Chapter 18 Social

This chapter describes the existing social characteristics of the study area, the applicable legislative and policy framework relevant to social issues and provides an assessment of pre- and post-mitigation impacts from the project.

The assessment considered the social impacts of the project in 2033 and 2055 in areas close to WSI (being within 10 km) and at a regional level (encompassing Blacktown, Blue Mountains, Camden, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly LGAs). The assessment is based on NSW Department of Planning and Environment's (DPE) *Social Impact Assessment Guideline for State Significant Projects 2023* (NSW DPE, 2023b). It considers the actual and perceived impacts of the project and has been informed by community engagement.

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

Due to the raft of existing planning measures in place surrounding WSI, the assessment has identified that the potential increase of inequality for vulnerable groups located in areas within the ANEC 20, N60 and N70 contours for both the 2033 and 2055 scenarios would remain as the only potential residual (post-mitigation) impact with a High significance rating.

All other potential social impacts have a Medium or Low impact within the local and regional study areas for the 2033 and 2055 assessment years.

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 promote the social and economic welfare of the community.

The refinements to the project since the exhibition of the Draft EIS would not change the assessed magnitude of impact or the assessed residual impact level as presented in the Draft EIS. There would be no change to impacts to community (increased inequality), way of life (loss of residential amenity, and use and enjoyment of social infrastructure), health and wellbeing (changes to amenity), and surroundings (social values associated with the Blue Mountains). Further detail is provided in Section G2.10 of Appendix G (Assessment of the refinements to the project) of the EIS.

18.1 Introduction

Social impacts generally refer to the consequences that individuals, households, groups, communities or organisations experience when a project brings change (NSW Department of Planning and Environment (NSW DPE), 2023b). Social impacts may be direct or indirect, positive or negative, and tangible or intangible.

This chapter considers the potential social impacts resulting from the project in accordance with the EIS Guidelines and with consideration of the *Social Impact Assessment Guideline for State Significant Projects* (NSW DPE, 2023b) (as updated in October 2022). The assessment has been informed by engagement completed for the social impact assessment and the broader engagement undertaken for the Draft EIS. The full assessment is provided in Technical paper 10: Social Impact Assessment (WSP Australia Pty Ltd) (Technical paper 10).

The potential social impacts have been grouped into the following categories – way of life, community, culture, accessibility, health and wellbeing, surroundings, livelihoods and decision-making systems. The definition of these categories is discussed further in Section 18.4.

18.2 Legislative and policy context

There is no specific legislation that guides social impact assessments. The social impact assessment was undertaken to address the EIS Guidelines and with reference to the following guidelines or standards:

- The *Social Impact Assessment Guideline* (NSW DPE, 2023b) and the supporting *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects 2023* (NSW DPE, 2023c) (collectively referred to as the SIA Guideline). The methodology to evaluate the significance of a social impact as set out by this guideline has been applied in this assessment.
- Airservices Australia's Environmental management of changes to Aircraft Operations Standard (AA-NOS-ENV2.100) (Airservices Australia, 2022b), which outlines the requirements for a social impact analysis for proposed airspace changes.

A range of policies and planning strategies were also considered in the assessment of potential social impacts, including:

- National Airports Safeguarding Framework
- *The Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018b)
- *Western City District Plan* (Greater Sydney Commission, 2018a)
- *State Environmental Planning Policy (Precincts – Western Parkland City) 2021*
- *Western Sydney Aerotropolis Precinct Plan 2022* (NSW DPE, 2023a)
- Western Sydney Aerotropolis Development Control Plan (DCP) (NSW DPE, 2022c)
- Local strategic planning statements and community strategic plans for the Penrith, Liverpool, Camden, Blacktown, Wollondilly, Fairfield and Blue Mountains local government areas (LGA).

Further detail can be found in Chapter 3 of Technical paper 10.

18.3 Methodology

The methodology for this SIA has been designed specifically in response to the requirements of the Ministerial Guidelines for the project and followed the process outlined in Figure 18.1.

Figure 18.1 Overview of social impact assessment methodology

18.3.1 Approach

The social impact assessment methodology involved:

- the scoping of potential social impacts was conducted to inform the SIA by reviewing comparable project SIAs and relevant literature on predicted social impacts, including social impact assessments for 2016 EIS and the new parallel runway at Brisbane Airport, and publicly available media sources
- determining an appropriate study area (see Section 18.3.2)
- describing the existing social environment by reviewing:
  - the 2021 and 2016 ABS census data
  - NSW DPIE's 2020 Population, Household and Implied Dwelling Projections by LGA to illustrate the 8 social impact categories: community, way of life, accessibility, culture, health and wellbeing, surroundings, livelihoods and decision-making systems
  - other data indicators such as health data, local government planning policies and local government consultation and online mapping tools
  - review of other technical papers that support the Draft EIS
- community and stakeholder consultation, including:
  - review of existing consultation from September 2022 to June 2023 – face to face briefings and community pop-up events. An online survey was also completed among stakeholders and external to the community pop-up events
  - SIA specific consultation between November 2022 and March 2023 – interviews with key stakeholders and community representatives, and residents

  Further detail is available in Chapter 9 (Community and stakeholder engagement)
- predicting, identifying and evaluating potential social impacts of the project and the social implications of impacts identified in other technical assessments. The assessment focuses on the 8 social impact categories: community, way of life, accessibility, culture, health and wellbeing, surroundings, livelihoods and decision-making systems

  To determine the significance of a social impact, the magnitude and likelihood is considered. Table 18.1 defines the magnitude of impact outcomes and Table 18.2 defines the likelihood levels as applied in the assessment. The social risk matrix to determine the social impact significance, prior to mitigation, is set out in Table 18.3
- identification of appropriate mitigation and management measures to mitigate negative social impacts or maximise benefits of the project
- the identification and assessment of residual impacts after the implementation of proposed project mitigation measures.

Table 18.1 Defining magnitude levels for social impacts

Magnitude criteria	Definition
Transformational	• Substantial change experienced in community wellbeing, livelihood, amenity, infrastructure, services, health, and/or heritage values. • Permanent displacement or additional of at least 20 per cent of a community.
Major	• Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time or affecting many people in a widespread area.
Moderate	• Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time or affecting a group of people.
Minor	• Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	• Little noticeable change experienced by people in the locality.

Source: Technical Supplement to SIA Guideline (NSW DPE, 2023c)

Table 18.2 Defining likelihood levels of social impacts

Likelihood level	Definition
Almost certain	Definite or almost definitely expected (for example, has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Source: Technical Supplement to SIA Guideline (NSW DPE, 2023c)

Table 18.3 Social impact significance matrix

	Minimal	Minor	Moderate	Major	Transformational
Almost certain	Low	Medium	High	Very high	Very high
Likely	Low	Medium	High	High	Very high
Possibly	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Very unlikely	Low	Low	Low	Medium	Medium

Source: Technical Supplement to SIA Guideline (NSW DPE, 2023c)

18.3.2 Study area

The study area for this assessment was divided into a local area and a regional area.

The local study area includes the communities most likely to be most affected by impacts of the project, including changes to noise, air quality and visual impacts. The regional study area includes the communities that would possibly be affected by visual and noise impacts of the project.

Noise impacts are identified as per noise metrics applied within Technical paper 1: Aircraft noise (Technical paper 1). Key noise metrics considered by this assessment are:

- Australian Noise Exposure Concept (ANEC), which informs land use planning around airports and describes the cumulative aircraft noise for an annual average day
- N-above contours of N60 (24-hour), N60 (Night-time) and N70 (24-hours). These describe aircraft noise impacts by the number of noise events that exceed a certain noise level. N-above contours provide cumulative-event descriptor which provide as assessment of the sustained exposure to aircraft noise.

18.3.2.1 Local study area

The local study area (refer to Figure 18.2) includes the Australian Bureau of Statistics (ABS) Suburbs and Localities (SALs) within a 10 kilometre (km) radius from the centre of the runway. This represents residential communities that are within the ANEC 20 and noise contours (N60 and N70), as well as potentially affected by visual impacts and changes to air quality.

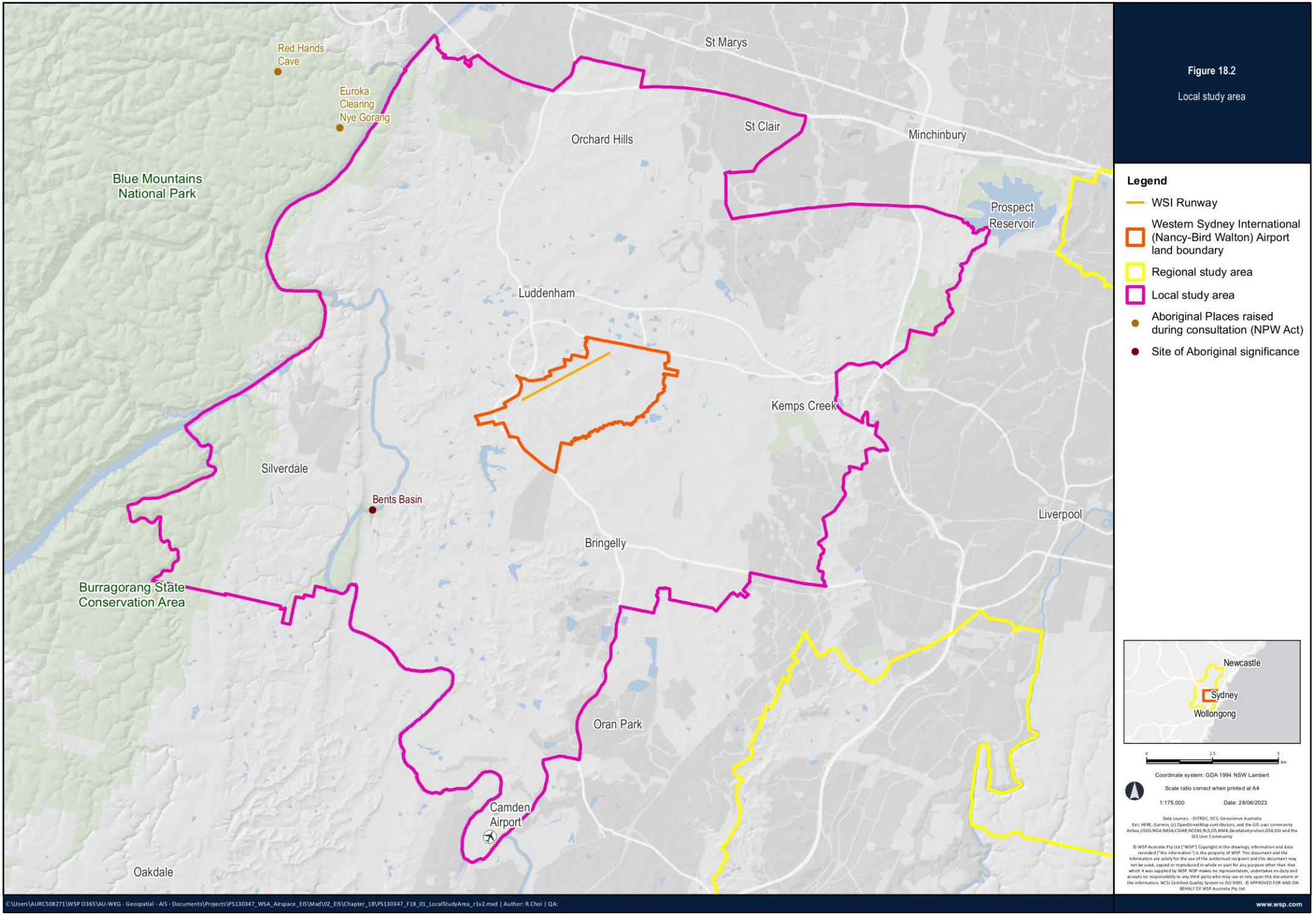
The following SALs are included in the local study area:

- Austral
- Badgerys Creek
- Bringelly
- Cobbitty
- Cecil Park
- Horsley Park
- Glenmore Park
- Greendale
- Kemps Creek
- Luddenham
- Mulgoa
- Mount Vernon
- Orchard Hills
- St Clair
- Rossmore
- Silverdale
- Wallacia
- Warragamba.

18.3.2.2 Regional study area

The regional study area (see Figure 18.3) includes the LGAs in which residential areas are intersected by noise contours (N60 and N70). The following LGAs are included in the regional study area:

- Blacktown LGA
- Blue Mountains LGA
- Camden LGA
- Fairfield LGA
- Hawkesbury LGA
- Liverpool LGA
- Penrith LGA
- Wollondilly LGA.


Red Hands Cave
Euroka Clearing Nye Gorang
St Marys
St Clair
Minchinbury
Orchard Hills
Blue Mountains National Park
Prospect Reservoir
Luddenham
Kemps Creek
Silverdale
Bents Basin
Liverpool
Bringelly
Burragorang State Conservation Area
Oran Park
Camden Airport
Oakdale
Figure 18.2
Local study area
Legend
WSI Runway
Western Sydney International (Nancy-Bird Walton) Airport land boundary
Regional study area
Local study area
Aboriginal Places raised during consultation (NPW Act)
Site of Aboriginal significance
Newcastle
Sydney
Wollongong
0
2.5
5
km
Coordinate system: GDA 1994 NSW Lambert
Scale ratio correct when printed at A4
1:175,000
Date: 28/06/2023
Data sources: - DITRDC, DCS, Geoscience Australia
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community
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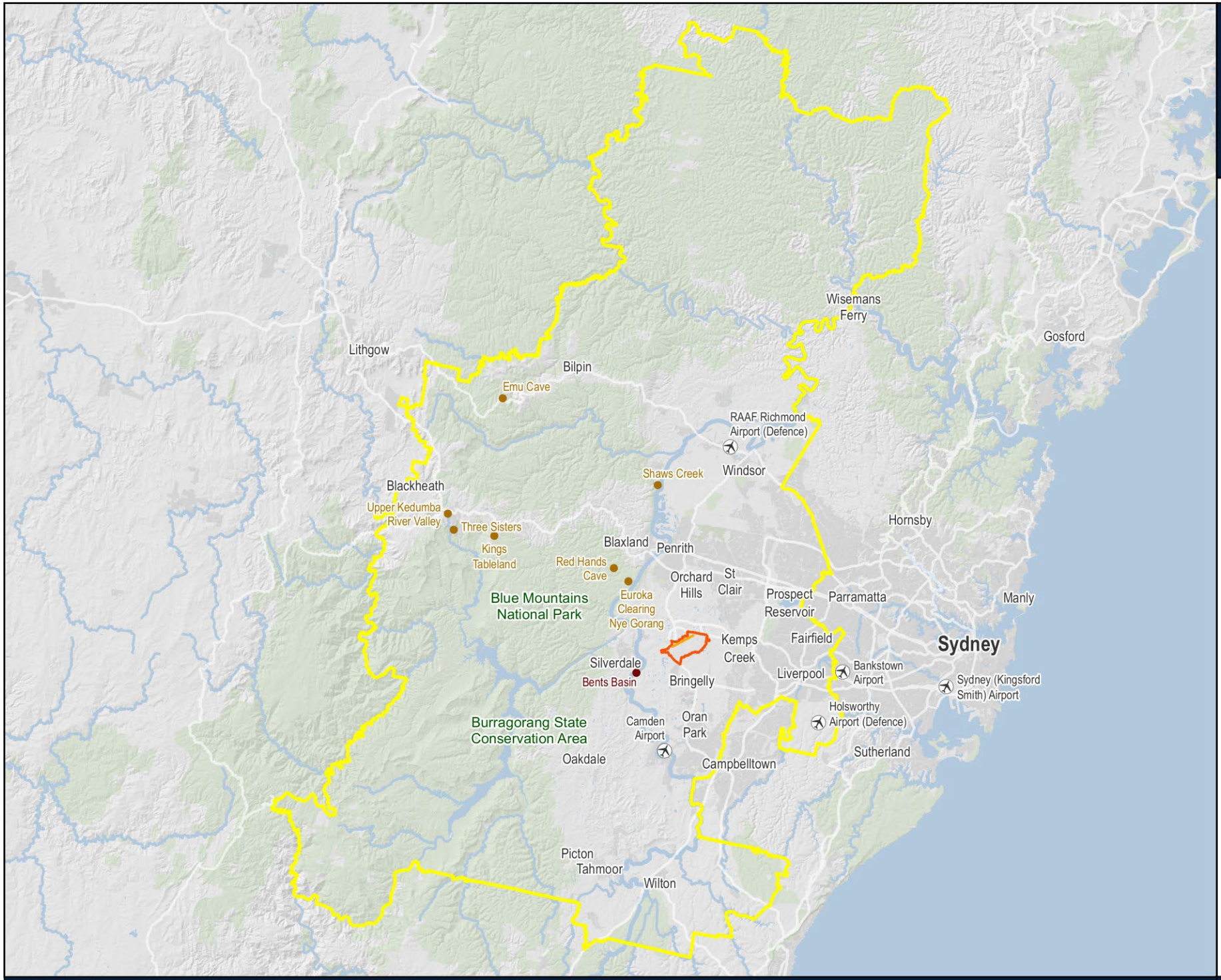

Figure 18.3

Regional study area

Legend

- WSI Runway
- Western Sydney International (Nancy-Bird Walton) Airport land boundary
- Regional study area
- Aboriginal Places raised during consultation (NPW Act)
- Site of Aboriginal significance

0 10 20 km

Coordinate system: GDA 1994 NSW Lambert

Scale ratio correct when printed at A4

1:800,000 Date: 1/08/2023

Data sources: - DITRDC, DCS, Geoscience Australia
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Airbus,USGS,NGA,NASA, CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community

18.3.3 Dependencies and interactions with other study areas

This assessment has been informed by the technical papers in Table 18.4.

Table 18.4 Dependencies and interactions with other Technical Papers

Technical paper	Relevance
Technical paper 1 – Aircraft noise	Informs the assessment of social impacts derived from changes to noise exposure, including enjoyment of private and public space, community wellbeing and sense of belonging.
Technical paper 2 – Air quality	Informs the assessment of social impacts derived from changes to air quality, including sense of clean environment, enjoyment of private and public space, and community wellbeing.
Technical paper 4 – Hazard and risk	Informs the assessment of social impacts related to community wellbeing and surroundings.
Technical paper 5 – Wildlife strike	Informs the assessment of potential wildlife strike risk that may impact community wellbeing.
Technical paper 6 – Land use and planning	Informs the assessment of social impacts related to land use.
Technical paper 7 – Landscape and visual amenity	Informs the assessment of social impacts derived from changes to landscape and visual, including enjoyment of private and public space, community wellbeing and surroundings.
Technical paper 8 – Biodiversity	Informs the assessment of potential biodiversity impacts on community wellbeing.
Technical paper 9 – Heritage	Informs the impact assessment of social impacts related to Indigenous culture and wellbeing, as well as impacts to non-indigenous heritage.
Technical paper 11 – Economic	Informs the assessment of social impacts related to livelihoods.
Technical paper 12 – Human health	Informs the assessment of social impacts related to community wellbeing and accessibility.
Technical paper 14 – Greater Blue Mountains World Heritage Area	Informs the impact assessment of social values related to the GBMA and conversely this SIA informs the impacts to social values for Technical paper 14.

18.3.4 Limitations

The limitations of this assessment are included in Table 18.5.

Table 18.5 Limitations

Feature	Limitation
Reflection of the impacts of COVID-19 data	While data from the 2021 Census is the most up to date and comprehensive source of demographic data for the local and regional study area, it should be noted that these results may have been impacted by the COVID-19 pandemic and may not be illustrative of typical statistics shown in previous census data. This limitation has been addressed by implementing a comprehensive engagement plan with Councils, residents, and community representatives.
Use of composite noise contours	Composite noise contours are considered in this report to identify the extent of potential noise impacts. It is acknowledged that the actual numbers of people and dwellings within each noise contour could be lower depending on the choice of operating scenario.
People's knowledge and understanding of the project	Details pertaining to the location and potential impacts of the flight paths were not used during consultation for this SIA, as these had not been released at the time of preparing this report. As a result, the contribution that the community and key stakeholders have been able to make to assessing social impacts resulting from the project has been limited to speculation and details from previous flight paths released in the 2016 EIS process, which have since changed.
Limited consultation with First Nations groups	SIA engagement with First Nations groups was informed by findings from the Cultural Heritage consultant as part of their engagement with First Nations community members and Local Aboriginal Land Councils for Technical paper 9. To further assist in the assessment of social impacts associated with First Nations groups, a WSP Indigenous Services specialist reviewed the content and provided feedback, which has been incorporated accordingly.
Distinction between WSI and flight path social impacts	During both Draft EIS engagement and SIA consultation, feedback about the approvals, construction, and operation of WSI was provided. This SIA acknowledges that people's experience with the WSI 2016 EIS process and current construction shape the views, concerns and aspirations of residents, community representatives and key stakeholders. At the time of consultation, many people conflated the perceived impacts of WSI and the impacts of the flightpaths.
Statistical significance of consultation	The local study area is composed of 80,358 people, while the regional study area had a total population of 1,379,196 people. Given the large population of both study areas, the SIA approach is based on a qualitative method of data analysis rather than a quantitative method. The findings are understood to be true for the specific groups consulted. The findings are not assumed to be representative of the study area as a whole. This limitation was addressed by ensuring the SIA was informed by the EIS engagement, which included the participation of 2,681 people in pop-ups across the LGAs within the regional study area, and also a review of the EIS engagement survey which included the responses of 804 people.
Limited consultation to communities who have experienced changes to flight paths	At the time of writing this report, consultation with people who have been through changes to their airspace was not possible. This limitation was addressed by triangulating consultation findings with the technical studies conducted for the project, as well as the findings from published research on this specific subject matter.
Management measures	Operations at WSI and the associated airspace in the Sydney Basin are being introduced within a well-established regulatory and management framework. The feasibility of management measures was reviewed by DITRDCA, who refined and prioritised the measures applicable to this project.

18.4 Existing environment

18.4.1 Local study area

18.4.1.1 Population

At the time of the 2021 Census the population in the local area was a total of 80,358 people. The largest proportion of the total population are located in Glenmore Park (31.1 per cent), St Clair (24.8 per cent) and Austral (11.2 per cent). The smallest populations in the local study area are Badgerys Creek and Greendale.

The greatest changes in population between 2016 and 2021 were:

- Austral, an increase of 126.4 per cent (an average annual increase of 25.3 per cent)
- Cobbitty, an increase of 103.9 per cent (an average annual increase of 20.8 per cent)
- Badgerys Creek, a decrease of 25.3 per cent (an average annual decrease of 5.1 per cent), likely due to changes in land zoning in the area and property acquisitions for the numerous infrastructure projects in the suburb to support the future airport
- Silverdale, an increase of 23.4 per cent (4.7 per cent average annual growth rate).

The available population forecast data for the local study area indicated extreme growth (452.9 per cent) by 2041. The majority of this growth will be experienced in:

- Austral, an estimated 55,204 people (406.9 per cent growth)
- Rossmore area, an estimated 65,654 people
- Liverpool's portions of Greendale, Luddenham, Silverdale and Wallacia, with an estimated 29,190 people (454.0 per cent growth).

The average median age in the local study area ranged from 31 to 47 years old. The Blue Mountains LGA had the highest median age (45 years), while Camden, Liverpool and Blacktown LGAs had the lowest age (33–34 years). The highest median ages in the local area are Orchard Hills (47), Horsley Park (45 years) and Kemps Creek (44 years). Suburbs with highest proportions of older age groups (60+) are Badgerys Creek (30.4 per cent), Horsley Park (28.6 per cent) and Orchard Hills (27.9 per cent).

Around 56.3 per cent of people were residing in the same place in 2021 as they were in 2016, 30.9 per cent of people lived elsewhere in Australia in 2016 and 1.6 per cent lived overseas in 2016.

The suburbs in the local study area with the most consistent population (least mobility) are Orchard Hills, Mount Vernon and Horsley Park. Austral and Cobbitty, on the contrary, had the most population mobility (only 19.1 per cent and 36.5 per cent, respectively, were residing in the same place in 2021 as in 2016). All other suburbs had between 55 to 69.9 per cent of people living in the same place in 2021 as in 2016. Overall, this indicates potentially high levels of community connection to place, which is likely to grow when people live longer in a certain area.

Engagement with community and key stakeholders indicated that communities were experiencing changes in community composition due to acquisition for infrastructure projects and development in and around WSI. Stakeholders indicated that smaller households were moving out, whereas households on agricultural properties were remaining.

18.4.1.2 Housing and household composition

Housing

Within the local study area:

- most median weekly rent payments in the local study area are higher than the NSW average, except for Warragamba, Wallacia, and Cecil Park
- median monthly mortgage repayments are more expensive than NSW average ($2,167) in all areas except Warragamba, Badgerys Creek, Kemps Creek and Rossmore
- around one third of households across the study local area are experiencing rental affordability stress (rent payments greater than or equal to 30 per cent of household income). Areas with the greatest proportion of households suffering rental affordability stress include Austral, Rossmore, Bringelly, Warragamba, Kemps Creek and Badgerys Creek
- most areas within the local study area have around one fifth of its households experiencing mortgage affordability stress (mortgage payments greater than or equal to 30 per cent of household income). Areas with the greatest proportion of households suffering mortgage affordability stress are Badgerys Creek, Horsley Park, Austral and Cecil Park. Greendale had no households suffering from mortgage affordability stress, according to Census data.

There are a total of 25,094 private dwellings in the local study area, of which 92.7 per cent are occupied and 3.9 per cent are unoccupied. The area with the greatest proportion of occupied private dwellings are Glenmore Park and St Clair (97.3 per cent).

The majority of occupied private dwellings are detached dwellings (94.4 per cent). There are small proportions of semi-detached houses (3.4 per cent) and apartments (1.4 per cent), suggesting that the majority of population in the local study area lived in low to medium density housing. This is consistent with the more rural nature of the areas surrounding the WSI site.

In the local study area there are 127 social housing tenures. The majority of social housing is located in Glenmore Park (52.8 per cent), St Clair (39.4 per cent), Cobbitty (3.1 per cent), Austral (2.4 per cent) and Kemps Creek (2.4 per cent).

Consultation with Blue Mountains City Council highlighted impacts to housing availability for residents due to competition with the short-term rental and holiday market. This is reflected in a significantly lower residential vacancy rate in the Blue Mountains, which has been below 3 per cent since January 2022 (SQM Research, 2022) and indicates an undersupply of rental options in the area.

Engagement with the Wallacia Progress Association highlighted the long-term use of caravan parks by residents and impacts to these residents by recent flooding events. Concerns were raised that this housing type, alongside older housing stock, would be difficult to acoustically treat.

Family composition

Family and household composition in the local study area is relatively similar to the NSW average with the largest proportions of households being families, of which most are couples with children. Within the local study area:

- Luddenham has the highest proportion of couple families with children (60.4 per cent) Badgerys Creek and St Clair have greater proportions of couple families without children
- Warragamba, Greendale and Badgerys Creek have higher percentages of single parent families compared to the NSW average (15.8 per cent)
- single or lone person households across the local study area are generally lower than the NSW average (25 per cent), except at Warragamba (28.8 per cent)
- Greendale and Badgerys Creek have a higher proportion of group households (around 8.2–8.8 per cent) compared to other locations within the local study area and the NSW average (8 per cent).

Future residential development

Camden, Wollondilly and Fairfield City councils commented on implications to future growth areas and requirements on residential development to address aircraft noise. Fairfield City Council expressed concern that changes recently made by NSW Government that restrict certain land uses in the ANEC contour was unreasonable and inequitable.

18.4.1.3 Workforce

Employment and income

Within the local study area:

- in the 2021 Census, a large proportion of people worked from home (around 20.8 per cent). As with other areas of Australia and the world, this has increased significantly following 2020 with the COVID-19 pandemic causing many people to work from home during lockdowns. It should be noted that the 2021 Census was undertaken during a lockdown period in the local area and therefore should not be taken as representative of the ordinary level of people working from home, either pre-COVID or currently. Within the study area, Badgerys Creek, Horsley Park, Cecil Park and Austral had higher percentages of people working from home (around 31.7 to 41.5 per cent)
- median weekly incomes are mostly higher than the NSW average ($1,829) throughout the local study area, except at Rossmore, Cecil Park, Bringelly, Warragamba, Badgerys Creek and Kemps Creek which are lower. The proportion of low-income households is greatest in areas such as Greendale, Kemps Creek and Badgerys Creek. The proportion of high-income households is greatest in Mulgoa, Glenmore Park, Cecil Park and Orchard Hills.

18.4.1.4 Advantage and disadvantage

The ABS Socio-Economic Index for Areas (SEIFA) assesses the economic and social conditions of households within an area. SEIFA consists of 4 indexes measuring relative advantage and disadvantage. Areas ranking in the lowest 10 per cent of areas are deemed most disadvantaged and the highest 10 per cent least disadvantaged.

Key findings from analysis of the indexes for communities within the local study area include:

- Greendale, Badgerys Creek, Kemps Creek, Austral, Rossmore and Warragamba ranked within the bottom 50 per cent of communities in all indexes, suggesting:
  - higher numbers of households with low income, no qualifications or in low skill occupations
  - few households with high incomes, or few people in skilled occupations
  - many households paying low rent and few with owned homes
  - many unemployed people and few people with a high level of qualification or in highly skilled occupations
- Cobbitty, Glenmore Park, Luddenham, Silverdale, Mount Vernon and Mulgoa ranked within the highest 25 per cent of communities in all indexes, suggesting these communities are among the relatively most advantaged and least disadvantaged communities in Australia
- Austral, Badgerys Creek, Bringelly, Kemps Creek, Rossmore, St Clair, Wallacia and Warragamba ranked in the bottom 30 per cent of areas for Index of Education and Occupation (IEO). This is consistent with the rural/semi-rural character of the region and lack of professional employment opportunities. Warragamba has the lowest ranking within the local study area.

18.4.1.5 Community identity and values

Indigenous cultural heritage

The local study area is within the Deerubbin, Tharawal and Gandangara Local Aboriginal Land Councils on Dharug Country. Within the local study area there is a total of 2,658 First Nations people, accounting for 3.3 per cent of the total population, which is similar to the NSW average (3.4 per cent). Areas with the largest First Nations population are Warragamba, Silverdale, Wallacia, St Clair and Glenmore Park.

There are 2 active native title claims that intersect the regional study area, the Warrabinga-Wiradjuri #7 claim intersects the Blue Mountains LGA to the north, and the South Coast People claim intersects the Liverpool and Wollondilly LGAs to the South. These claims are both active and have not yet been determined.

Cultural diversity

Greater Western Sydney is well known as having a large cultural and linguistically diverse population.

The local study area is much less culturally diverse compared to the regional study area and is characterised by a greater proportion of people born in Australia (79.7 per cent). The largest proportion of people born overseas in the local study area were born in England (2.0 per cent), India (1.5 per cent), New Zealand (1.2 per cent) and Italy (1.1 per cent). Suburbs with relatively low proportions of people born in Australia include Badgerys Creek (51.2 per cent) and Austral (50.3 per cent).

In the local study area 23.5 per cent of people speak a language other than English at home. Communities within the local area with the greatest levels of language diversity include Austral (52.7 per cent), Badgerys Creek (45.8 per cent), Cecil Park (41.7 per cent) and Rossmore (40.4 per cent). The most commonly used languages (other than English) within the local study area are Arabic (3.6 per cent), Italian (1.5 per cent), Tagalog (0.8 per cent) and Punjabi (0.7 per cent).

Community values

A review of local council strategies and engagement with stakeholders identified that the following values are consistently held across the local study area:

- environmental values – valuing and a desire to preserve and enhance the natural environments in the region, as well as access to green open spaces for fitness and recreation
- rural to semi-rural lifestyle – large portions of all of the LGAs (Fairfield excepted) are rural/semi-rural and the communities value the character and amenity afforded by the rural setting. The amenity of Luddenham village was commented on during consultation (for example, beautiful country town, peaceful and quiet)
- sense of belonging – the feeling of belonging in their community was highlighted in several of the LGAs
- First Nations culture – Local councils highlighted the value of First Nations culture within their LGAs
- transport and connectivity – access to quick and easy public transport infrastructure, and the importance of safety on roads were noted in many of the council's documents.

These values will also apply to those who identify as Indigenous or culturally diverse.

Greater Blue Mountains Area (GBMA) values

The GBMA is an area of significant cultural value for Australia and the world and was listed in 2000 for its natural values. The GBMA has both Indigenous and non-Indigenous cultural values. Intrinsic cultural values of the GBMA include connections to Country for 6 Indigenous language groups through ongoing custodial relationships with the area. Physical evidence of cultural connections is present in rock art and occupation sites throughout the GBMA.

The Blue Mountains was often described during engagement as peaceful, serene and wild. Wilderness values were most commonly noted, closely followed by biodiversity values, Indigenous heritage, scenic values and the overall value of the area's status as a UNESCO World Heritage Area. Recreation activities, including bushwalking, hang-gliding and more passive forms of recreation, were also considered important.

Other values

Community and stakeholder engagement also identified values concerning the environment (soil, air and water), and impacts by the future airport on water quality and agricultural production due to changes in air quality and/or fuel dumping. This included Warragamba Dam and waterways within the GBMA.

18.4.1.6 Health and wellbeing

Need for assistance

There are 3,796 people in the local study area needing assistance within the 3 core activity areas (self-care, mobility and communication). Areas with proportions of the population with need for assistance greater than the NSW average are Badgerys Creek, Kemps Creek, Rossmore, Horsley Park and Orchard Hills.

Long-term health conditions

The leading causes of death in South-Western Sydney and Nepean Blue Mountains Local Health Districts are cancers and circulatory diseases, and respiratory diseases (SWSLHD, 2019; NBMLHD, 2013).

The most prominent long-term health conditions are asthma (7.5 per cent), arthritis (7.3 per cent) and mental health conditions (including depression or anxiety) (6.7 per cent). The predominant existing long-term health conditions in the local study area are:

- high prevalence of asthma in Glenmore Park (8.4 per cent), Silverdale (8.6 per cent), Wallacia (8.6 per cent) and St Clair (8.6 per cent)
- high prevalence of mental health conditions (including depression or anxiety) in Warragamba (10.6 per cent) and Glenmore Park (8.0 per cent)
- high prevalence of heart disease (including heart attack or angina) in Linden, Horsley Park, Greendale, Wallacia, Orchard Hills, Kemps Creek, Bringelly, Mount Vernon and Mulgoa
- high prevalence of lung conditions (including COPD or emphysema) in Warragamba (2.9 per cent) and Luddenham (2.2 per cent).

18.4.1.7 Community facilities and services

This section provides a description of the community facilities and services present in the local study area, or that service communities in the local study area.

Engagement with community stakeholders raised concern with the sustainability of Luddenham village in terms of the continuity of services (education, shopping etc) and community, given the uncertainty about aircraft noise impacts and loss of households due to property acquisition for WSI and other developments.

Education

Within the local study area there are 41 schools (18 government-run and 23 private), including 23 primary schools, 5 secondary schools, 11 combined schools (primary and secondary) and 2 special needs schools.

There are 51 registered childcare centres in the local study area (ACECQA, 2023). The largest proportion of these centres are located in the suburbs of Austral and Glenmore Park.

Health and aged care

There are no hospitals in the local study area.

There are 26 medical centres in the local study area, with the highest numbers in St Clair, Glenmore Park and Austral. Eight out of the 18 suburbs in the local study area do not have medical centres, requiring travel to neighbouring suburbs.

There are 9 aged care facilities in the local study area. The suburbs that have such facilities are Austral (4 aged care facilities), Cobbitty (3), Glenmore Park (one) and Kemps Creek (one).

Recreation

Near WSI is the Twin Creeks Golf and Country Club, Robert Green Oval, Wilmington Reserve, Downes Park, Mulgoa Park and the Workers Hubertus Country Club.

The Blue Mountains is a significant recreation area for residents in Greater Sydney and tourists visiting from elsewhere in NSW, Australia and overseas. The Nepean River in Penrith provides opportunities for boating, fishing, rowing, kayaking and numerous walking tracks along the river.

The Warragamba Dam allows primary and secondary school children to visit on guided excursions to learn about modern water supply and take part in hands-on water activities in the visitor centre.

Places of worship

There are 46 places of worship in the local study area, including 38 churches, 6 temples and 2 mosques. Badgerys Creek and Mount Vernon have no places of worship.

Community centres

There are 12 community centres within the local study area. St Clair and Glenmore Park have the highest number of community centres (4 and 3, respectively). Most of the suburbs do not have any community facilities.

Transport infrastructure

The network of main roads serving the local study area include the M4, M7 and M12 Motorways, Elizabeth Drive, The Northern Road and Badgerys Creek Road. As described in Chapter 4 (Project setting), Sydney Metro – Western Sydney Airport is under construction and would provide connections to St Marys with Orchard Hills, Luddenham, WSI and the Aerotropolis. Longer term planning includes the proposed Outer Sydney Orbital (M9 Motorway). Community engagement identified concerns with public transport connectivity for the northern parts of the local study area through to WSI and further south.

18.4.1.8 Decision-making systems

Decision-making systems is a reference to people's capacity to participate in decision-making systems and accessibility to complaint, remedy and grievance mechanisms. Engagement with key stakeholders and the community within the local study area found that:

- there is uncertainty around the zoning and development controls for land in the Aerotropolis and lack of communication to landowners to understand the implications to their land. The NSW Government has appointed an Independent Community Commissioner for Orchard Hills and the Aerotropolis to work with communities and to raise any issues or concerns with government
- dissatisfaction with the land acquisition process and compensation being offered to landowners impacted by development
- dissatisfaction with the engagement carried out during and following the 2016 EIS and involvement with the decision-making process. Stakeholders expressed their expectation that engagement on this project would enable the community to be better informed and involved in the decision-making process
- the level of detail available to the community prior to the release of this Draft EIS has meant a lack of understanding of the project and its impacts. This has increased the sense of powerlessness and people's capacity to make decisions.

18.4.2 Regional study area

18.4.2.1 Population

At the time of the 2021 Census, the total population in the regional study area was 1,379,196 people, which is just over one quarter (26.4 per cent) of the population in Greater Sydney (5,231,147). Population projections shows that all LGAs are anticipated to experience net growth. The largest population growth is anticipated in Blacktown LGA with a projected 95,465 new residents from 2021–2041, and the largest proportionate change in population is anticipated to occur in Wollondilly (67.4 per cent total growth, 3.4 per cent average annual growth) and Camden (65.7 per cent total growth, 3.3 per cent average annual growth).

The regional study area experienced higher growth than NSW between 2016 and 2021, with an increase of 14.2 per cent compared to 7.9 per cent in NSW. Camden LGA experienced the highest growth of population (52.6 per cent). The Blue Mountains and Hawkesbury LGAs experienced the lowest growth (1.6 per cent and 4 per cent respectively).

The average median age in the regional study area is 37 years old.

Over a half of residents in the regional study area (52.5 per cent) lived in the same place in 2021 as in 2016, 30.4 per cent lived elsewhere in Australia in 2016 and 4.7 per cent lived overseas in 2016. The LGA with the least population mobility is Blue Mountains, with 61.2 per cent of people residing in the same place. The LGA with the most population mobility is Blacktown, with 31.6 per cent of people living elsewhere in Australia in 2016 and 6.8 per cent living overseas. Fairfield had the most people across the regional study area living overseas in 2016.

18.4.2.2 Housing and household composition

Housing

There are a total of 479,566 dwellings in the regional study area, of which 94 per cent are occupied and 6 per cent unoccupied.

Social housing in the regional study area is most prevalent in Fairfield (7.3 per cent) and Liverpool (6.1 per cent), followed by Blacktown LGA (5.9 per cent) and Penrith LGA (3.9 per cent), compared to 3.6 per cent in NSW.

Median weekly rental payments in the regional study area vary between $390 and $500. All LGAs had lower median weekly rents than the NSW average ($420), except for Camden LGA ($500). Fairfield LGA has the lowest rental payment ($390).

Median mortgage repayments vary between $2,00 and $2,500. The lowest mortgage repayment is in Fairfield LGA while the highest is at Camden LGA.

The sales prices for non-strata properties also experienced growth during 2018–2021. As of 2021 the Hawkesbury and Wollondilly LGAs had the highest median sales prices ($1,162,000 and $1,062,000, respectively), while Penrith LGA had the lowest ($949,000).

Family composition

Average household size in the regional study area is 3.2 people. Fairfield and Liverpool LGAs have the highest average household size (3.2 for each LGA), while Blue Mountains LGA is the lowest (2.4 people).

18.4.2.3 Workforce

Employment and income

In the regional study area 26.3 per cent of households are low-income, compared to the average of 25.9 per cent for NSW. Fairfield and Liverpool LGAs have the highest proportions of low-income households (41.4 per cent and 29.8 per cent, respectively). Camden LGA has the lowest (17.2 per cent). At the same time, most LGAs in the regional study area have higher mortgage repayments compared to average NSW.

The rate of unemployment across all LGAs in the regional study area increased from 2018 to 2021 (LMIP, 2022), however has since declined from late 2021 to December 2022. Unemployment is highest in the Fairfield LGA with 8.3 per cent unemployment in December 2022 compared to between 2 per cent and 5.4 per cent in all other LGAs.

The regional study area has similar employment industry profiles to NSW with construction, retail trade, health care and social assistance among the top 5 industries of employment in these areas. The regional study area also has high proportions of persons employed in manufacturing.

In the regional study area 24 per cent worked from home in 2021. LGAs in the regional study area with the highest work from home proportions include Blue Mountains, Camden and Blacktown (around 27.1 to 29.7 per cent).

Tourism

Tourism is an important part of the regional study area economy, particularly in the Blue Mountains. According to the Blue Mountains City Council (2021), tourism:

- brings approximately 4.4 million visitors annually to the Blue Mountains
- provides 2,400 jobs ($121 million in local wages and salaries)
- supports 800 registered tourism businesses
- generates $484 million in turnover ($169 million for supply chains)
- supports $221 million in gross regional product.

Tourism is the second largest employment industry in the Blue Mountains, with two-thirds of these jobs (68.2 per cent) being supported within the accommodation and food services sector. Prior to 2020, the main type of visitor to the Blue Mountains consisted of domestic day-trips (72 per cent), followed by domestic overnight (25 per cent) and international overnight (3 per cent). In 2020, the domestic overnight visitors increased to 34 per cent, with declines in domestic day-trips and international overnight visitation.

COVID-19 and recent natural disasters have had a damaging effect on the tourism industry in the Blue Mountains, with visitation dropping from over 4 million people per year since 2016 to around 2.8 million in 2020. There was a direct loss in revenue of $118 million over 2019/20 – 2020/21, a total gross revenue loss of $186 million (including direct, supply chain, and consumption effects) and a loss of 599 jobs from the workforce.

18.4.2.4 Advantage and disadvantage

Key findings from analysis of the indexes for communities (refer to Section 18.4.1.4) within the regional study area include:

- Fairfield LGA ranked worst with decile one rankings for all indexes, denoting communities who are among the most disadvantaged within NSW
- Liverpool LGA also ranked low for Index of Relative Socio-economic Disadvantage (IRSD) and Index of Education and Occupation (IEO) (4 and 5 deciles, respectively), followed by the Blacktown LGA scoring slightly higher (6 deciles)
- all other LGAs were in the top 30 per cent of least disadvantaged communities in NSW.

18.4.2.5 Community identity and values

Indigenous cultural heritage

In the regional study area there are 39,686 people identifying as Aboriginal and/or Torres Strait Islander people, accounting for 2.9 per cent of the total population. The LGAs within the regional study area with the greater proportions of people identifying as Aboriginal and/or Torres Strait Islander people than the NSW average are Penrith, Hawkesbury and Wollondilly.

Cultural diversity

In the regional study area 34.7 per cent of the population was born overseas. Fairfield LGA has the largest percentage of people born overseas (61.4 per cent), followed by Blacktown LGA (49.6 per cent) and Liverpool LGA (48.8 per cent). The LGAs with lowest percentage of people born overseas are Wollondilly (15.8 per cent), Blue Mountains (21.8 per cent), Camden (25.9 per cent) and Penrith (28.7 per cent).

In the regional study area 20 per cent of households speak a language other than English at home, compared to 29.5 per cent in NSW. The highest proportion of such households include Fairfield (49.8 per cent), Liverpool (32.2 per cent) and Blacktown (25.5 per cent) LGAs.

18.4.2.6 Health and wellbeing

Need for assistance

In the regional study area 5.9 per cent of the population have need for assistance within the 3 core activity areas (self-care, mobility and communication). This is due to long-term health conditions (lasting 6 months or more), a disability, or old age. The LGA in the regional study area with the highest proportion of people needing assistance is Fairfield (9.3 per cent).

Long-term health conditions

The most prominent long-term health conditions in the regional study area are asthma (7.4 per cent), arthritis (7.1 per cent), and mental health conditions (including depression or anxiety) (6.8 per cent), as well as other long-term health condition (7.7 per cent).

The most common long-term health conditions for First Nations communities in the regional study area include asthma (16.0 per cent), mental health conditions (14.9 per cent), other long-term conditions (9.8 per cent), and arthritis (6.9 per cent).

18.4.2.7 Community facilities and services

Education

There are 428 schools in the regional study area, including 287 primary schools, 99 secondary schools, and 42 combined schools (primary and secondary). In addition, there are 82 childcare, long day and preschool facilities within the regional study area. This includes 61 long day care, 13 government funded preschools and 8 government run preschools.

Health and aged care

The regional study area has 12 hospitals.

There are around 19 residential care facilities within the regional study area. These facilities provide an estimated 1,462 residential places and 76 restorative care places (Technical paper 11: Economic).

Recreation

There is a significant number of outdoor recreational spaces across the regional study area, for example:

- Penrith LGA has around 144 parks and reserves
- Liverpool LGA has 512 parks and 217 sporting fields, ovals and courts.

18.5 Assessment of impacts

This chapter provides a summary of the potential residual social impacts derived from the project for the 2033 and 2055 scenarios. Technical paper 10 provides a detailed assessment of the potential pre-mitigated social impacts of the project which also considers the strategic planning context of the study area, including planning strategies, environmental planning instruments, precinct plans, and development controls plans.

18.5.1 Community

The definition of community covers the composition, cohesion and character of communities, how that community functions, its values and resilience and sense of place.

The assessment of community considers the actual or perceived impacts of the project on the community composition and character, and impacts to equality.

18.5.1.1 Changes to community composition and cohesion

An increase in noise levels experienced by those in the local and regional study area may lead to a decision to relocate to maintain their current lifestyle. This can often result in changes to community composition and cohesion for those people who will stay, and those who will leave.

During consultation, local councils and residents raised concerns about the potential loss of community cohesion, noting that communities are experiencing changes to community composition due to rezoning.

Community representatives indicated that even though some people will choose to leave, this may not be an option for others. As such, people leaving the area may result on an altered sense of belonging and community cohesion, especially for those deciding to stay.

By 2033, 74 people may be living within the ANEC 25 contours and 310 people may be living within ANEC 20. These populations are located within parts of the localities of Luddenham, Badgerys Creek, Kemps Creek, Greendale and Silverdale.

Considering people's values to peace and quiet lifestyle it is possible that a portion of people living within those contours may decide to relocate to maintain their lifestyle. Given the larger populations with the LGAs in the regional study area, it is considered unlikely that people deciding to relocate would have a significant impact on community cohesion or sense of place for those deciding to stay.

The changes to community composition and sense of belonging are summarised in Table 18.6 and further explained in Technical paper 10. The assessment has identified that the potential for ongoing impacts to community composition and cohesion would be Medium within the local study area in 2033, reducing to Low by 2055.

Table 18.6 Summary of changes to community composition and sense of belonging

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Changes to community composition and sense of belonging in Luddenham, Badgerys Creek, Kemps Creek, Greendale and Silverdale	Possibly	Moderate	Medium
	Changes to community composition and sense of belonging in the local study area (outside the areas identified above)	Unlikely	Minor	Low
	Changes to community composition and sense of belonging in the regional study area	Very unlikely	Minor	Low
2055	Changes to community composition and sense of belonging in Luddenham, Badgerys Creek, Kemps Creek, Greendale and Silverdale	Very unlikely	Minor	Low
	Changes to community composition and sense of belonging in the local study area (outside the areas identified above)	Very unlikely	Minor	Low
	Changes to community composition and sense of belonging in the regional study area	No impact anticipated		

18.5.1.2 Increased inequality

There are several ways in which aircraft noise can impact population inequality, leading to creating and or exacerbating inequality, such as health, economic and educational disparities.

The extent of aircraft noise-related disturbance on inequality in this assessment was achieved through:

- understanding existing vulnerability conditions
- consulting with affected communities
- understanding people's exposure to aircraft noise.

Vulnerability conditions within both the local and regional study area were identified in census data and during consultation. The number and loudness of flight movements expected to occur arguably corresponds to the magnitude of the inequality impact expected.

Given the different vulnerability conditions to which the populations in the local and regional study areas are exposed, it can be argued that the impacts of noise would be experienced more acutely within the overall study area. As such, it is possible that aircraft noise could lead to a minor increase of socio-economic disadvantage.

WSI, the Aerotropolis and Bradfield City Centre, together with new infrastructure and services associated to those developments, are expected to improve the socio-economic conditions within the regional study area.

The inequality impact is summarised in Table 18.7 and further explained in Technical paper 10 (Section 6.1.2). The assessment has identified that the potential increase of inequality for vulnerable groups located in areas within ANEC 20, N60 and N70 contours for both the 2033 and 2055 scenarios would remain as the only potential impact with a High significance rating in both 2033 and 2055.

Table 18.7 Summary of increased inequality

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Increased inequality for vulnerable groups under ANEC 20, N60 and N70 contours	Likely	Moderate	High
	Increased inequality within the local study area	Possibly	Minimal	Low
	Increased inequality within the regional study area	Possibly	Minimal	Low
2055	Increased inequality for vulnerable groups under ANEC 20, N60 and N70 contours	Likely	Moderate	High
	Increased inequality within the local study area	Possibly	Minimal	Low
	Increased inequality within the regional study area	Not possible to be determined at this point		

18.5.2 Way of life

Way of life is defined as how people live, get around, work, play and interact each day.

The assessment of way of life considers the actual or perceived impacts of the project on the amenity of residential areas as well as other private open spaces and community infrastructure.

18.5.2.1 Changes to way of life as a result of loss of residential amenity

Aircraft noise and/or potential changes to air quality during the day or night could result in changes to way of life via a loss of residential amenity. Changes to way of life might include disruption to working from home and changes in the way people use and enjoy residential indoor and outdoor space (backyards).

During consultation it was raised that noise impacts should be considered from an indoor and outdoor space perspective, noting that the enjoyment of recreational space is a key reason people choose to live in the area.

By 2033 there would be about 310 people located in the ANEC 20 contour, and 74 people located within the ANEC 25. Around 132,000 people would be exposed to an average of more than 10 daily movements above 60 decibels daily, and around 5,100 people would be exposed to an average of more than 5 daily movements above 70 decibels within the regional study area. This level of noise is associated with events that can impact a normal conversation, even in urban areas.

By 2055 the number of people living within the ANEC 20 and 25 contours would increase. It is possible that the increased frequency of aircraft movements by 2055 would lead to loss of residential amenity for those within the local study area who were living on existing dwellings outside ANEC 20 and 25 in 2033. For the regional study area, it is anticipated that new residential developments will meet higher noise insulation standards and people would become accustomed to aircraft noise.

No unacceptable impacts for the local air quality are expected in 2033, meaning the project would not result in any tangible or significant impact to air quality including odour (refer to Chapter 12 (Air quality and greenhouse gas)). Minor exceedances of nitrogen dioxide (NO_2) and particulate matter 2.5 ($PM_{2.5}$) are forecast by 2055 in locations very close to the Airport Site.

The changes to way of life due to residential amenity loss (with mitigation) is summarised in Table 18.7 and further explained in Technical paper 10. The assessment has identified that changes to way of life as a result of loss of amenity would be Medium in the local study area in 2033 and 2055.

Table 18.8 Summary of changes to way of life due to residential amenity loss

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Changes to way of life due to residential amenity loss within the local study area	Possibly	Moderate	Medium
	Changes to way of life due to residential amenity loss within the regional study area	Unlikely	Minor	Low
2055	Changes to way of life due to residential amenity loss within the local study area	Unlikely	Moderate	Medium
	Changes to way of life due to residential amenity loss within the regional study area	Unlikely	Minimal	Low

18.5.2.2 Changes to the use and enjoyment of social infrastructure

Research has documented that noise and visual impacts can change the way people enjoy the use of public and private infrastructure. For example, making it difficult for people to have conversations or simply enjoying the views and quietness.

There are several large recreation and tourism-based land use assets within the study area. Based on the median age of the local and regional study area, plus the large proportion of children and young families, there may be a large percentage of the population who actively use and enjoy the social infrastructure within the study area.

During consultation, concerns were raised about the reduction in quality of open space from noise. The magnitude of this impact is gauged by understanding the predicted levels of noise and visual change to be experienced within the study area. Within the GBMA, visitors may experience changes to the use and enjoyment of walking tracks and lookouts. Technical paper 1 identified that the majority of the broader GBMA is largely outside the area predicted to experience aircraft noise at or above 60 dB and 70 dB.

It can be anticipated that users of public and private infrastructure within noise contours and the landscape impact study area (up to 15 km from WSI) are likely to see diminished enjoyment and use of those spaces, and possibly will increase their usage of other spaces within the local and regional study area. However, for the broader GBMA changes are assessed as being Low.

The changes to the use and enjoyment of social infrastructure (with mitigation) is summarised in Table 18.9 and further explained in Technical paper 10. The assessment has identified that changes to way of life as a result of loss of amenity would be Medium in the local study area and Low in the GBMA and regional study area in 2033, reducing to Low in 2055.

Table 18.9 Summary of changes to the use and enjoyment of social infrastructure

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Changes to the use and enjoyment of social infrastructure within the local study area	Possibly	Moderate	Medium
	Changes to the use and enjoyment for GBMA visitors to lookouts and walking tracks under N60 and N70 contours	Possibly	Moderate	Medium
	GBMA	Possibly	Minimal	Low
	Changes to the use and enjoyment of social infrastructure within the regional study area	Unlikely	Minor	Low
2055	Changes to the use and enjoyment of social infrastructure within the local study area	Very unlikely	Minor	Low
	Changes to the use and enjoyment for GBMA visitors to lookouts and walking tracks under N60 and N70 contours	Possibly	Moderate	Medium
	GBMA	Possibly	Minimal	Low
	Changes to the use and enjoyment of social infrastructure within the regional study area	Unlikely	Minor	Low

18.5.3 Culture

Culture refers to Indigenous and non-Indigenous culture, including shared beliefs, customs, practices, obligations, values and stories, and connection to Country, land, waterways, places and buildings.

The assessment of culture considers the actual or perceived impacts of the project on the Indigenous community's connections to Sky.

18.5.3.1 Effect to Aboriginal cultural values due to impacts tangible and intangible Aboriginal cultural heritage

Impacts to Aboriginal culture are understood by analysing the potential negative effects to tangible and intangible aspects of cultural heritage, and changes to First Nations people's experience and enjoyment during the exercise of cultural practices.

During consultation, concerns about impacts to the cultural and spiritual aspects of Country were raised by the Blue Mountains City Council and Wollondilly Shire Council.

The project would not result in any impacts to Native Title claims. However, Native Title claimants together with First Nations groups residing and connected to the regional study area may experience changes to Aboriginal cultural values. Engagement with First Nations communities identified a list of places of high cultural value.

As discussed in Chapter 17 (Heritage), noise and visual intrusion can impact cultural values where those values include the need for peace, tranquillity, and spiritual connection. 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 also be detrimental to 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 Aboriginal cultural values of Bents Basin and the Shaws Creek – Yellomundee Aboriginal Place, which are places of cultural importance with values associated with peace, tranquillity and connection to nature. These are not located within the GBMA. Impacts to other key sites of cultural significance identified through engagement would have low to moderate impacts due to noise and/or visual intrusion.

It is acknowledged that flight paths affect a limited area within the broader GBMA, which overlaps with sections of the Blue Mountain National Park boundaries. One site within the GBMA (Yellomundee) has been identified as having a potential significant impact from noise intrusion and visual impacts and therefore the social impact to the GBMA Aboriginal cultural values is Medium.

Impacts to Aboriginal culture is summarised in Table 18.10 and further explained in Technical paper 10 . The assessment has identified that potential impacts to Aboriginal culture as a result of the project would be Medium in the local and regional study area in 2033 and 2055.

Table 18.10 Summary of effect to Aboriginal culture

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Impacts to Aboriginal cultural values within the regional study area	Possibly	Minor	Medium
	Impacts to Aboriginal cultural values linked to GBMA	Possibly	Minor	Medium
2055	Impacts to Aboriginal cultural values within the regional study area	Possibly	Minor	Medium
	Impacts to Aboriginal cultural values linked to GBMA	Possibly	Minor	Medium

18.5.3.2 Non-Aboriginal cultural impacts

Impacts to historic heritage places are largely limited as the first principle of flight path design was limiting direct overflights in populated areas (such as Katoomba), although some aircraft may still be visible in the distance and will be heard.

As discussed in Chapter 17 (Heritage), Mulgoa is a historic rural village with several significant historic heritage properties such as Fern Hill Estate and St Thomas Church. These properties would be subject to moderate impacts as they could be directly overflown at relatively low altitudes by 10 to 20 flights per day that reach 60 dB(A) by 2055. This level of noise exposure is associated with the use of RWY05 departures at night and may be lower depending on the choice of runway operating scenario.

During consultation, no specific concerns about historic heritage places were raised by respondents during interviews and a survey. Consequently, it can be argued that while some visual and noise impacts could impact the way people enjoy historical places, it is very unlikely this would cause impact to non-Aboriginal cultural values for the local social locality and regional social localities for both 2033 and 2055 scenarios.

18.5.4 Accessibility

Accessibility refers to how people access and use infrastructure, services and facilities, where provided by a public, private or not-for-profit organisation.

The assessment of accessibility considers the actual or perceived impacts of the project on the housing affordability and availability, the socio-economic sustainability of Luddenham village and schools due to changes to population composition and density.

18.5.4.1 Constrained housing availability and affordability

Flight paths could affect the extent of areas suitable for residential development and therefore limit the availability of housing in some areas. Limited availability may be associated with reduced affordability for some communities, noting existing housing stress was identified in the baseline analysis (Section 18.4).

During consultation, local councils and community organisations raised concerns about how flight paths could limit residential land uses and result in new building requirements for new residential developments.

For the 2033 scenario, the aircraft noise assessment predicts that 93 dwellings would be located within the ANEC 20 contour, while for the 2055 scenario a total of 320 dwellings are anticipated. No new residential development would be permitted within the ANEC 20 and above contours that have not already been approved.

The *Western Sydney Aerotropolis Precinct Plan* (Aerotropolis Precinct Plan) identifies that only a few centres in the Aerotropolis would be suitable for residential uses because of aircraft noise and other airport operational constraints. Badgerys Creek precinct is not suitable for residential development. The Luddenham Village Interim Strategy will inform the Luddenham Village Plan which will outline land use planning provisions and controls (including development within the ANEC 20 contour) relating to Luddenham Village and will be incorporated into the Aerotropolis Precinct Plan.

Considering existing planning controls, estimated population growth and potential changes to land use provisions in Luddenham, it is possible that residing within the ANEC 20 would experience increased housing affordability stress. For the rest of the local and regional study area, it is unlikely that the project would cause significant changes to housing availability and affordability for the 2033 and 2055 scenarios.

The potential impact to housing affordability is summarised in Table 18.11 and further explained in Technical paper 10. The assessment has identified that potential impacts to housing affordability and availability as a result of the project would be Low in the local and regional study area in 2033 and 2055.

Table 18.11 Summary of impacts to housing affordability

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Impacts to housing affordability to communities under ANEC 20	Unlikely	Minor	Low
	Impacts to housing affordability to population within broader local study area	Very unlikely	Minimal	Low
	Impacts to housing affordability to population within broader regional study area	Very unlikely	Minimal	Low
2055	Impacts to housing affordability to population within broader local study area	Very unlikely	Minimal	Low
	Impacts to housing affordability to population within broader regional study area	Very unlikely	Minimal	Low

18.5.4.2 Socio-economic sustainability of Luddenham and accessibility to social services

During consultation, Penrith City Council officers and the Luddenham Progress Association raised concerns about how the uncertainty about flight paths is affecting the ongoing socio-economic sustainability of the Luddenham community, including the continuity of school, shopping and other services (for example, IGA supermarket, post office, doctors, chemist, butcher and bakeries).

Concerns were also raised during consultation about the socio-economic sustainability of the Luddenham and Wallacia public schools due to potential increase of families leaving the area as a result of noise.

It is likely that some people residing locally would decide to relocate as a result of aircraft noise. However, the Aerotropolis Precinct Plan and associated developments are expected to result in an influx of new residents and workers to the local study area, who may access services provided in Luddenham. Prior to the development of the Western Sydney Aerotropolis, however, a decrease of population in Luddenham might occur as a result of uncertainty and changes brought up by the project.

It is possible that Luddenham would experience constraints to the socio-economic sustainability of its village for a moderate period of time. It is expected that, once the Aerotropolis and WSI are fully operational, the sustainability of the Luddenham Village would stabilise and grow.

The impacts to the sustainability of Luddenham Village are summarised in Table 18.12 and further explained in Technical paper 10. The assessment has identified that potential impacts to the socio-economic sustainability of the Luddenham community as a result of the project would be Medium in 2033, reducing to Low by 2055.

Table 18.12 Summary of impacts to the sustainability of Luddenham Village

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Sustainability of Luddenham and accessibility to social services	Possibly	Moderate	Medium
2055	Sustainability of Luddenham and accessibility to social services	Very unlikely	Minimal	Low

18.5.5 Health and wellbeing

Health and wellbeing includes physical and mental health, especially for people vulnerable to social exclusion or substantial change, psychological stress resulting from financial or other pressures, access to open space and effects on public health.

The assessment of health and wellbeing considers the actual or perceived impacts of the project on the community wellbeing and learning environments due to changes to the noise, air and/or visual environments. This also considers effects due to the uncertainty of impacts, resulting in anxiety, annoyance and stress, as well as concerns for impacts to water supply and food produce grown in the vicinity of WSI.

18.5.5.1 Effects to wellbeing as a result of changes to amenity

Changes to wellbeing are determined by understanding the existing health and vulnerability conditions of people potentially affected by changes to amenity, including noise, air quality and night-light, as well as their level of concern regarding the specific issue. The composite contours are considered to identify potential noise exposure to population, noting that the actual numbers could be lower depending on the choice of operating scenario.

Noise and air emissions associated with the project have the potential to affect the physical and mental health and wellbeing of residents, sensitive receivers and users of the area. During consultation, over 200 people selected impacts on health as a key concern in consultation surveys.

For the 2033 scenario, the noise and air quality assessments identified that:

- up to 132,000 people would be exposed to an average of more than 10 daily movements above 60 dB(A)
- up to 31,700 people would be exposed to an average of more than 2 movements above 60 decibels between 11 pm and 5.30 am daily within the regional study area, which might result in sleep disturbance
- up to 5,100 people would be exposed to an average of more than 5 daily movements above 70 dB(A) within the regional study area and this level of noise is associated with events that can impact a normal conversation
- increases in NO_2 are generally limited to a radius of approximately 5–6 km of the Airport Site
- air emissions released higher than a few hundred metres above ground level do not appear to have any significant influence on ground level air quality concentrations

- residents in Luddenham, Greendale, Silverdale, Wallacia and Kemps Creek are likely to experience moderate changes to their wellbeing as a result of changes to amenity (sleep disturbance and annoyance). For residents living elsewhere in the local study area, it is possible they may experience minor changes to wellbeing
- residents located within the regional study area and who may also be frequent visitors to the GBMA are unlikely to experience noticeable changes to their wellbeing.

For the 2055 scenario, Technical paper 1 and Technical paper 2 identified that:

- up to 1,120 people may be living in ANEC 20 contour
- up to 175,000 people within the regional study area would be exposed to an average of more than 10 daily movements above 60 dB(A)
- up to 91,600 people would be exposed to an average of more than 2 movements above 60 dB(A) between 11 pm and 5.30 am daily within the regional study area, which might result in sleep disturbance
- up to 13,000 people would be exposed to an average of more than 5 daily movements above 70 dB(A) within the regional study area
- increases in NO_2 concentrations are predicted in the vicinity of the Airport Site
- for all other pollutants, the impact of emissions from the project on the existing pollutant concentrations would be negligible and would be unlikely to be discernible above background air quality concentrations
- residents in Luddenham, Greendale, Silverdale, Wallacia and Kemps Creek are almost certain to experience moderate changes to their wellbeing as a result of changes to amenity (sleep disturbance and annoyance). For residents living elsewhere in the local study area, it is possible they would experience minor changes to wellbeing
- GBMA visitors to lookouts and walking tracks under N60 and N70 contours would possibly experience minimal changes to wellbeing.

The effects to wellbeing due to aircraft operation noise and emissions are summarised in Table 18.13 and further explained in Technical paper 10. The assessment has identified that potential detrimental impacts to wellbeing would be Medium in the local study area in both 2033 and 2055.

Table 18.13 Summary of effects to wellbeing because of aircraft operation noise and emissions

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Detrimental effects to wellbeing as a result of changes to amenity to populations of Luddenham, Greendale, Silverdale, Wallacia and Kemps Creek	Possibly	Moderate	Medium
	Detrimental effects to wellbeing as a result of changes to amenity to population within the local study area (excluding above)	Unlikely	Minor	Low
	Detrimental effects to wellbeing as a result of changes to amenity for GBMA visitors to lookouts and walking tracks under N60 and N70 contours	Unlikely	Minimal	Low
	Detrimental effects to wellbeing as a result of changes to amenity to those within the regional study area	Unlikely	Minimal	Low

Scenario	Extent	Likelihood	Magnitude	Residual impact
2055	Detrimental effects to wellbeing as a result of changes to amenity to populations of Luddenham, Greendale, Silverdale, Wallacia and Kemps Creek	Possibly	Moderate	Medium
	Detrimental effects to wellbeing as a result of changes to amenity to population within the local study area (excluding above)	Unlikely	Minor	Low
	Detrimental effects to wellbeing as a result of changes to amenity for GBMA visitors to lookouts and walking tracks under N60 and N70 contours	Unlikely	Minor	Low
	Detrimental effects to wellbeing as a result of changes to amenity to those within the regional study area	Unlikely	Minor	Low

18.5.5.2 Wellbeing for First Nations people

First Nations people may experience diminished wellbeing issues from changes to environmental conditions (noise, air quality, night-light), as well as from changes to cultural values and their enjoyment and continuous exercise of cultural practices.

The identified prevalence of underlying long-term health conditions on Aboriginal and/or Torres Strait Islander communities could be exacerbated by changes in the environment and to cultural heritage.

Technical paper 9 noted that Knowledge Holders expressed they felt emotionally drained and, in some cases, overwhelmed by the cumulative impacts of successive developments in Western Sydney. While it is not possible to determine the location of First Nations people in relation to noise exposure, it can be argued that it is possible First Nations people living under the ANEC, N70 and N60 noise contours are likely to experience moderate changes to their wellbeing, considering potential underlying health conditions that could be exacerbated.

The effects to wellbeing for First Nations populations are summarised in Table 18.14 and further explained in Technical paper 10 (Section 6.5.2). The assessment identified that the potential for diminished wellbeing for First Nations people would be Medium in the local study area in 2033 and 2055.

Table 18.14 Summary of effects to wellbeing for First Nations populations

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Diminished wellbeing for First Nations people living under ANEC 20, N60 and N70 noise contours	Possibly	Moderate	Medium
	Diminished wellbeing for First Nations people living elsewhere in the local and regional study area	Unlikely	Minimal	Low
2055	Diminished wellbeing for First Nations people living under ANEC 20, N60 and N70 noise contours	Possibly	Moderate	Medium
	Diminished wellbeing for First Nations people living elsewhere in the local and regional study area	Unlikely	Minimal	Low

18.5.5.3 Changes in children's behaviour, attentiveness and cognitive learning as a result of aircraft noise

A total of 41 schools with a total of 19,185 enrolments in 2022–2023 are located within the local study area, 2 of which are special needs schools. Additionally, there are 51 registered childcare centres in the local study area.

Aircraft-related noise, emissions and vibrations may affect children's behaviour and attentiveness at school, also affecting the staff's ability to teach and overall educational and wellbeing outcomes for students, families and staff. Literature suggests that exposure to aircraft noise can have negative impacts on children's cognitive performance, including attention, memory and academic achievement.

Consultation identified that around a quarter of children in some LGAs are developmentally vulnerable. Aircraft noise may affect students' sleep but also affect students and staff when at school. Distraction may arise from noise, as well as visually with children looking at planes, which may affect children with mental disabilities or sensory issues more than others. There were fewer concerns raised during consultation about impacts on play time. Consultation also identified that learning occurs outside schools, and the impact on learning and teaching will also be within homes if these are impacted by noise.

Technical paper 12 identified areas where learning delays are considered to be of potential significance, with many of these areas consistent with those identified as of potential significance in relation to sleep disturbance and annoyance. However, no schools or childcare centres are located within these areas. It is possible that children attending educational facilities under the N60 and N70 noise contours in the broader local study area and regional study area would experience some level of distraction that could affect their attentiveness and cognitive learning, resulting in a Low pre-mitigated impact. However, this impact would be experienced more acutely by children with cognitive disability.

For 2055, Technical paper 12 identified potential learning delays relevant to childcare and schools located within Luddenham, Greendale, Silverdale, Wallacia and Kemps Creek. However, none of the noise impacts associated with the project at these locations are high enough to be of concern in relation to community health (i.e., learning delays are all less than 30 days). It is anticipated that by 2055, children within ANEC 20 (at Mamre Anglican School) and N60 and N70 contours would have adapted to some extent to aircraft noise, and that schools would have adopted some measures to mitigate noise. Children attending the schools that were not previously under noise contours may encounter some level of distraction that could affect their attentiveness and cognitive learning, which would be experienced more acutely by children with cognitive disability.

The changes to children's behaviour, attentiveness and cognitive learning as a result of aircraft noise is summarised in Table 18.15 and further explained in Technical paper 10. The assessment identified that the potential for changes to children's behaviour as a result of aircraft noise would be Medium in 2033 and 2055.

Table 18.15 Summary of changes to children's behaviour, attentiveness and cognitive learning in educational settings as a result of aircraft noise

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Changes in behaviour, attentiveness, and cognitive learning of children with cognitive disability as a result of aircraft noise for those who attend educational facilities under N60 and N70 24-hr noise contours	Possibly	Minor	Medium
2055	Changes in the behaviour, attentiveness, and cognitive learning of children with cognitive disability attending Mamre Anglican School	Possibly	Moderate	Medium

Scenario	Extent	Likelihood	Magnitude	Residual impact
	Changes in the behaviour, attentiveness, and cognitive learning of children with cognitive disability as a result of aircraft noise for those who attend educational facilities under N60 and N70 24-hr noise contours	Possibly	Minor	Medium

18.5.6 Surroundings

Surroundings includes ecosystem services such as shade, pollution control, public safety and security, access to and use of the natural and built environment, aesthetic value and amenity.

The assessment of surroundings considers the actual or perceived impacts of the project on the amenity of the local study area, the aesthetic and amenity values of the GBMA, risk to water quality within natural environments and the biodiversity values of the natural environment.

18.5.6.1 Social values associated with the Blue Mountains

A section of the GBMA was listed as a World Heritage Area in 2000, recognising the area's outstanding natural beauty, unique geological formations and rich biodiversity. The area is also recognised for its cultural significance to First Nations communities, who have inhabited the region for over 22,000 years and continue to maintain strong cultural connections to the land.

During consultation, stakeholders highlighted the importance of recreational and touristic values, as well as heritage and ecological values associated with the GBMA. Much of the area’s value lies in the wilderness and quietness, with significant associated heritage and ecological values recognised in the World Heritage listing. The Blue Mountains is also a significant economic asset and a key contributor to the tourism and visitor economy.

Technical paper 14 concluded that while some noise and visual impacts may potentially occur to the wilderness areas, these are considered to be generally insignificant for a vast majority of wilderness areas and are not considered to be such that they would interfere with the values attributed to the wilderness nature of the GBMA. Potential indirect impacts may be observed for tourism and recreation values.

Based on the altitude of aircraft overflying scenic areas and the distance of WSI from vantage points within the GBMA, it is not expected that a significant impact would occur because of the project (refer to Technical paper 7).

Aircraft noise can result in changes to the social values associated with the GBMA for the 2033 and 2055 scenarios including:

- recreation and tourism values manifested on a medium pre-mitigated impacts to the way people enjoy and use open space within GBMA
- cultural values resulting on medium pre-mitigated impacts to First Nations cultural values
- social and economic values resulting on low pre-mitigated impacts to the tourism and livelihoods
- bequest, inspiration, wilderness values resulting on low pre-mitigated impacts to wellbeing.

It is possible the combined effects on GBMA associated values would result in moderate changes to the way people enjoy, use and value the GBMA.

The diminished social values associated with the Blue Mountains is summarised in Table 18.16 and further explained in Technical paper 10. The assessment has identified that the potential for diminished social values associated with the Blue Mountains would be Low in 2033, increasing to Medium in 2055.

Table 18.16 Summary of social values associated with Blue Mountains

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Diminished social values associated with Blue Mountains within the regional study area	Unlikely	Minor	Low
2055	Diminished social values associated with Blue Mountains within the regional study area	Unlikely	Moderate	Medium

18.5.6.2 Sense of safety and clean environment concerns due to air quality changes

There would potentially be an increase in aircraft that fly over the catchment of the Lake Burragorang/Warragamba Dam and Prospect Reservoir as a result of the project.

During consultation, stakeholders and community representatives raised concerns about flight paths going over the Lake Burragorang/Warragamba Dam potentially affecting water quality. There are a number of residential and agricultural properties within the local area who rely on rainwater collected in water tanks, raising concerns on drinkable water and agricultural production. At a smaller scale, residents who grow vegetables in their garden were also concerned about the future quality of their products.

Fuel jettisoning is conducted only in emergency situations and in accordance with appropriate procedures. There are limited occurrences of impacts at ground level associated with fuel jettisoning in the wider international incident record, confirming that the risk is very small (refer to Chapter 13 (Aircraft hazard and risk)).

Chapter 12 (Air quality and greenhouse gas) identified that for 2033 scenario there are no tangible or significant impact to air quality from the project. Increases in NO_2 are generally limited to a radius of approximately 5–6 km of the Airport Site. Emissions released higher than a few hundred metres above ground level do not appear to have any significant influence on ground level air quality concentrations. For the 2055 scenario, the impact of emissions from the project on the existing pollutant concentrations would be negligible and would be unlikely to be discernible above background concentrations, except for NO_2 which increases in the vicinity of the Airport Site.

The reduced sense of safety and clean environment concerns due to air quality changes is summarised in Table 18.17 and further explained in Technical paper 10. The assessment has identified that the potential for a reduced sense of safety and clean environment concerns due to air quality changes would be Low in 2033 and 2055.

Table 18.17 Summary of safety and clean environment concerns due to air quality changes

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Reduced sense of safety and clean environment due to air quality changes in the local areal	Unlikely	Minor	Low
	Reduced sense of safety and clean environment within the regional study area	Unlikely	Minimal	Low
2055	Reduced sense of safety and clean environment due to air quality changes in the local areal	Unlikely	Minor	Low
	Reduced sense of safety and clean environment within the regional study area	Unlikely	Minimal	Low

18.5.6.3 Environmental values resulting from concerns about biodiversity affected by noise and air quality

During consultation, community representatives raised concerns about diminished environmental values as a result of noise impacts on fauna and especially on endangered species. The concerns were largely focussed on diminished environmental values in the GBMA. Concerns about potential changes to air quality affecting biodiversity were also raised.

Environmental values associated with impacts on biodiversity were largely limited to wildlife impacts. The impacts were noted to be highest where aircraft generate the most noise, which is generally when aircraft are flying low or taking off/landing. Therefore, most noise-related impacts would be limited to near the runway/s, and the predicted noise levels are unlikely to result in changes at a magnitude that would threaten the viability of local populations of any species (refer to Chapter 16 (Biodiversity)).

Any alterations to air quality would be temporary, localised and unlikely to impact biodiversity values. Ecosystems in the region would not however be directly impacted upon and impacts are unlikely to result in a long-term decline that would threaten the viability of any of these ecosystems.

Consequently, it can be argued that no impacts to biodiversity values would occur for the broader local and regional social localities given that impacts to wildlife are likely to be minimal and that limited concerns about biodiversity outside the GBMA were raised. The social-environmental values attached to the GBMA are assessed separately in Section 18.5.6.1.

18.5.7 Livelihoods

Livelihoods includes people's capacity to sustain themselves through employment or business.

The assessment of livelihoods considers the actual or perceived impacts on property and impacts to the livelihoods of people who participate in the Blue Mountains tourism economy.

18.5.7.1 Impacts on residential property values

As outlined in Chapter 19 (Economic), 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 project. Total impacts have 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.

During consultation, stakeholders raised concerns about property prices, additional changes to land use, additional costs for property modifications and potential for property acquisition.

The impacts on property values are summarised in Table 18.18 and further explained in Technical paper 10. The assessment has identified that the potential impact to residential property values would be Low in 2033 and 2055.

Table 18.18 Impacts on residential property values

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Impacts on residential property values within the local study area	Unlikely	Minor	Low
	Impacts on residential property values within the regional study area	Unlikely	Minimal	Low
2055	Impacts on residential property values within the local study area	Unlikely	Minor	Low
	Impacts on residential property values within the regional study area	Unlikely	Minimal	Low

18.5.7.2 Potential risk to the visitor economy and livelihoods associated with GBMA World Heritage Listing

During consultation, concerns were raised about how outdoor activities in the Blue Mountains area would be affected, impacting visitation and the visitor economy in the area. Concerns were raised about the potential loss of the UNESCO heritage listing and its impacts on visitation numbers, particularly national and international visitors.

There have not been cases in which a UNESCO heritage site has lost its status due to aircraft noise. The process of a site losing its World Heritage status is rare and typically involves significant concerns related to the site's conservation or management, and the decision to remove a site from the list is made by the UNESCO World Heritage Committee after careful evaluation.

Negative impacts to the tourism economy resulting from aircraft noise in Australia have been documented (for example, a 2018 University of Technology Sydney study and 2015 Gold Coast Tourism Corporation report on aircraft noise and impact on tourism).

Technical paper 11 identified a number of short-stay accommodations inside the N60 contour and none inside the N70 contour, located in the St Marys to Penrith urban corridor with only one in the Blue Mountains. Consequently, the technical paper determined that it is not expected any of those places would lose any revenue in any measurable way. Moreover, the visual impacts are not considered significant enough to result in any measurable economic impacts in terms of visitation numbers to the Blue Mountains area. As a result, there would be no loss in tourism spend in the area and hence no impacts on the local economy.

The potential risk to the visitor economy and livelihoods associated with GBMA World Heritage Listing is summarised in Table 18.19 and further explained in Technical paper 10. The assessment has identified that the potential risk to the visitor economy and livelihoods associated with the GBMA World Heritage Listing would be Low in 2023 and 2055.

Table 18.19 Potential risk to the visitor economy and livelihoods associated with Blue Mountains World Heritage Listing

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Impact to the tourism and livelihoods associated with Blue Mountains World Heritage Listing for Leura, Katoomba, Springwood, Winmalee, Blaxland, Warrimoo, Lapstone, Mount Irvine, Blackheath, and Mount Victoria	Very unlikely	Minimal	Low
	Impact to the tourism and livelihoods associated with Blue Mountains World Heritage Listing for the Regional study area	Very unlikely	Minimal	Low
2055	Impact to the visitor economy and livelihoods associated with Blue Mountains World Heritage Listing for the Local study area	Very unlikely	Minimal	Low
	Impact to the visitor economy and livelihoods associated with Blue Mountains World Heritage Listing for the Regional study area	Very unlikely	Minimal	Low

18.5.8 Decision-making systems

As outlined in Section 18.4.1.8, decision-making systems is a reference to people's capacity to participate in decision-making systems and accessibility to complaint, remedy and grievance mechanisms.

The assessment of decision-making systems considers the community's level of distrust and level of participation in the project based on its understanding of the project and its impacts.

18.5.8.1 Limited capacity to participate due to a lack of understanding of flight paths and potential impacts

Communication, transparency and education about flight paths and associated impacts was consistently raised by stakeholders and community representatives as a key concern. A lack of understanding and limited flight path information publicly available has resulted in an increased sense of uncertainty, affecting people's capacity to decide over their future.

SIA consultation identified:

- a limited understanding of noise impacts
- limited information available results in limited feedback
- a lack of understanding of noise meant some people believed they could continue to live at their residences with no major change
- scepticism about how genuine the consultation process is, though some mentioned they appreciated the level of consultation.

After SIA consultation and prior to the display of the Draft EIS, the WSI Aircraft Overflight Noise Tool allowed people within the local and regional study areas to have a better understanding of the noise exposure at their residences and in places of interest more broadly.

In addition, an extended period for EIS public exhibition and targeted engagement during the extended EIS public exhibition period with those eligible for amelioration has been provided to further the opportunity for those affected to give feedback to the project.

Project engagement has taken place within the local and regional study area and there has been additional opportunities for engagement during Draft EIS public exhibition. However, it is possible that some residents and service providers within the local and regional study areas could still have limited understanding about the flight paths, impacting their capacity to effectively engage and influence decision-making over issues that may affect their lives.

The limited capacity to participate due to a lack of understanding of flight paths and potential impacts (based on engagement prior to the EIS display) is summarised in Table 18.20 and further explained in Technical paper 10. The assessment has identified that the potential risk to the visitor economy and livelihoods associated with the Blue Mountains World Heritage Listing would be Medium in 2023 and 2055.

Table 18.20 Summary of capacity to participate due to a lack of understanding of flight paths and potential impacts

Scenario	Extent	Likelihood	Magnitude	Residual impact
2033	Limited capacity to participate due to a lack of understanding about preliminary flight paths and potential impacts within the local study area	Unlikely	Moderate	Medium
	Limited capacity to participate due to a lack of understanding about flight paths and potential impacts within the regional study area	Possibly	Minor	Medium

Scenario	Extent	Likelihood	Magnitude	Residual impact
2055	Limited capacity to participate due to a lack of understanding about flight paths and potential impacts within the local study area	Unlikely	Moderate	Medium
	Limited capacity to participate due to a lack of understanding about flight paths and potential impacts within the regional study area	Unlikely	Minor	Medium

18.5.9 Refinements to the project

The introduction of the RRO noise abatement procedure (RRO-NAP) and the reallocation of jet aircraft from Runway 23 Departure Northeast Night (RRO) (D28) flight path to the Runway 23 Departure Southeast Night (RRO) flight path (D32) would result in a change in noise impacts at night. The key social impact categories relevant to these refinements relate to community (increased inequality), way of life (loss of residential amenity), health and wellbeing (changes to amenity), and surroundings (social values associated with the Blue Mountains). Changes in impact would be limited to when the RRO mode of operation is in use (11pm and 5:30 am). These key social impact categories are considered in Table 18.21. Further assessment is provided in Section G2.10 of Appendix G (Assessment of the refinements to the project) of the EIS.

Table 18.21 Consideration of key social impact categories – RRO-NAP and reallocation of D28 to D32

Social impact category	Assessment
Community – increased inequality	The issue considers the understanding of existing vulnerabilities within the community, exposure to aircraft noise and the number of flights expected to occur. For vulnerable groups within the N60, N70 and ANEC contours, the assessment as presented in the Draft EIS acknowledged a moderate magnitude resulting in a high residual impact. Given the low levels of aircraft traffic associated with this runway mode of operation, and restricted timing at which it can occur (i.e. only under certain weather and air traffic conditions), it is not expected that the implementation of the refinements would change the overall magnitude of impact or the resulting residual impact for people under vulnerable conditions as presented in the Draft EIS.
Way of life – loss of residential amenity	This issue considers disruptions to indoor and outdoor activities that may occur due to aircraft noise. While the refinements would shift noise impacts from one population to another, the overall magnitude of impact would not change given the low levels of traffic and restricted timing for when the runway mode of operation or the RRO-NAP is in place.
Health and wellbeing – changes to amenity	This issue considered impacts to physical and mental health and wellbeing due to changes in amenity (noise, air and light). The Draft EIS acknowledged that, among other areas, the suburbs of Luddenham, Greendale, Silverdale, and Wallacia would be likely to experience some level of sleep disturbance and annoyance, and that these areas would experience a moderate change to wellbeing as a result of changes to amenity. While the refinements would shift amenity impacts within each specific suburb, it is expected that the overall magnitude of the impact would generally remain the same as assessed in the Draft EIS.
Surroundings – social values associated with the Blue Mountains	This issue considered a range of elements, such as cultural values, recreation, tourism, wilderness and aesthetic values. Given the low levels of traffic and restricted timing for when the runway mode of operation or the RRO-NAP is in place, the refinements would result in a limited change to the impacts as presented in the Draft EIS. It is noted however that during the operation of the RRO-NAP, there may be some minor to negligible positive impacts to areas of the Blue Mountains that are no longer overflown, which may provide some benefit to users of camping sites or similar recreation areas during this time.

For the other refinements to the preliminary flight paths, the social impact assessment outcomes as presented in the Draft EIS would not worsen as these would result in the removal of a flight path, or marginal changes in the position of a flight path where aircraft would be at high altitudes (over 9,000 ft (2.7 km) to 10,000 ft (3km)).

Further detail is provided in Section G2.10 of Appendix G (Assessment of the refinements to the project) of the EIS.

18.6 Mitigation and management

18.6.1 Existing management measures relevant to the mitigation of social impacts

The 2016 EIS proposed management measures related to Stage 1 Development of WSI, which are relevant to the social impacts identified in this report. These included:

- aligning the Australian Government, NSW Government, and Western Sydney local government's economic and employment policies, strategies and plans to realise the full benefit from the proposed airport and other projects in the Western Sydney region
- continuing liaison with relevant agencies that may include local and state government agencies, tourism agencies, agencies responsible for affordable housing, Western Sydney Business Chamber and educational facilities including universities and TAFE, to inform agency planning activities and allocation of funding to programs that may benefit or otherwise be affected by the proposed airport
- continuing engagement with key stakeholders through the ongoing WSI Communication and Engagement Strategy
- implementing mitigation and management measures that would also address social amenity impacts as detailed in the relevant Draft EIS technical studies including aircraft and ground-based operational noise assessments; surface transport and access assessment; local air quality and greenhouse gases assessment; landscape character and visual impact assessment; community health risk assessment; and regional air quality assessment
- finalising, communicating, and implementing a proposed noise mitigation policy to address landowner anxiety regarding noise impacts
- implementing other mitigation measures that may address community concerns, including measures such as air quality and water quality monitoring within or in the vicinity of the proposed airport.

In addition, strategic 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 National Airport Safeguarding Framework (NASF) Guidelines. This has been ongoing for over a decade in conjunction with planning for WSI and is well established in existing planning instruments. This has been an effective means to ensure that land use near WSI is compatible with noisy aviation activities, with a primary goal of minimising the population affected by aircraft noise, through implementation of land-use planning measures, such as land use zoning around WSI. Appropriate noise management controls referencing the NASF and AS 2021:2015 have also been included in applicable planning instruments in advance of WSI's airport operations.

18.6.2 Mitigation measures

Table 18.22 provides preliminary management and mitigation measures to avoid, minimise or mitigate negative impacts and to maximise the positive impacts identified.

Table 18.22 Proposed mitigation measures – social

ID No.	Issue	Mitigation measure	Owner	Timing
S1	Social impacts	The WSI 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.	WSA Co	**Pre-operation** (Detailed design, 2024–2026)
S2	First Nations employment	WSA Co will implement a program to ensure opportunities for First Nations employment.	WSA Co	**Operation** (Implementation, 2026–ongoing)

The implementation of the mitigation measures outlined in this Draft EIS, and the existing controls (specific to WSI or more broadly to the management of federally leased airports) would reduce high or very high (pre-mitigated) impacts to medium except for the potential increase of inequality for vulnerable groups within areas contained within ANEC 20, N60 and N70 contours for the 2055 scenarios.

18.6.3 Dependencies and interactions with other mitigation measures

Interactions among mitigation measures relevant to social impacts in the following technical papers include:

- Chapter 11: Aircraft noise, specifically those relating to the finalisation of the noise insulation and property acquisition (NIPA) policy, noise abatement procedures, noise complaints handling, the post-implementation review of the project and the establishment of a CACG to ensure appropriate community engagement on airport planning and operations.
- Chapter 12: Air quality and greenhouse gas, specifically that WSA Co will continue to monitor ambient air quality in the vicinity of the Airport Site to quantify the existing levels and monitor trends in pollutant concentrations over time and identify any exceedances or improvements. This will be undertaken in accordance with the requirements set out for the WSI Stage 1 Development Air Quality OEMP.
- Chapter 13: Aircraft hazard and risk, specifically measures concerning fuel jettisoning and wildlife strike.
- Chapter 14: Land use, specifically, the requirement for 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, and the management of wildlife strike.