

Chapter 25 Conclusion

This chapter seeks to draw together the residual impacts, benefits and commitments for the project. It summarises the project for which approval is sought and provides the justification for it, considering the compliance with principles of Ecologically Sustainable Development (ESD) and the objects and principles of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

25.1 Introduction

This Environmental Impact Statement (EIS) has been prepared to address the requirements of Condition 16 of the Airport Plan and support the request to the Australian Minister for the Environment and Water for advice in accordance with Section 160 of the EPBC Act. This advice from the Minister is required prior to any approval of the airspace and flight paths.

The project has been developed by an Expert Steering Group led by the Australian Government Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) and including Defence, ASA, and CASA. It involves:

- the development and implementation of proposed flight paths and a new controlled airspace volume for single runway operations at WSI
- the development of associated air traffic control and noise abatement procedures for eventual use by civil, commercial passenger and freight aircraft
- changes to the Sydney Basin airspace to facilitate the new volume of WSI traffic – specifically to other existing airports' operations (including Sydney (Kingsford Smith) Airport).

The preliminary airspace and flight path design is a further development to the 'proof-of-concept' design presented in the *2016 Western Sydney Airport – Environmental Impact Statement* (refer to Chapter 1 (Introduction)).

The EIS has considered the whole-of-environment EPBC Act requirements as defined in *Actions on, or impacting upon Commonwealth land, and actions by Commonwealth agencies, Significant impact guidelines 1.2* (Significant impact guidelines 1.2) (Commonwealth of Australia, 2013b). It represents a comprehensive assessment of the potential impacts associated with the operation of the project.

This chapter documents the benefits of the project that have been identified throughout the EIS. The adverse impacts assessed as significant have also been summarised and an explanation is provided of why these impacts are considered to be acceptable in the overall context of the project. This chapter also documents where each assessment has considered the interaction with other projects forecast to be in construction or operation at the same time as the project, to consider the cumulative impact of the project. The project will necessitate changes to the Sydney Basin airspace, which in turn has implications for the operations of other airports. These facilitated impacts are also summarised.

25.2 Summary of project benefits and impacts

25.2.1 Project benefits

The project is an integral part of WSI, ensuring that the benefits of WSI are realised. The 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 WSI 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 the overall objectives for WSI as it will enable single runway operations to commence at WSI through the introduction of new flight paths and a new controlled airspace volume.

25.2.2 Justification for undertaking project in manner proposed

Condition 16 of the Airport Plan requires the Australian Government to undertake an airspace design process and as such it is considered that a 'take no action' (that is, to consider a no-flight path option) is not a feasible alternative.

The project is justified to be undertaken in the manner proposed as it has been developed as part of an extensive airspace and flight path design development process set out in Condition 16 of the Airport Plan. This process optimises the currently proposed preliminary flight paths for WSI for introduction into the Sydney Basin to ensure they integrate as seamlessly as possible. The development process to date has focused on 4 key elements being safety, environmental, efficiency, and capacity considerations, while minimising changes to existing airspace arrangements in the Sydney Basin. In addition, the preliminary airspace design has been developed to comply with all relevant national and international practices and regulations for safe and efficient air navigation and aircraft operation.

In developing the preliminary flight paths, the design team and Expert Steering Group were guided by a range of constraints which determined what was technically feasible for the flight path design. These included:

- the runway alignment is fixed: there will be no changes to the north-east/south-west runway alignment, which was approved in the 2016 EIS and is currently under construction by Western Sydney Airport Company Limited
- the final approach and initial departure paths are fixed: given the fixed runway alignment and the requirement for aircraft to approach and depart WSI on a relatively straight trajectory, there will be some areas/suburbs directly connecting to the runway ends that would be impacted by aviation operations
- the altitude of aircraft is constrained: the height at which aircraft operate is determined by a number of factors, including the aircraft type, weather conditions, safety requirements and international rules of aviation
- the presence of existing airports in Greater Sydney: major changes cannot be made to the flight paths for Sydney (Kingsford Smith) Airport and considerations need to be made for operations at other airports, such as Camden, Bankstown, RAAF Richmond Base and Holsworthy
- WSI has 24-hour operations: WSI has always been planned to operate 24-hours, and this is fundamental to the viability of its operations.

The need to process aircraft in an orderly sequence when arriving has limited the opportunity to develop multiple alternative approach paths for aircraft arriving at WSI.

In developing this preliminary airspace design, proposed flight paths and runway operating modes have been subject to multiple and iterative reviews with the objective of optimising outcomes (that is, minimising the unavoidable residual impacts of aircraft noise on communities).

Future design phases would continue to ensure a rigorous approach to the finalisation and implementation of the airspace and flight path design. The detailed design phase will include further evaluation and refinement of the proposed selected airspace design to a level appropriate to secure regulatory approvals. This would have consideration of feedback received from the community, technical stakeholders such as airlines and industry bodies, and regulatory authorities. The implementation phase would include the regulatory certification and authorisation of the proposed airspace design and its implementation and post-implementation would involve the ongoing monitoring of the operation of the design by key operational stakeholders.

25.2.3 Summary of impacts

Key environmental issues have been examined throughout the design and development of the project. Consultation has been carried out with relevant stakeholders to identify key potential impacts at an early stage. Where possible, the proposed flight paths have avoided and minimised impacts as part of the project design and development. The assessment has been carried out to meet the Australian Minister for the Environment and Water's EIS Guideline assessment requirements

The assessment considered the nature and extent of likely short-term (year 2033) and long-term (year 2055) impacts of the Stage 1 Development associated with the project to account for increases in associated service capacity in terms of millions of annual passengers (MAPs) and air traffic movements (ATMs) per year (including freight operations). In relevant cases, for example, the evaluation of aircraft noise for some mitigations, an interim year (2040) was used to assess impacts.

Potential environmental impacts of the project can be appropriately identified at this stage of the design development. Impacts relating to the majority of issues are well understood and any uncertainties are documented where relevant in individual impact assessments of Part C and technical reports attached to this EIS.

25.2.3.1 Aircraft noise

Aircraft noise impacts were assessed to reflect the expected growth of single runway operations in 2033, 2040 and 2055. Three runway modes of operation were modelled.

- In designing the flight paths for WSI, safety of operations is the most important consideration. The preliminary airspace design process also considered, to the extent practical, noise mitigation and environmental impacts associated with single runway operations. However, increased exposure to aircraft noise in areas in the vicinity of WSI and under its proposed arrival and departure flight paths will be an unavoidable consequence of aircraft operations at WSI.

As the single runway approaches capacity in 2055:

- between 7,000 to 12,200 residents may experience 5 or more aircraft noise events above 70 dB(A) over a 24-hour period, which can lead to an indoor sound level of 60 dB(A) when windows are opened (enough to disturb conversation)
- between 23,500 to 84,500 residents may experience 2 or more aircraft noise events above 60 dB(A) over the night time period (11 pm to 5:30 am). This significant variation is due to the use of Reciprocal Runway Operation (RRO) mode (when available), when flight paths would be minimised over more densely populated areas
- between 114,000 to 155,000 residents may experience 10 or more noise events above 60 dB(A) over a 24-hour period. By 2055, N60 contours extend well beyond the runway ends, north towards Penrith, north-east towards St Marys and north, west and south-west into the Blue Mountains National Park.

The number of residents affected by different levels of aircraft noise depends on the runway operating scenario adopted. Comparison of the 3 primary runway operating scenarios indicates that while there is limited variability of noise exposure levels in close proximity to WSI, the choice of runway operating strategy has a more pronounced effect on communities further away.

With respect to the ANEC, the ANEC extends along the standard instrument arrival and departure routes and would generally remain within the published ANEC contours for WSI. The results show that less than 1,000 people may be living within the 20 ANEC contours by 2055, an increase from approximately 250 people in 2033, regardless of the operational scenario. While there are very few residents within the 25 ANEC contours, mostly in Greendale, the 20 ANEC contours could progressively over time include the community of Twin Creeks and (currently) rural portions of the suburb of Kemps Creek.

The use of an alternative suite of proposed WSI day and night flight paths results in a level of respite and noise being shared to some areas impacted by the proposed higher traffic volumes of WSI day operations and a significant reduction in dwelling and population counts during WSI night operations, particularly when the RRO mode can be applied.

Residential and rural-residential areas to the immediate north-east and south-west of WSI, located on extended runway alignment, and close to the proposed arrival flight paths and initial departure turns would be subjected to a significant and unavoidable level of noise exposure.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would generally be negligible to minor for most of the refinements. The introduction of the RRO noise abatement procedure (RRO-NAP) and the reallocation of jet aircraft from Runway 23 Departure Northeast Night (RRO) flight path to the Runway 23 Departure Southeast Night (RRO) flight path would result in a noticeable change to the N60 Night contours (as presented in the Draft EIS). However, these changes would have minimal impact to the N60 24-hour and N70 24-hour contours.

Approaches to mitigating aircraft noise generally focus on reducing noise emissions from the aircraft themselves, planning flight paths and airport operating modes in a way that minimises potential noise and environmental impacts, and implementing land use planning or other controls to ensure that future noise-sensitive uses are not located in noise-affected areas.

External to the design, NSW Government planning controls have been in place for several decades and have to the extent practical prevented incompatible noise sensitive developments around WSI. It is expected that future land use planning around WSI would be influenced by final long term ANEC contours, once flight paths and operating modes are finalised and approved.

Subject to relevant considerations such as aircraft safety, all safe and practicable opportunities for mitigating noise impacts will be considered in finalising the flight paths and aircraft operating procedures for the proposed airport.

Various operating strategies for managing aircraft noise will have differing impacts on different populations, particularly at night, when greater airspace flexibility and lower demand permits the use of different runway modes of operation and flight paths. This could be achieved by prioritising, when operationally possible, night-time flights over areas of low density rural land and natural areas to the south-west, west and south of WSI. However, it is noted that these areas could be more noise sensitive than urban areas experiencing similar levels of noise exposure.

DITRDCA will deliver the noise insulation and property acquisition (NIPA) policy which will apply to eligible properties that are significantly impacted by aircraft overflight noise from WSI.

25.2.3.2 Air quality and greenhouse gas

The air quality and greenhouse gas (GHG) assessment adopted the 2033 and 2055 reference years for the project. For each reference year, 7 different flight scenarios were considered of which the No preference, Prefer Runway 05 and Prefer Runway 23 scenarios were identified to represent the worst case for potential air quality impacts.

The local air quality assessment indicates the predicted levels would be below criteria for all the assessed air pollutants in 2033 and 2055, except for PM_{2.5} (particles with a diameter of 2.5 micrometres or less) and NO₂ (Nitrogen Dioxide) during 2055 at several receivers located to the immediate north-west of the runway. However, the elevated PM_{2.5} levels arise due to existing elevated background levels, and the effect of the project would be intangible and insignificant.

Whilst the project would contribute significantly to 1-hour average NO₂ levels at the nearest receivers to the north-west of the runway, the predicted levels of NO₂ are slightly above the more stringent, recently updated Environment Protection Authority (EPA) criteria for only a portion of the hours throughout the year that were assessed. The elevated NO₂ levels would only occur at a few locations immediately adjacent to WSI. As the predicted results are likely to be conservative (overestimating of impacts) and as it is likely there will be improvements in fuel efficiency (for aircraft and motor vehicles) it is reasonable to conclude that no significant impacts would arise. Further, the intensification of

residential receivers in this location would be limited as the land has been zoned for Agribusiness and the area largely corresponds to land within the ANEC 20 contour and above, thus excluding residential development.

The regional air quality assessment identified a similar small scale of NO₂ impacts consistent with the local assessment, with predicted levels above the new EPA criteria in close vicinity to in 2055, representing a small localised potential impact. The predicted impacts for NO₂ are small, infrequent and highly localised. PM_{2.5} impacts arise due to elevated background pollutant levels. An improvement in the predicted maximum ozone impacts relative to the 2016 EIS has been calculated. The project's impact on the concentrations of all other assessed pollutants would be negligible and unlikely to be discernible or measurable within the existing background concentrations.

With respect to potential greenhouse gas emissions, the most emissions-intensive flights are those operating regular passenger transport services to medium and long haul destinations. In 2033 and 2055, these services accounted for only 27 and 23 per cent of projected total air traffic movements but were responsible for more than half of all full-flight emissions of CO_{2e} (Carbon dioxide equivalent). Emissions of CO_{2e} from domestic aviation are projected to grow steadily between 2033 and 2055, as activity continues to grow generally in line with population.

Overall, the emissions of CO_{2e} attributed to WSI from main engine use by aircraft operating along WSI's flight paths in either 2033 or in 2055 are not considered to result in significant impacts or inhibit the achievement of net zero economy targets set by the Australian or NSW Government for 2050.

Emissions from aircraft movements are predominantly due to the engine emissions, which are required to meet Australian (and international) performance specifications. Measures to help reduce emissions from aircraft operations generally involve procedures and techniques to optimise the vertical profiles of aircraft climbing or descending to an airport. Beyond those measures, no project specific air quality or greenhouse gas emissions mitigations are proposed.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall air quality assessment or greenhouse gas assessment. Any change to air quality or greenhouse gas emissions would be minimal.

25.2.3.3 Aircraft hazard and risk

A range of potential hazards associated with the operation of WSI's flight paths have been considered, including the risks associated with aircraft crashes to people and critical infrastructure, risks due to fuel jettisoning and objects falling from aircraft, risks to buildings due to wake vortex, and risks to aircraft due to wildlife strike and meteorological conditions.

A hazard analysis process was used as the basis for risk assessment, derived from the NSW Government's Hazardous Industry Planning Advisory Papers (HIPAP), with guidance from aviation-specific risk assessment processes produced by CASA and International Civil Aviation Organization (ICAO).

For individual fatality risk due to an aircraft crash, a risk of 1 in 100,000 per annum is considered to be a low risk that is a generally acceptable level of exposure for members of the public but one that can be considered acceptable, provided that the risk is managed to be as low as reasonably practicable. For most residential properties, the risks would be negligible. This reflects the position of the runway and the design of the flight paths. In 2055, a small number of people (5) are within the 1 in 100,000 per annum risk contour and 108 people are located between the 1 in 100,000 per annum and 1 in 1,000,000 per annum risk contour. As the number of people exposed to risks would increase, these risks are classified as being of moderate effect but are not significant based on the criteria applied.

Societal risk in 2033 and 2055 are within the middle to lower risk part of the 'as low as reasonably practicable' region. These risks are considered acceptable, provided no further practicable means for mitigating these residual risks is available. In this regard, based on the runway location, airspace design requirements and the relative location of developed areas within Sydney, the flight path design has minimised these risks, as far as is practicable.

Critical infrastructure, such as hospitals, transport links, water storage and the Defence Establishment Orchard Hills, are located in the vicinity of the Airport Site. The typical event frequencies and scale of fatalities associated with aircraft crashes are consistent with risks that would be considered acceptable. Operation of flight paths over the Greater Blue Mountains Area (GBMA) presents a very low risk of introducing fire through aircraft accidents.

With respect to other considerations:

- risks due to fuel jettisoning and objects falling from aircraft, or risks to buildings due to wake vortex are concluded to be low or remote events. In particular, fuel jettisoning is a relatively uncommon, non-standard operational requirement that would generally have no ground level impacts if carried out in accordance with appropriate procedures. All fuel jettisoning would be carried out in accordance with Aeronautical Information Publication Australia, Part 2 – En Route (AIP ENR).
- wildlife strike risk mitigation for WSI that would deliver an acceptable level of safety is achievable, provided that a site-specific wildlife management program is implemented
- compared with other airports which operate with an acceptable level of safety, there are no exceptional meteorological conditions at WSI that might lead to significant risks to operational safety. The risks to safety and operational efficiency from meteorological hazards can be mitigated by provision of improved forecasting.

Operations at WSI and the associated airspace in the Sydney Basin are being introduced within a well-established regulatory and management framework that places importance on safety. This is underpinned by key requirements that risks should be 'as low as reasonably practicable' and meet appropriate levels of safety. Assessment of the residual risks associated with WSI operations indicate that those key requirements would be met.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall hazards and risk assessment.

Risk mitigation is provided by a wide variety of general measures adopted across the aviation industry that will apply to operations at WSI. Additionally, project specific mitigations have been developed. These include Airservices Australia continuing to address hazard identification and risk mitigation during the remainder of the design process and prioritise on-going safety performance monitoring. Other project specific mitigations include contingency planning to respond to the impacts of crash events and wildlife strike measures to monitor and control the presence of birds and other wildlife on or in the vicinity of WSI.

25.2.3.4 Land use

There are several International and Australian publications and policies which provide strategic guidance on land use management in proximity to airport operations. The National Airports Safeguarding Framework (NASF) in particular, provides guidance on planning requirements for developments that could potentially affect aviation operations.

Land use planning in the vicinity of WSI has considered and incorporated the operational needs of WSI into land use planning in accordance with guidance provided in the NASF. DITRDCA (formally Department of Infrastructure and Regional Development) liaised with State government agencies and relevant local councils concerning the adoption of the necessary guidelines into the applicable environmental planning instruments. The range of existing planning controls in place in the vicinity of WSI have been an effective means of providing appropriate controls over land use planning and development.

This includes the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* (NSW) (Western Parkland City SEPP), which outlines that no new noise sensitive development (including residential development) will be permitted within the ANEC 20 and above contours (except in limited circumstances for certain applications for dwelling houses and subdivision that were permissible prior to the SEPP coming into effect). The consent authority for any such development would need to be satisfied that indoor noise levels set in AS 2021:2015 are met. This does not prohibit the enlargement or modification to an existing use.

The predicted composite ANEC presented in the EIS differs in some locations and an additional area of land in the vicinity of WSI is predicted to be within the 20 ANEC contour, when reviewed in comparison to the published ANEC mapping within the Western Parkland City SEPP. This includes areas within Erskine Park, Eastern Creek and to the south of Wallacia, which are currently zoned 'general industrial' (Penrith City Council, 2010) and 'primary production' (Liverpool City Council, 2008) and include a small number of semi-rural residential dwellings and around 5 residential dwellings located within the Twin Creeks Golf and Country Club. The ANEC contour for WSI will be prepared during the detailed airspace design phase. Until an ANEC contour is prepared and approved for WSI, the prescribed WSI ANEC is to be used to inform land use planning. Any changes to relevant planning instruments as a result of adopting an ANEC could see planning conditions imposed on these additional areas.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall land use assessment.

25.2.3.5 Landscape and visual amenity

The landscape and visual amenity study area includes several important environmental, cultural and historic places and routes, which have varying levels of sensitivity. Key receptors that have an elevated landscape character or visual sensitivity include the GBMA itself, many scenic lookouts, campgrounds and day use areas or protected areas, scenic and tourist drives and other heritage places. The assessment has considered the landscape and visual impacts of the project in 2033 and 2055 in areas close to WSI (being within 15 km) and the Blue Mountains.

Based on similar topography, vegetation type and cover, land use and built form (existing and emerging), 12 landscape character zones were considered within Western Sydney. Generally, the landscape character of Western Sydney would be transformed by intended changes facilitated and planned for through a number of strategic planning projects. While there would be some landscape character and visual impacts to the areas within 15 km, these would generally be of a moderate or lower impact level. The level of landscape character impact on the Luddenham village and agricultural landscape character zone would increase from moderate in 2033 to high-moderate in 2055 due to the proximity of the runway and increase in flights arriving and departing the runway.

Eight viewpoints were also considered within Western Sydney. Viewpoints from the public domain that would experience visual impacts ranging from moderate to high-moderate, include those with elevated vantage points with views to recreational areas (George Maunder Lookout at Prospect Reservoir and Warragamba Dam Lookout) and/or locations in close proximity to the Airport Site (Kemps Creek and Luddenham village).

Three landscape character zones within the Blue Mountains landscape were assessed:

- high-moderate landscape character impact in 2033 and 2055 on the Blue Mountains iconic features landscape character zone
- moderate landscape character impact in 2033 on the Blue Mountains forested hills and valleys landscape character zone, increasing to high-moderate in 2055 due to the increase in flight frequency
- moderate-low landscape character impact in 2033 and 2055 on the Blue Mountains township spine landscape character zone.

While the introduction of multiple high altitude and low frequency flights would result in a low magnitude of change to each of the landscape character zones, the variation in landscape sensitivity influences the resulting level of impact.

Of the 8 views assessed in the Blue Mountains, there would be:

- high-moderate visual impact in views from Walls lookout and Echo Point lookout due to the very high sensitivity of these views and the introduction of flights that would be perceptible moving across these views
- moderate visual impact in views from Burragorang Lookout, The Rock Lookout, Wynnes Rocks Lookout and Clearys Memorial Lookout, with the visual impact from Burragorang Lookout increasing to high-moderate in 2055 due to the increase in flight frequency at relatively low altitudes
- moderate-low visual impact in the view from the Hawkesbury Lookout. This view has an urban outlook and a moderate sensitivity, allowing it to absorb the aircraft activity with less of an impact.

From campgrounds and day-use areas within the Blue Mountains there would be a moderate visual impact in 2033 and 2055, as views of aircraft overhead would not be highly visible. If seen overhead, however, they would detract from the amenity of views.

There would be a moderate-low visual impact experienced in the views from scenic routes within the Blue Mountains, including the Great Western Highway and Bells Line of Road, during 2033 and 2055. These impacts would be intermittent and experienced particularly in locations where the flights pass over and across these views.

The project would not directly alter any natural landscape feature on the ground. However, the contribution of the sky to landscape character and its appreciation in views make the sky, in some locations, a landscape feature. This includes locations in the Blue Mountains and also where the naturalness of the sky contributes to landscape character. There is a real chance or possibility that the project would substantially alter the appreciation of the sky in views from the following viewpoints:

- south of Katoomba (represented in this assessment by the view from Echo Point)
- from lookouts along the Grose Valley (represented by the assessment of the view from Walls Lookout).

This alteration would be intermittent, would not be permanent and is reversible.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall landscape and visual amenity assessment.

The design of the preliminary flight paths has aimed to minimise landscape and amenity impacts, to the maximum extent practical while still achieving safe and efficient operations. Based on the nature of the potential impacts, no reasonable or feasible project specific mitigations are considered to be available that would reduce the potential landscape and visual impacts from the project.

25.2.3.6 Biodiversity

There are a wide variety of habitats that support biodiversity values in the biodiversity study area, including the GBMA and other large tracts and isolated pockets of native vegetation (predominantly Dry Sclerophyll Forests), wildlife corridors and wetlands. These provide habitat for EPBC Act listed threatened species including 92 fauna species such as the Regent Honeyeater, Swift Parrot and Grey-headed Flying-fox, and 79 migratory species including migratory shorebirds. Fifty-eight (58) wildlife attractants (such as permanent basins, ponds, non-native ecosystems, waste management facilities, Flying-fox camps and Ibis colonies) were identified within a 30 km buffer of the WSI runway boundary.

The key potential impacts on biodiversity values and measures to address them are:

- direct impacts from wildlife strike leading to mortality. Impacts associated with wildlife strike are likely to be intermittent during WSI's operation but this would not significantly affect the viability of local populations of any species. Flying-foxes are particularly susceptible to wildlife strike. There would be no other direct impacts on biodiversity values
- indirect impacts including potential changes to noise, light, water quality, air quality and ecosystems associated with aircraft overflight:
 - noise can impact behavioural changes and communication interference in wildlife. Most noise related impacts on biodiversity would be concentrated in proximity to WSI (where the highest noise impacts are) and to a lesser degree areas where aircraft are at higher altitudes at distances from WSI. Overall, impacts from noise were assessed as low and unlikely to significantly modify species behaviours or use of habitats that are locally or regionally available
 - light spill and pollution can have adverse impacts on wildlife including behavioural and physiological changes which make them more prone to predation or wildlife strike. The project's operational light would be limited to lights on aircraft as they travel along the flight paths during nocturnal hours. This slight increase in light is unlikely to significantly affect biodiversity
 - emissions from aircraft operating along the flight paths may result in local and regional reductions in air quality. Habitats for wildlife in proximity to WSI are already highly disturbed and likely to be subject to similar emission types associated with urban development and other aircraft. Any alterations to air quality would be temporary, localised and unlikely to impact biodiversity values
 - deposition of aircraft pollutants and subsequent potential impacts on water quality are unlikely and negligible
 - fuel dumping (jettisoning) has the potential to introduce harmful contaminants into the sensitive environments within the study area such as native terrestrial and aquatic ecosystems, if not appropriately managed. Fuel dumping can be carried out safely and without any impacts at ground level when appropriate procedures are followed. Fuel jettisoning would only occur in accordance with the AIP ENR (Airservices Australia, 2022a).

In addition, the project:

- is unlikely to have a significant impact on Commonwealth heritage places listed under the EPBC Act
- is unlikely to have a significant impact on threatened or migratory species listed under the EPBC Act or on native plants and animals
- would not breach or raise inconsistencies with any of Australia's obligations under the various biodiversity related international agreements to which it is a signatory
- is unlikely to compound impacts on biodiversity associated with the 2019-2020 bushfires.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall biodiversity assessment.

The project is not likely to have significant impacts (residual or otherwise) on biodiversity. As the project is not likely to have significant impacts, the project is not obligated to provide offsets in accordance with the EPBC Act Offsets Policy.

25.2.3.7 Heritage

There are a significant number of items, places and areas within the heritage study area, with around 13,500 Aboriginal heritage sites/places and around 19,000 listed historical sites/areas. For Aboriginal heritage, this is likely to be an underestimate given the lack of systematic survey for sites within protected areas (such as the GBMA). As such, engagement with First Nations knowledge holders and stakeholders has assisted in identifying areas of particular high cultural value. For historic heritage, there are several World Heritage Areas (notably the GBMA), 19 National Heritage items, and numerous State and local heritage items. Of these places, most occur at a distance greater than 10 km from WSI.

The proposed flight paths would fly over a large number of significant sites and places, however in many cases existing flight paths already traverse the airspace above these sites and places. Many types of heritage places are also considered robust in the face of impacts such as air pollution, noise and visual impacts. In most cases aircraft would be at such a distance as to render the impact from these factors as minimal. However, the places closest to WSI are likely to experience higher impacts.

There is general acknowledgement that air pollution is likely to be detrimental to sandstone heritage buildings and Aboriginal rock art, however there has been little direct research on sites within or close to Sydney. It is impossible to evaluate the risk presented by these processes, or indeed to identify and quantify any resulting damage due to a lack of previous research and comparative data, as well as the difficulty in differentiating aircraft emission derived deterioration from other anthropogenic pollution sources via the same processes (such as acidity, nutrients and dust). However, there remains a potential impact that increased emissions to these environments may potentially result in some impact, though the likelihood of this is considered to be generally minimal.

The project would not physically impact or restrict use of an Aboriginal heritage site or place. However, it is acknowledged that noise and visual intrusion are factors that could potentially impact cultural values. In particular, noise does have the potential to disrupt cultural practices at site, which could lead to its use being discontinued. Aircraft on WSI flight paths could potentially result in detrimental indirect impacts to the cultural values of sites connected to the Emu in the Sky constellation at Faulconbridge and Emu Cave Aboriginal Place.

Due to the position of flight paths, frequency of overflight and the predicted noise levels, the project would significantly impact the Aboriginal cultural values of Bents Basin, Linden Ridge sites and the Shaws Creek – Yellomundee Aboriginal Place, which are places of cultural importance with values associated with peace, tranquillity and connection to nature. Impacts to other key sites of cultural significance identified through engagement would have low to moderate impacts due to noise and/or visual intrusion.

Mitigation measures have been developed that require the DITRDCA to ensure that the detailed design of flight paths considers Aboriginal places and sites of high cultural value, where safe and feasible. There is the likelihood that many other Aboriginal sites are located in protected valleys within the GBMA that are overflowed by WSI aircraft. Due to the complexity of terrain height and orientation of rock shelters in the rugged sandstone country, it is not possible to predict to what extent this will be an issue for many of the unknown sites.

Other mitigation measures include undertaking a research program to investigate the potential impact of aircraft emissions on Aboriginal heritage sites, and establishment of a Community Aviation Consultation Group (CACG) for WSI which will facilitate consultation with stakeholders and community on a range of matters including heritage matters.

Many historic properties are located in town centres. The flight path design principles seek to avoid population centres and the flight paths design has sought to protect such places from significant impacts, although in some cases aircraft may still be visible in the distance or would be heard. It is inevitable that some properties would suffer some impact from noise given that in many cases to the west and south-west of WSI the properties are located in rural contexts. This includes properties within Mulgoa, Luddenham and Wallacia. Impacts to these items would depend on the aircraft altitude, aircraft noise impacts and the type of heritage values for which the items are listed.

Outside the GBMA, there is no discernible impact on the cultural values of nationally listed places. Of the 89 places on the Commonwealth Heritage list, only 2 are within close proximity to WSI and/or are likely to be adversely impacted by the flight paths; Orchard Hills Cumberland Plain Woodland, and Shale Woodland Llandilo.

At greater distances from WSI, noise and visibility of aircraft begins to diminish, and emissions are likely to disperse and be less concentrated. However, some cultural values remain sensitive to additional aircraft noise, while the frequency of flights can exacerbate this. This applies to the GBMA and those heritage places within it that are valued for their serenity and their ability to connect people to the spirituality of nature.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall heritage assessment, either for Aboriginal or historical heritage.

25.2.3.8 Social

This Social Impact Assessment has been prepared to understand the social changes resulting from the project and has addressed the social impacts of the project in 2033 and 2055. The assessment has been based on the NSW Department of Planning and Environment's (DPE) *Social Impact Assessment Guideline for State Significant Projects 2023* and considers the actual and perceived impacts of the project. The assessment has been informed by community engagement.

The actual or perceived impacts of the project on a broad range of potential social and community issues, including changes to community composition, inequality and vulnerability, way of life, Indigenous and non-Indigenous culture, health and wellbeing, livelihoods and decision-making systems has been assessed.

Operations at WSI and the associated airspace in the Sydney Basin would sit within a well-established regulatory and management framework. Mitigation measures outlined in this EIS, and the existing planning controls (specific to WSI) will reduce the significance of the potential social impacts identified from a High significance rating to Medium or Low.

Following implementation of the flight paths, only one social impact is anticipated to remain with a High significance rating, being a potential increase of inequality for vulnerable groups located in areas within ANEC 20, N60 and N70 contours for both the 2033 and 2055 scenarios.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall social assessment.

To further manage social impacts associated with the project, the WSI Community Aviation Consultative Group (CACG) will undertake consultation with stakeholders and community, including social organisations, to seek feedback on social issues and to promote social and economic welfare of the community.

25.2.3.9 Economic

Demand for aviation services is predicted to continue to increase to service Sydney's ongoing growth in population and business activities. Any shortage in capacity to meet the rising demand will affect future economic growth, productivity, employment, lifestyle and amenity of the Sydney Basin. The project is an integral part of WSI, ensuring that the benefits of WSI are realised. These benefits will grow commensurate with the forecast increase in passenger demand over time.

Overall, WSI (and the associated flight paths that allow for its operation) will be a major catalyst for investment and jobs growth in the Western Sydney region and will deliver benefits to the Australian economy more broadly. WSI will provide direct connections across the world, allowing for opportunities to enhance Western Sydney's connection to other parts of the world economy. The operation of WSI will also allow for improved access to tourism opportunities, providing better accessibility to destinations across Western Sydney and the Greater Blue Mountains. New or upgraded transport infrastructure that would be built to service WSI would also provide benefit to local communities.

It is estimated that WSI itself will generate a significant number of jobs for Western Sydney and contribute significantly to gross regional product. Ernst and Young (2016) concluded as part of the 2016 EIS that airport operations would directly generate around 8,730 jobs in 2031 increasing to 61,500 jobs by 2063. It is noted that these jobs would be generated by WSI itself and not specifically generated by the flight paths, however the project is an essential part of the overall operation of WSI.

The project, in conjunction with the broader development of WSI, has the potential to affect the tourism industry both positively (through increased tourist access) and adversely (if it results in loss of amenity at sensitive land uses). For example, the closer proximity and ready access to an international airport to the Greater Blue Mountains is expected to provide a boost to this industry. However, flight paths have the potential to negatively affect the amenity of tourist experiences in the area, either through the visual location of aircraft or the noise they will generate. The increased access to key tourist destinations, in particular for tourists visiting areas such as the Greater Blue Mountains, is considered to outweigh the potential adverse amenity impact of the flight paths.

WSI and the proposed flight paths would impact the use of the airspace. Currently the area is used by Bankstown and Camden airports for flying training, emergency services and other operations. As a result of the facilitated changes required to accommodate WSI, greater distances would need to be travelled to reach new flying training areas resulting in increased 'transit' flight durations, extended training schedules and increased costs including increased flying training times and increased fuel and maintenance costs. The cost of this was estimated at around \$15 million in 2026 increasing at a rate of around one per cent per annum.

Operation of the project may result in potential loss in property values for residential properties that may be more adversely impacted by the operation of the flightpaths. Total impact has been estimated at around \$53 million loss in total residential values in 2033, increasing to a cumulative value of around \$147 million by 2055 (measured in 2022 dollars). While the impact appears high it is important to realise that residential values in Western Sydney have increased considerably over the past 10 years. Dwellings within the N70 contour (and outside the ANEC 20) are expected to have a low level of impact resulting in a loss in residential values of 3 per cent average. In all likelihood this loss would be 'made good' by 6 months growth in real capital gain.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall economic assessment.

Project-specific mitigations have been identified, including continuing consultation with aerodrome operators and airspace users during the ongoing airspace design for WSI to consider the impacts to operators at Bankstown and Camden airports. Consultation with emergency services operators regarding priorities of airspace in order to minimise risks and associated economic costs will also continue.

25.2.3.10 Human health

The assessment of human health impacts evaluated the potential health impacts to the existing (and future) communities resulting from the project. In considering the potential impacts, the assessment focused on community health impacts resulting from changes in air quality, noise and other hazards and risks associated with the operation of aircraft from WSI.

With respect to the potential for the project to result in changes to air quality, the assessment did not identify any significant risks. Impacts to community health due to exposure to air emissions from the project in areas close to WSI would be low, and in most cases, considered to be negligible. Of the impacts identified, the potential impact to community health would occur as a result of exposure to increases in nitrogen dioxide within areas in the immediate vicinity of WSI. These potential impacts are however considered to be limited and the potential impact on respiratory health issues for the community is considered to be low. It is noted also that the areas where elevated exposures have been identified are anticipated to be rezoned in the future such that residential use would no longer be relevant.

Additionally, emissions to air derived from the operation of aircraft are expected to have a negligible impact on water quality in Prospect Reservoir or rainwater tanks in the community. Potential impacts on these water supplies would be so low they would not be measured. No risks to community health due to air emissions on a regional level were identified.

Aircraft noise from the project has the potential to result in significant increases in sleep disturbance, noise annoyance and to a lesser degree, cognitive impairment for children (assessed in terms of learning delays). These potentially significant impacts would occur at a number of locations located close to the runway, or below the immediate arrivals and departure flight paths. However, not all the locations identified as being potentially significant are used for residences, schools or childcare centres and have been used as an indicator of where issues may arise. Most of the impacts that are considered to be significant are located within the published ANEC 20 contour or the predicted 2055 ANEC contour for the project. Controls are currently in place to prevent future noise sensitive development within these areas, including new residential developments, schools and childcare centres.

DITRDCA and WSA Co will continue to liaise with State and local government agencies to ensure applicable environmental planning instruments have regard to ANEC forecasts produced for the project, where differences occur to the predicted ANEC presented in this EIS.

By 2055 there would be some additional locations, outside of the modelled ANEC 20 contours where impacts on community health may be of significance. Changes in noise as a result of operations between 2033 and 2055 would be expected to be gradual, and hence the significance of the impacts identified may be influenced by community adjustment to the presence of aircraft noise in the environment. These changes, however, may remain of significance to some members of the community.

For most refinements to the preliminary flight paths, these generally do not occur over populated areas and/or increase the distance to or altitude above populated areas and would not change the conclusions of the overall health assessment. The introduction of the RRO noise abatement procedure (RRO-NAP) and the reallocation of jet aircraft from Runway 23 Departure Northeast Night (RRO) flight path to the Runway 23 Departure Southeast Night (RRO) flight path would however result in a change in some noise impacts at night. This change in night-time noise impacts would result in some sensitive receivers no longer exceeding thresholds for L_{max} or L_{night} , however overall, the changes would be small and would not result in changes to the overall conclusions presented in the Draft EIS in terms of sleep-disturbance.

Existing strategic planning in the vicinity of WSI has considered and incorporated the operational needs of WSI into land use planning. In conjunction with the mitigation measures outlined throughout the EIS the risks to community safety and health are considered low and acceptable.

25.2.3.11 Matters of National Environmental Significance

The EPBC Act provides the national framework for protecting and managing nationally (and internationally) important flora and fauna, ecological communities and heritage places (including World heritage) that are collectively defined under the EPBC Act as 'matters of national significance' (MNES). The primary focus of the consideration of MNES was with respect to impacts on the World Heritage and National Heritage values and other values of the GBMA and National Heritage place.

The Greater Blue Mountains was inscribed on the World Heritage List in 2000 for both its fauna and flora values. This listing formally recognises the Outstanding Universal Value of the Greater Blue Mountains under the World Heritage Convention. At its closest point, the GBMA is around 4 nm (7 km) from WSI. The GBMA comprises one of the largest and most intact regions of protected bushland in Australia and is noted for its representation of the evolutionary adaptation and diversification of the eucalypts in post-Gondwana isolation on the Australian continent (UNESCO 2022).

The assessment of the potential impacts of the project on MNES was undertaken via an initial screening of all MNES, followed by assessment of MNES identified as potentially impacted by the project.

Four matters of MNES were identified as relevant to the project, being potential impacts to:

- a World Heritage property
- a National Heritage place
- listed threatened species or communities
- listed migratory species.

Given the nature of the project, the proposed flight paths are expected to result in minimal direct impacts on the World Heritage or National Heritage values of the area, including the criterion which relate to the Outstanding Universal Value of the site and contribute to its World Heritage status.

Direct impacts would primarily be associated with the potential for wildlife strikes to species that utilise habitats within the GBMA and the potential for localised impacts in the unlikely event of an aircraft crash. It is considered that these potential impacts would result in negligible impacts on the attributes within the GBMA relevant to both the evolutionary processes or biological diversity of the property. The project would not contribute to indirect impacts associated with the loss, degradation or damage, notably altered, modified, obscured or diminished World Heritage value.

Given the nature of the project, complete avoidance of potential impacts on the GBMA and MNES would not be possible. The design of the proposed flight paths is such that impacts expected to result from the project would have minimal direct impacts on the World Heritage or National Heritage values of the area, including the Outstanding Universal Value which contribute to its World Heritage status.

25.2.3.12 Facilitated changes

The preliminary airspace design for WSI was specifically required to avoid any impact on the ability of Sydney (Kingsford Smith) Airport to operate all existing runway modes. There would be no impact on the Sydney (Kingsford Smith) Airport curfew between 11 pm and 6 am (local time).

Through the preliminary design process, some changes were identified as being required to maintain the safety assurance of flight operations in the Sydney Basin, while also meeting the requirements of efficiency, capacity and environment. These changes are generally minor in nature, but include changes to some of the existing departures and arrivals in use at Sydney (Kingsford Smith) Airport, as well as changes to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) operations at Bankstown and Camden Airports, RAAF Base Richmond, and changes to lower level transit flights in the Sydney Basin.

Impacts would vary according to the proposed change. Changes involving more significant lateral changes in flight paths or the narrowing of flight paths for Sydney (Kingsford Smith) Airport for jet aircraft would result in changes in the area or population within N60 or N70 contours. In the case of Runway 25 departures (jets) they are infrequent and only used around 4 per cent of the year.

Changes to IFR procedures for Bankstown Airport would likely be used by around 145 movements per day. These areas are already subject to overflight by Bankstown Airport aircraft, however certain areas would be subject to an increase in the frequency and concentration of overflight, particularly arriving aircraft.

Existing flying training areas would be reduced as a result of the WSI airspace, and new possible training areas have been identified. Flying training activity is highly variable and potential overflight noise impacts from this activity cannot be accurately quantified. VFR flight operations would be constrained by WSI and RAAF Base Richmond, both laterally and vertically. VFR flight operations constitute a low number of aircraft and similar aircraft already fly over these predicted areas. However, aircraft would be flying at lower altitudes which would result in higher noise levels and more visible aircraft.

All other changes to over flights associated with flying training would involve low numbers of aircraft daily and would result in minimal changes from a noise or visual perspective.

The introduction of single runway operations at WSI and the adjustments required to Sydney Basin operations to facilitate flight paths and airspace structures will be introduced in 2026 on a scheduled Aeronautical Information Regulation and Control (AIRAC) date prior to the official opening of WSI in 2026. Introduction at this time will allow pilots and air traffic control to update their systems and become familiar with changes to current procedures before WSI commences operations and will minimise the likelihood of conflicts or incidents in the Sydney Basin airspace. Changes to flying training areas would be subject to a separate change proposal.

25.2.3.13 Cumulative impacts

Cumulative impacts are a result of incremental, sustained and combined effects of human action and natural variations over time and can be both positive and negative. The assessment considered potential impacts associated with the project in conjunction with other known and proposed developments.

The assessment of cumulative impacts was undertaken in accordance with the EIS Guidelines and adopted an approach based on the NSW *Cumulative Impact Assessment Guidelines for State Significant Projects*.

The assessment of cumulative impacts considered each of the environmental aspects requiring assessment in the EIS Guidelines. In many cases, the quantitative assessment of issues was difficult, due to the large study area, the indirect nature of potential impacts and the lack of sufficient baseline data relative to some impacts.

Cumulative impacts from flight path corridors from both WSI and other airports within the Sydney basin would occur at the location where they cross each other.

A range of cumulative impacts have the potential to occur as a result of the project's location, in proximity to current and future large-scale infrastructure projects, strategic growth areas and economic corridors associated with rapid development in Western Sydney. The cumulative effects of noise impacts from WSI in conjunction with other airspace operations would likely manifest as a greater number of noticeable events over a given period of time. Aircraft operating from WSI concurrently with aircraft from other Sydney Basin airports has the potential to increase overall noise exposure to communities being directly overflown and/or in the vicinity to other existing flight paths.

The cumulative impact of aircraft noise at locations where there are intersecting or parallel flight paths is widespread. At these locations, cumulative noise impacts from over flights are likely to be most significant. The application of WSI's flight path design principles along with the necessary separation between flight paths would inherently reduce potential cumulative impacts. Additionally, due to the relatively low number of WSI flight paths relative to existing flight paths, and the existing and proposed complex of flight paths within the Sydney Basin, the cumulative impact of introducing WSI flight path noise is not considered high.

The air quality assessment included consideration of background air quality levels (including emissions from other existing sources in the region) and found all pollutants were below regulatory criteria for 2033, with only minor short term exceedances for nitrogen dioxide in 2055. On a regional level, contributions of ozone as a result of the project make no significant difference to a 'no project' scenario in both 2033 and 2055. The assessment also found that the cumulative greenhouse gas (GHG) impacts associated with the project and related projects and developments are not considered to be significant.

Potential cumulative impacts on biodiversity related to wildlife strikes could result from the project operating in conjunction with other existing airports in the study area. A prediction of the cumulative impact on biodiversity of wildlife strikes was undertaken by comparing strike rates at other airports but does not account for the site-specific variables at each airport, including the quality of wildlife management programs applied at each airport. The cumulative impact on biodiversity as a result of wildlife strikes by aircraft operating in the Sydney region is considered low.

The assessment of cumulative aircraft related hazards and risks identified that WSI would introduce new elevated crash risks into areas that are currently subject to entirely negligible risk from existing operations. However it would introduce a very small additional crash risk into areas that are currently subject to potential risk from existing operations.

Potential cumulative impacts to landscape character and visual amenity would include changes to landscape character and views in the vicinity of WSI resulting from over flights in conjunction with future large-scale infrastructure projects. There would also be the potential for cumulative effects on the landscape character zones across the Blue Mountains, which are subject to increasing air traffic from both WSI and other airports within the Sydney Basin.

Despite the low estimates of the proportional contribution of WSI airspace emissions to the totality of air pollution within the Sydney airshed, there is the potential that increased emission levels could have a negative impact on Aboriginal rock art sites and on some historical buildings over time. However there is currently no comparative data or research to test this possibility. Despite this, it can be expected that additional emissions add to the general impact on heritage items and there is growing evidence that the deterioration will be accelerated by other anthropogenic factors such as climate change.

Positive and negative changes to composition of the community surrounding WSI may occur once the flight paths are operating in conjunction with other developments. Access to transport, social and other infrastructure would have positive cumulative impacts on the social and economic wellbeing of the community. Incremental increases in noise, alterations to air quality and light exposure may result in adverse effects to wellbeing, and changes to the way people enjoy social infrastructure and their own properties.

The refinements to the preliminary flight path design since the exhibition of the Draft EIS would not change the conclusions of the overall cumulative impacts assessment.

The implementation of project specific mitigation measures would avoid, to the greatest extent possible, cumulative impacts with surrounding developments and other airspace users and reduce the potential cumulative impacts to acceptable levels.

25.3 Mitigating and managing impacts

Each assessment chapter identifies the mitigation measures that have been included in design, are in existing policy or legislation and additional project specific measures that would be undertaken to mitigate impact during the project's operation. These are consolidated in Chapter 24 (Mitigation and management). The project's Environmental Management Framework consists of:

- relevant legislation that regulates the Australian airspace
- Condition 16 of the Airport Plan and the future airspace design principles set out in 2.2.5 of the Airport Plan and developed as part of the preliminary design phase
- regulatory oversight by the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA)
- Airservices Australia's existing Environmental Management System
- the EIS management measures
- existing policies, procedures and plans developed for WSI.

The effectiveness of the proposed mitigation and management measures will be ensured through:

- further evaluation and refinement of the proposed selected airspace design for implementation based on feedback received from the community and other technical stakeholders such as airlines and industry bodies
- environmental management requirements of the Airports Act, including a system to regulate, and assign accountability for, activities at the Airport Site that generate or have the potential to generate pollution or excessive noise
- ongoing stakeholder consultation and oversight through relevant community forums as required by the Australian Government at major airports in Australia.

Under the Western Sydney Airport Plan, the Infrastructure Department is required to develop a NIPA policy in relation to aircraft overflight noise for buildings outside WSI, having regard for the 24-hour nature of operations at WSI. DITRDCA will deliver the NIPA policy which will apply to eligible properties that are significantly impacted by aircraft overflight noise from WSI. Taken together, these mechanisms will ensure that mitigation and management measures proposed are effective and achieve the intended outcomes. The application of comprehensive mitigation and management measures and continuous improvement through review of the performance of environmental controls would be implemented (refer Chapter 24 (Mitigation and management)).

25.4 Object of the EPBC Act

The environmental assessment of the proposed airport development has been conducted having regard to the objectives of the EPBC Act, which provide a policy framework within which the project can be considered. Table 25.1 evaluates the compliance of the project against each of these objects.

Table 25.1 Compliance of the project against objects of EPBC Act

Objects	Evaluation
<p>To provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance.</p>	<p>This EIS assesses the likely impacts of the project and provides mitigation measures for protection of the environment. The EIS specifically assesses potential impacts on, matters of national environmental significance, including listed species and ecological communities and the GBMA, and National Heritage Place (refer Chapter 23 (Matters of National Environmental Significance)). It also considers the impacts on the general environment from the operation of the project (refer to Section 25.2.3). The planning phase of the airspace and flight design process considered environmental and social constraints including the GBMA (refer to Chapter 6 (Project development and alternatives)).</p>
<p>To promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources.</p>	<p>Ecologically sustainable development (ESD) is considered in Section 25.5.</p>
<p>To promote the conservation of biodiversity.</p>	<p>The potential impacts of the project on biodiversity are assessed in detail in Chapter 16 (Biodiversity) and protection measures to avoid, mitigate and offset potential impacts on biodiversity have been developed (see Chapter 24 (Mitigation and management)).</p>
<p>To promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples.</p>	<p>The airspace and flight path design process has involved consultation with key stakeholders including Forum on Western Sydney Airport, and community and First Nations knowledge holders have been engaged with during the preparation of the EIS. Consultation with key stakeholders and the community following the exhibition of the EIS informed the finalisation of the detailed flight paths (refer Chapter 9 (Community and stakeholder engagement)).</p>
<p>To assist in the co-operative implementation of Australia's international environmental responsibilities.</p>	<p>The airspace and flight path design process included consideration of approaches to minimise impacts on areas. The planning phase of the airspace and flight design process considered environmental and social constraints including consideration of the potential impacts to the GBMA and Australia's obligations under the World Heritage Convention to protect this World Heritage Property, its Outstanding Universal Value and its integrity. The preparation of this EIS (and the supporting technical paper addressing potential impacts on the GBMA – Technical paper 14), is considered to be consistent with the guidance on integrating natural World Heritage sites into environmental assessments as outlined in the <i>Guidance and Toolkit for impact assessments in a World Heritage Context</i> (UNESCO, 2022a) and the preceding IUCN Advice Note (IUCN, 2013) (which is a requirement of the EIS Guidelines). The project has adopted the ICAO Balanced Approach to Aircraft Noise Management for the safety of international civil aviation. This includes minimising the adverse environmental effects of civil aviation activities, including aircraft noise.</p>

Objects	Evaluation
To recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity.	Extensive consultation with First Nations peoples has occurred in relation to the protection and management of the environment (refer Chapter 9 (Community and stakeholder engagement)).
To promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.	Extensive consultation with First Nations peoples has occurred in relation to the protection and management of the environment (refer Chapter 9 (Community and stakeholder engagement)).

25.5 Principles of ecologically sustainable development

The promotion of Ecological Sustainable Development (ESD) through the conservation and ecologically sustainable use of natural resources is an object under section 3 of the EPBC Act. Section 3A of the EPBC Act defines the principles of ecologically sustainable development. A discussion on the project's compliance with the principles of ecologically sustainable development against section 3A is provided in the Table 25.2.

Table 25.2 Evaluation of the project against ESD principles

Principle	Evaluation
Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.	<p>The development of the project as part of WSI would be consistent with the objective of effectively integrating both long-term and short-term economic, environmental, social and equitable considerations in decision making. This EIS has considered the environmental impacts and issues of the preliminary airspace and flight path design associated with Stage 1 Development.</p> <p>The proposed airport would provide both short and long-term benefits in terms of job creation and provision of accessibility to aviation services. WSI would also address the long-term aviation capacity requirements of the Sydney region.</p>
If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	<p>The precautionary principle states that if there are threats of serious environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In applying the principle, decisions should be guided by careful evaluation to avoid, wherever practicable, serious damage to the environment, including an assessment of the risks associated with various options.</p> <p>The planning phase of the airspace and flight design process considered environmental and social constraints including the GBMA (refer to Chapter 6 (Project development and alternatives)) and this EIS implemented a compliance, risk, and/or significance-based approach to impact assessment (refer Chapter 10 (Approach to impact assessment)).</p> <p>The assessments of the potential impacts of the project are consistent with the precautionary principle. The assessments undertaken are consistent with accepted scientific and assessment methodologies and have considered relevant statutory and agency requirements. The assessments have applied a conservative approach with regard to the modelling used. Lack of full scientific certainty has not been used as a reason to postpone or avoid identification and adoption of design or management measures to avoid or minimise environmental degradation.</p> <p>This EIS higher risk aspects are to be managed through avoidance or suitable mitigation strategies as outlined in Section 25.2.3.</p>

Principle	Evaluation
<p>The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.</p>	<p>The principle of intergenerational equity states that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The project would support the operation of proposed airport which would be consistent with the principle of intergenerational equity. Given the project development and alternatives considered (refer to Chapter 6 (Project development and alternatives)) and the proposed management framework (refer Chapter 24 (Mitigation and management)), the implementation of the project as part of WSI, would ensure there would be no significant impact that would diminish the health, diversity or productivity of the environment for future generations.</p> <p>The incremental nature of the long-term development of WSI would provide opportunities for intergenerational equity and decision making that takes full advantage of changing conditions and technologies. The project, as part of WSI, would also provide a broad range of economic benefits which would continue to increase with time.</p>
<p>The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.</p>	<p>The conservation of biological diversity and ecological integrity should be a fundamental consideration of any development proposal. The project would support the operation of proposed airport which would be consistent with this principle. Where feasible, the project, as part of WSI, has minimised impacts on sensitive ecological areas during design. Mitigation measures include those relating to minimising the risk of wildlife strike.</p>
<p>Improved valuation, pricing and incentive mechanisms should be promoted.</p>	<p>The principle of improved valuation states that environmental factors should be considered in the valuation of assets and services. The principle is implicit in such concepts as ‘polluter pays’, lifecycle costing, and triple bottom line accounting.</p> <p>The assessment has identified the environmental and other consequences of the project, and identified mitigation measures, where appropriate, to manage potential impacts. If approved, the project would be implemented in accordance with relevant legislation and the proposed management framework.</p> <p>These requirements would result in an economic cost to the proponent. The implementation of mitigation measures would increase both the capital and operating costs of the project; this signifies that environmental resources have been included in the valuation of assets and services in the design and assessment of the proposal.</p> <p>The value of environmental resources is also inherently considered in the development of a design that has avoided and minimised impacts where possible (acknowledging the project must meet civil aviation safety regulatory standards and other international rules and regulations).</p> <p>Costing of proposed mitigation measures will be considered by DITRDCA and the Australian Government as part of its overall funding for WSI, including operation of flight paths and the construction and operation of the WSI Stage 1 Development. The cost of mitigation measures are included in the total estimated project costs.</p> <p>The costing of mitigation measures will have particular regard to the key mitigations outlined in this EIS including, but not limited to, the implementation of the final NIPA policy in relation to aircraft overflight noise for buildings outside the Airport Site. The detailed cost associated with the NIPA policy will be provided when the program guidelines are finalised.</p>

25.6 Concluding statement

This EIS has been prepared to address the requirements of Condition 16 of the Airport Plan and support the request to the Australian Minister for the Environment and Water for advice in accordance with Section 160 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Advice from the Minister is required prior to any approval of the airspace and flight paths.

The project has been developed by an Expert Steering Group led by the Australian Government DITRDCA, including Defence, ASA, and CASA and is an integral part of WSI, ensuring that the benefits of WSI are realised.

The project will achieve the overall objectives for WSI by enabling single runway operations to commence through the introduction of new flight paths and a new controlled airspace volume. The preliminary airspace and flight paths have been designed to minimise community impacts as much as possible through the incorporation of flight path design principles intended to avoid, manage or otherwise minimise the unavoidable residual impacts, including aircraft noise.

WSI would be a major catalyst for investment and jobs growth in the Western Sydney region and would deliver benefits to the Australian economy more broadly.

WSI would provide direct connections to the world, allowing opportunities for residents and the community to enhance Western Sydney's connection to world economies. Tourism is also expected to be boosted, with WSI providing improved accessibility to destinations across Western Sydney and the Blue Mountains. New or upgraded transport infrastructure that would be built to service WSI would also provide benefit to local communities.

Extensive stakeholder and community consultation and engagement has been carried out as part of the EIS, including dedicated engagement to support the release of the online Aircraft Noise Tool as well as exhibition of the Draft EIS. Engagement also included consultation with First Nations representatives and communities within the surrounding Local Government Areas. Feedback received throughout the engagement process and during exhibition of the Draft EIS was used to inform the current project design (including a series of design refinements to the preliminary flight paths) and, where applicable, will inform the ongoing detailed design process.

The EIS found that impacts associated with the operation of the WSI flightpaths would have adverse impacts in relation to aircraft noise. Noise will result in changes in amenity and impacts on Aboriginal Places and sites of high cultural value.

A suite of mitigation measures has been developed to further minimise and mitigate operational impacts, where safe and feasible. There are a range of operational measures that will mitigate the impacts of aircraft noise. Also, there are land use planning controls in place to safeguard the operations of WSI while protecting future communities from aircraft noise. The NIPA policy has been established to ameliorate residual noise impacts where applicable.

While mitigation measures would serve to minimise impacts, residual impacts would remain for communities subject to high levels of aircraft noise and/or the visual presence of aircraft (and the associated amenity impacts) given these are an unavoidable consequence of aircraft operations.

The residual impacts of the project need to be considered within the context of the overall objectives of the project and the significant benefits WSI would provide over the short to longer term and particularly for future generations. The consequences of not proceeding with the ongoing design development would compromise the success of WSI.

The project has been evaluated as consistent with the objects of the EPBC Act and principles of ESD defined under the EPBC Act. DITRDCA, Airservices Australia and WSA Co are committed to managing the potential impacts to the environment through commitments to mitigation measures to further reduce remaining residual impacts. Future design phases would continue to ensure a rigorous approach to the finalisation and implementation of the airspace and flight path design.

