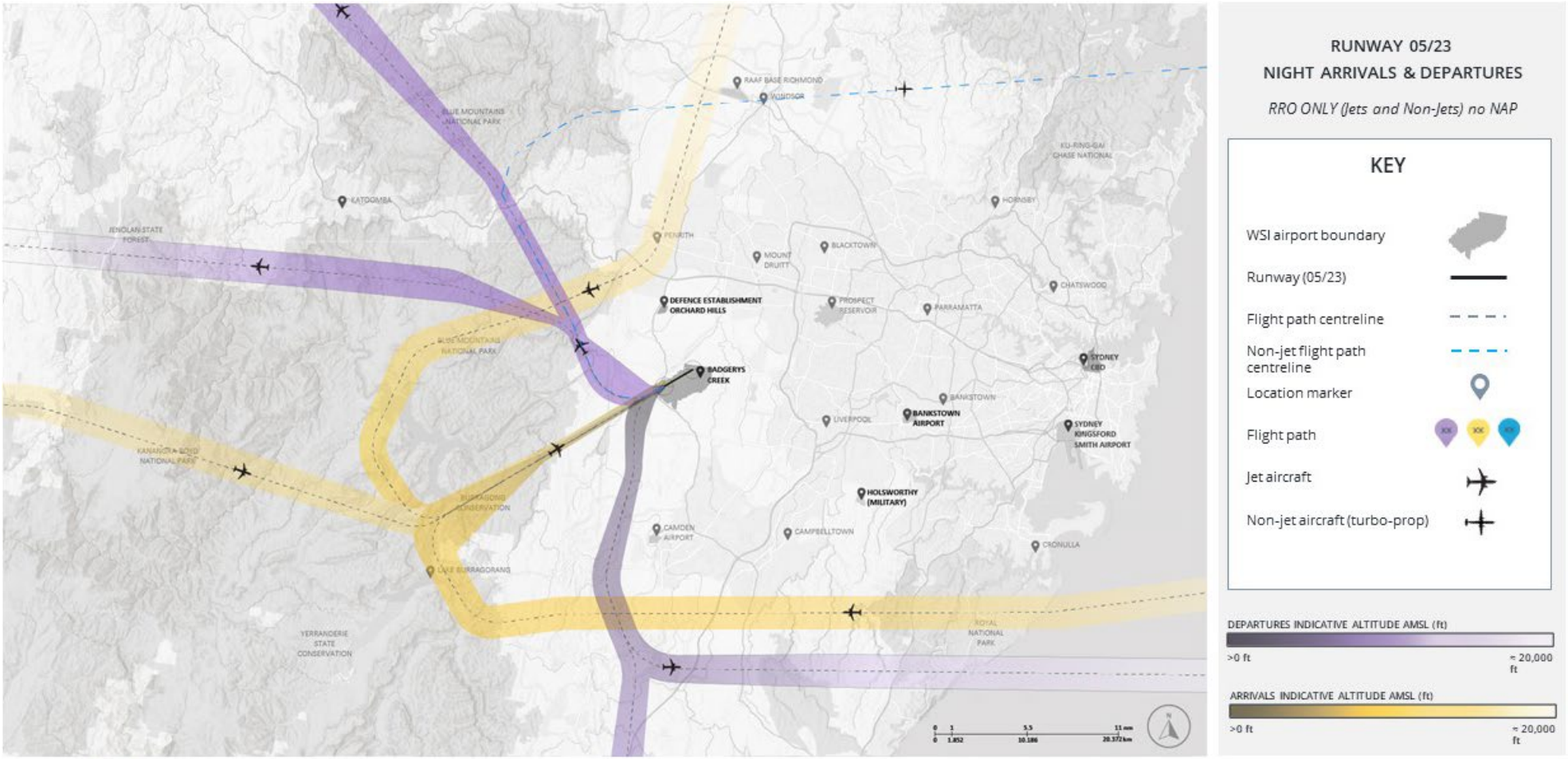


Figure 1.8 Proposed flight paths for Runway 23 (night)



Note: Since exhibition of the Draft EIS, a minor refinement to the arrival flight path to Runway 05 from the east during the RRO mode of operation to provide a more southerly alignment has been incorporated into the project as well as the reallocation of jet aircraft on the northeast departure flight path to the southeast departure flight path. This is reflected in the above image.

Figure 1.9 Reciprocal Runway Operations (RRO) (night)

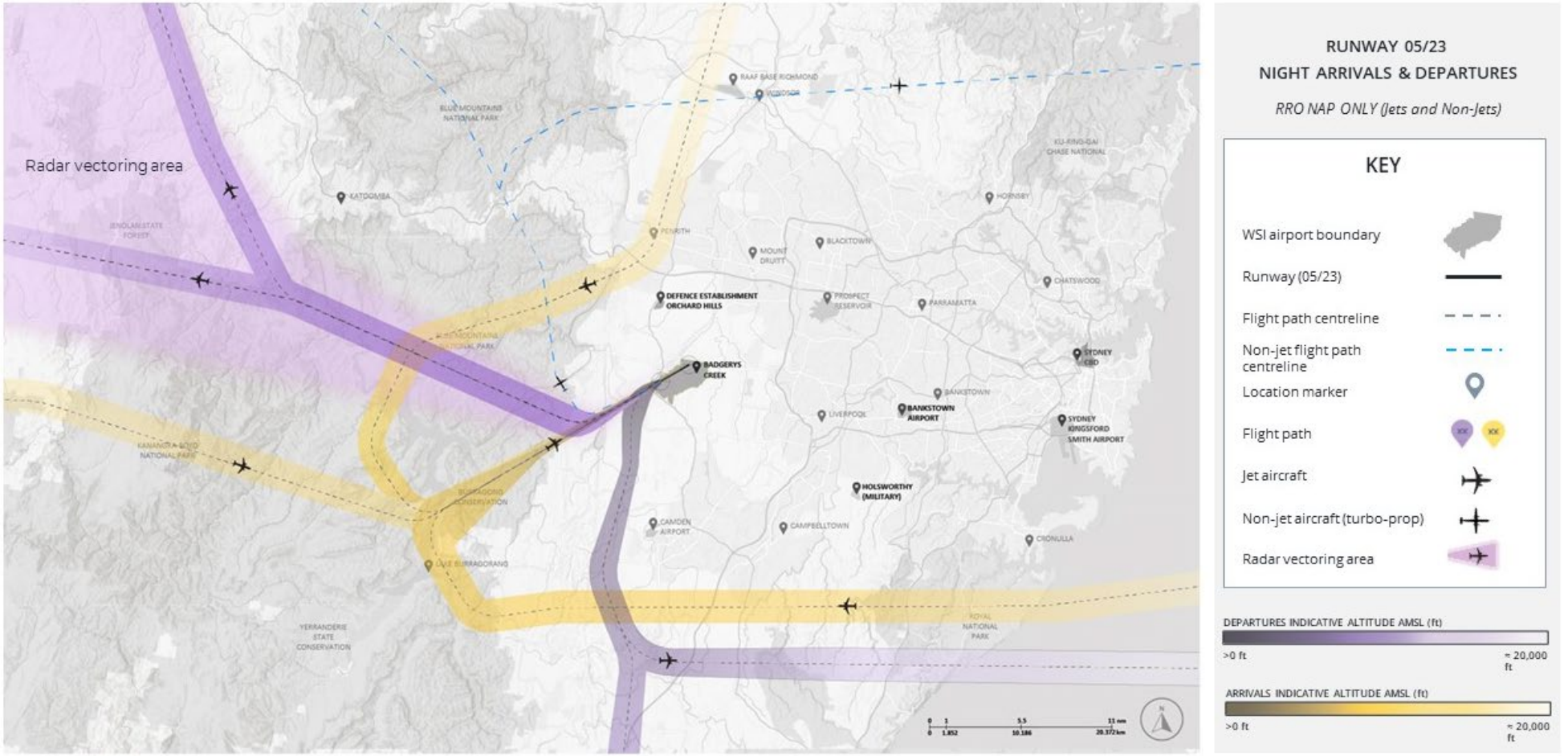


Figure 1.10 RRO-NAP (night)

1.2.3 Facilitated changes

To maintain the safety assurance of flight operations in the Sydney Basin while meeting the requirements of efficiency, capacity and environment, adjustments to airspace are required for Sydney (Kingsford Smith) Airport, Bankstown Airport, Camden Airport and the Royal Australian Air Force (RAAF) Base Richmond Airport (RAAF Base Richmond). For the Sydney (Kingsford Smith) Airport, this includes adjustments to existing arrival and departure routes. These changes need to occur prior to the opening of WSI in 2026. Further information on these facilitated changes are provided in Chapter 8 (Facilitated changes).

1.3 Roles and responsibilities

1.3.1 The proponent

DITRDCA, Airservices Australia and the Civil Aviation Safety Authority (CASA) each have a role in the development and/or approval of the project (refer to Section 1.3.2). However, for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (the EPBC Act), DITRDCA has been nominated as the proponent (refer to Chapter 5 (Statutory context) for further detail).

DITRDCA administers the *Airports Act 1996* (Commonwealth) (and its associated Regulations). The Australian Minister for Infrastructure, Transport, Regional Development and Local Government is responsible for the approval of all major developments at federally leased airports across Australia as defined by the *Airports Act 1996* (Commonwealth). DITRDCA is currently responsible for leading the airspace design for single runway operations at WSI. Airservices Australia will be responsible for the detailed design and implementation of the flight paths, with support from DITRDCA.

1.3.2 Other roles and responsibilities

Aside from the proponent, the primary roles and responsibilities in preparing the flight paths and airspace management concept are:

- **Airservices Australia**, as the relevant ANSP. Airservices Australia manages air traffic within Australia and its responsibilities include air traffic control, airways navigation and communication facilities, and publishing aeronautical data. Airservices Australia will ultimately be responsible for the implementation and management of the proposed airspace and flight paths. Once the detailed design process is complete, Airservices Australia will prepare the airspace change proposal for final approval by CASA.
- **CASA**, as the regulator responsible for the administration of airspace under the Airspace Act 2007 (Commonwealth). The Office of Airspace Regulation (OAR) is an independent body that sits within CASA. The OAR will ultimately approve the proposed airspace changes to introduce the control zone, and changes to the control areas, including validating the flight procedures before the commencement of operations. CASA also administers the Civil Aviation Act 1988 (Commonwealth), which is the primary legislation relating to aviation safety in Australia. Under this Act (and its associated regulations), CASA establishes safety standards for a range of aviation operations, including flight path design.
- **Airport Lessee Company (ALC)**, as the owner of the airport lease granted by the Australian Government, and responsible for the development and operation of WSI. The ALC is Western Sydney Airport Company Limited (WSA Co). The ALC cannot permit regular aircraft operations to commence at WSI until the requirements of the Airport Plan (Condition 16) have been met.
- **The Expert Steering Group**, is led by DITRDCA and includes Airservices Australia, CASA and the ALC, WSA Co. This group was established to guide the development of the airspace and flight path design. It will continue to be involved for the remainder of the project.

A wide range of stakeholders have been consulted in the development of the project regarding the integration of the airspace design into the Sydney Basin operations, including other aircraft operators, as outlined in Chapter 9 (Community and stakeholder engagement). The Forum on Western Sydney Airport (FOWSA) has also been established in accordance with Condition 16 of the Airport Plan, which provides a forum for the community, the aviation industry (including airlines), local and State Government, the Australian Government and WSA Co during the delivery of WSI and the development of the proposed airspace and flight path design.

1.4 Purpose and structure of the EIS

1.4.1 Purpose of the EIS

The purpose of this EIS is to address the requirements of Condition 16 of the Airport Plan and to support the request to the Australian Minister for the Environment and Water for advice in accordance with Section 160 of the EPBC Act prior to any approval of the airspace and flight paths.

The project was referred to the then Australian Minister for the Environment in 2021 (EPBC 2022/9143) in accordance with Section 161 of the EPBC Act and Condition 16 of the Airport Plan. In response, the delegate for the Minister determined that an EIS would be required and issued the EIS Guidelines on 26 April 2022 (refer to Appendix C (EIS Guidelines)). The Draft EIS was prepared to address these requirements and was placed on public exhibition between 24 October 2023 and 31 January 2024. A total of 8,477 submissions were received.

The EIS has also been prepared to have regard to relevant Airservices Australia policies and standards.

Following the close of the public exhibition period and with consideration of the issues raised in the submissions received, the EIS has been finalised. This has included the inclusion of refinements to the preliminary flight path design and the preparation of a Submissions Report. The latter provides a summary and responses to the issues raised in the submissions.

The finalised EIS will be provided to the Australian Minister for the Environment and Water and DITRDCA will publish the EIS in accordance with the EPBC Act. The Australian Minister for the Environment and Water will then provide advice to DITRDCA, Airservices Australia and CASA under section 163 of the EPBC Act, including any recommended conditions, before any approval is given for the airspace design. A response will then be provided to the Australian Minister for the Environment and Water on what action has been taken or not (including the adoption of any recommended conditions) and justification where recommendations were not given full effect (in full or in part).

The finalisation of the EIS will trigger the detailed design phase of the project. Airservices Australia will prepare the detailed design and the airspace change proposal for final approval by the OAR. The OAR will be ultimately responsible for the approval of the proposed airspace changes before the commencement of operations.

Further information on the approvals process is provided in Chapter 5 (Statutory context).

1.4.2 Structure of the EIS

This EIS is presented in 4 main parts, including the main project description and impact assessment, and is supported by a series of appendices, technical papers and the Submissions Report.

The structure and content of the EIS is outlined in Table 1.1.

Table 1.1 Structure of the EIS

Chapter	Description
Summary	Outlines the key findings of the EIS for the project. The summary also describes the project and its development to date, including its legislative framework, the outcomes of public consultation and responses to the submissions received during the exhibition of the Draft EIS.
Part A	**Background**
Chapter 1	**Introduction** Provides a background to the project and an overview of the key features of the project. The chapter also outlines the purpose and content of the EIS.
Chapter 2	**Strategic context and need** Provides an overview of the strategic context and need for the project.
Chapter 3	**Introduction to airspace** Introduces the key concepts of airspace architecture and airspace management considerations.
Chapter 4	**Project setting** Provides a description of the Sydney Basin airspace and general biophysical and socio-economic environment within which the project would be located, including the regional setting and a description of the Matters of National Environmental Significance.
Chapter 5	**Statutory context** Provides an overview of the statutory context for the project and the approvals framework.
Part B	**The project**
Chapter 6	**Project development and alternatives** Provides a summary of the background to the development of the project, and the options considered.
Chapter 7	**The project** Provides a description of the airspace architecture and operating modes associated with the proposed operation of WSI. It defines the factors that influence the design of airspace architecture and the specific requirements for single runway operations.
Chapter 8	**Facilitated changes** Provides a description of changes required to the Sydney Basin airspace to enable the new flight paths and airspace for WSI. These adjustments are required prior to the opening of WSI in 2026 to ensure the safe and efficient use of airspace once WSI's single runway operations commence.
Chapter 9	**Community and stakeholder engagement** Provides a summary of the consultation that occurred during the project development and environmental assessment process, and the consultation proposed during public exhibition, detailed design, and delivery.

Chapter	Description
Part C	**Environmental impact assessment**
Chapter 10	**Approach to impact assessment** Provides a description of the overall approach and methodology used to undertake the EIS for the project.
Chapters 11 to 23	Describes the results of the assessment of key environmental issues identified by the EIS Guidelines, including information on the existing environment, potential operation impacts, and the proposed approach to mitigation and management.
Part D	**EIS synthesis**
Chapter 24	**Mitigation and management** Provides a consolidated summary of the key potential impacts, a description of the proposed approach to environmental management, and a compilation of the mitigation measures for the project.
Chapter 25	**Conclusion** Conclusion for the project.
Chapter 26	**References** Provides a list of references used to inform the EIS.
Appendices	
Appendix A	Proponent details and environmental record
Appendix B	EIS team
Appendix C	EIS Guidelines
Appendix D	List of persons and agencies consulted during the preparation of the EIS
Appendix E	Project coordinates
Appendix F	Background to the Western Sydney International noise insulation and property acquisition (NIPA) policy
Appendix G	Assessment of the refinements to the project
Technical papers	
Technical paper 1	Aircraft noise
Addendum Technical paper 1	Addendum Technical paper 1: Aircraft noise
Technical paper 2	Air quality
Technical paper 3	Greenhouse gas emissions
Technical paper 4	Hazard and risk
Technical paper 5	Wildlife strike risk
Technical paper 6	Land use and planning
Technical paper 7	Landscape and visual amenity
Technical paper 8	Biodiversity

Chapter	Description
Technical paper 9	Heritage
Technical paper 10	Social
Technical paper 11	Economic
Technical paper 12	Human health
Technical paper 13	Facilitated changes
Technical paper 14	Greater Blue Mountains World Heritage Area
Submissions Report	
A	Summary of public exhibition activities and submissions received
B	Response to submissions
C	Refinements to the project and conclusions