Appendix G

Assessment of the refinements to the project

G1 Description of proposed refinements

G1.1 Overview

A series of refinements to the preliminary flight paths have been identified as part of ongoing development and following submissions received during the public exhibition of the Draft EIS. These refinements provide functional improvements to the preliminary flight path designs and can be safely implemented within the existing and proposed airspace.

The proposed refinements to the preliminary flight path designs as described in this finalised EIS are collectively referred to in this report as the 'revised flight path designs'. The key refinements proposed are:

- minor refinement to preliminary flight path D10 to provide a more westerly alignment north of Linden (refer to Section G1.2)
- removal of Required Navigation Performance – Approval Required approach (A13) south of Linden (refer to Section G1.3)
- minor refinement to preliminary flight path A21 (RRO night approach to Runway 05) to provide a more southerly alignment (refer to Section G1.4)
- refinements to the RRO runway mode of operation (refer to Section G1.5) as follows:
  - the withdrawal of preliminary flight path D28 for jet operations and the reallocation of those aircraft to preliminary flight path D32 (refer to Section G1.5.1)
  - the introduction of a new RRO noise abatement procedure (RRO-NAP) (refer to Section G1.5.2).

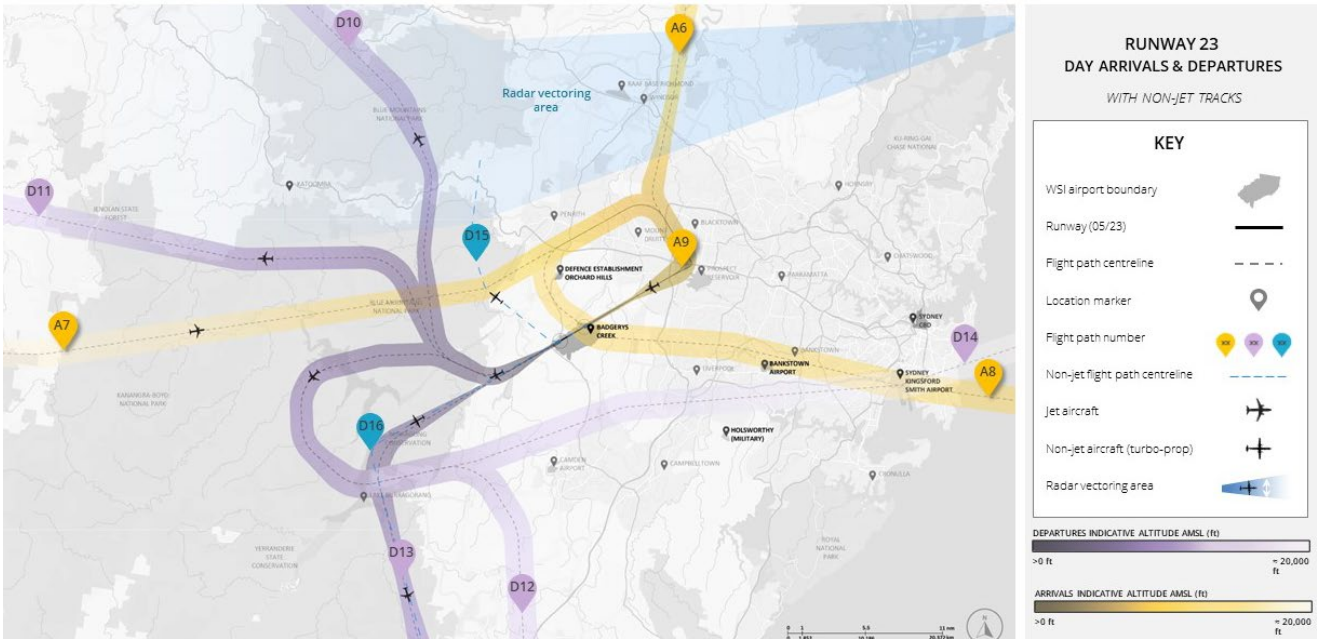
G1.2 Mt Tomah, Mt Wilson and Mt Irvine

The proposed change would realign a section of the daytime northern jet departures preliminary flight path Runway 23 Departure North Day (preliminary flight path D10) further away from the Mt Tomah, Mt Wilson and Mt Irvine areas. The new alignment would be located to the south and west of the preliminary flight path presented in the Draft EIS and, at the widest point of realignment, be up to around one nm (2 km) further west than the preliminary flight path presented in the Draft EIS.

The realignment would commence from a point over one nm (around 2.5 km) north of Linden (where flights would be at an altitude of around 11,000 ft (3.4 km)) and merge back to the preliminary flight path generally to the east of Lidsdale at around 18,000 ft (5.5 km) (refer to Figure G.1 (Draft EIS) and Figure G.2 (refined flight path).

The proposed realignment of the flight path would:

- move the Runway 23 northern jet departures preliminary flight path approximately one nm (2 km) further away from Mt Tomah and 0.9 nm (1.8 km) from Mt Wilson/Mt Irvine residential areas, therefore providing additional lateral distance between the preliminary flight path and these communities
- change the location of the preliminary flight path to provide additional lateral separation between the preliminary flight path and the Emu Cave Aboriginal Place site
- not increase the required fuel burn from aircraft (due to increased flight length) or reduce airport efficiency compared to the preliminary flight path presented in the Draft EIS.



Source: Draft EIS Figure 7.8

Figure G.1 Mt Tomah, Mt Wilson and Mt Irvine preliminary flight path as presented in the 2023 Draft EIS

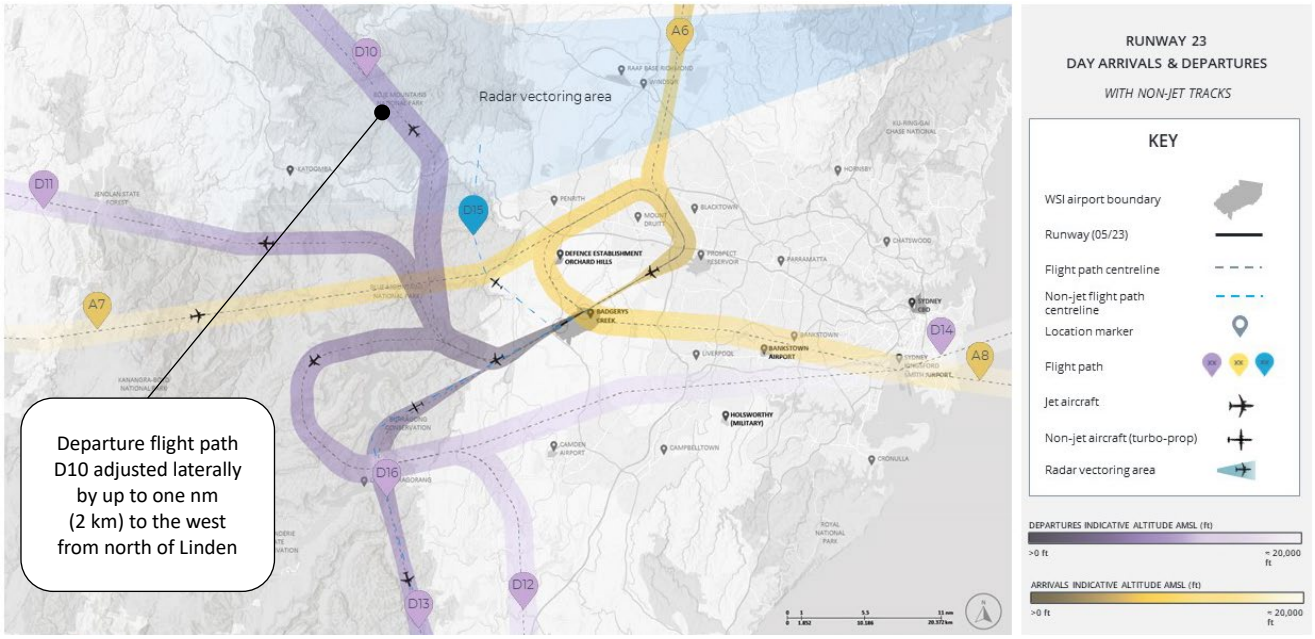
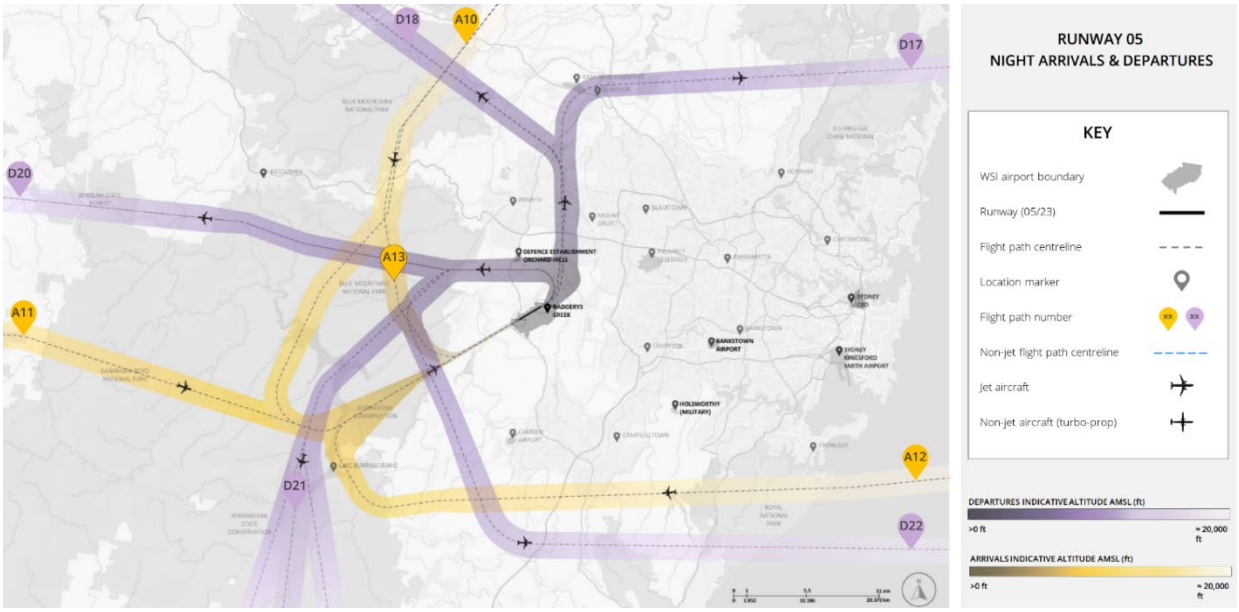


Figure G.2 Mt Tomah, Mt Wilson and Mt Irvine refined preliminary flight path

G1.3 Required Navigation Performance – Approval Required approach

The proposed change would remove the Required Navigation Performance – Approval Required (RNP AR) preliminary flight path (Runway 05 Arrival (RNP) North Night – preliminary flight path A13) identified in the Draft EIS during night time periods (refer to Figure G.3). Flights approaching WSI would instead utilise the alternative preliminary flight path A10 (refer to Figure G.4) as presented in the EIS.

Removal of the RNP AR approach flight path at night would result in an increase in the altitude of aircraft which fly over the residential areas on this approach. In particular, removal of the RNP AR approach flight path and use of the Runway 05 Arrival North Night flight path (preliminary flight path A10) would result in all aircraft on this approach path flying over Linden and Woodford at a height of around 12,000 ft (3.7 km) rather than around 5,000 ft (1.5 km), which would occur on the proposed RNP AR approach flight path as described in the Draft EIS.



Source: Draft EIS Figure 7.9

Figure G.3 Required Navigation Performance – Approval Required as presented in the 2023 Draft EIS

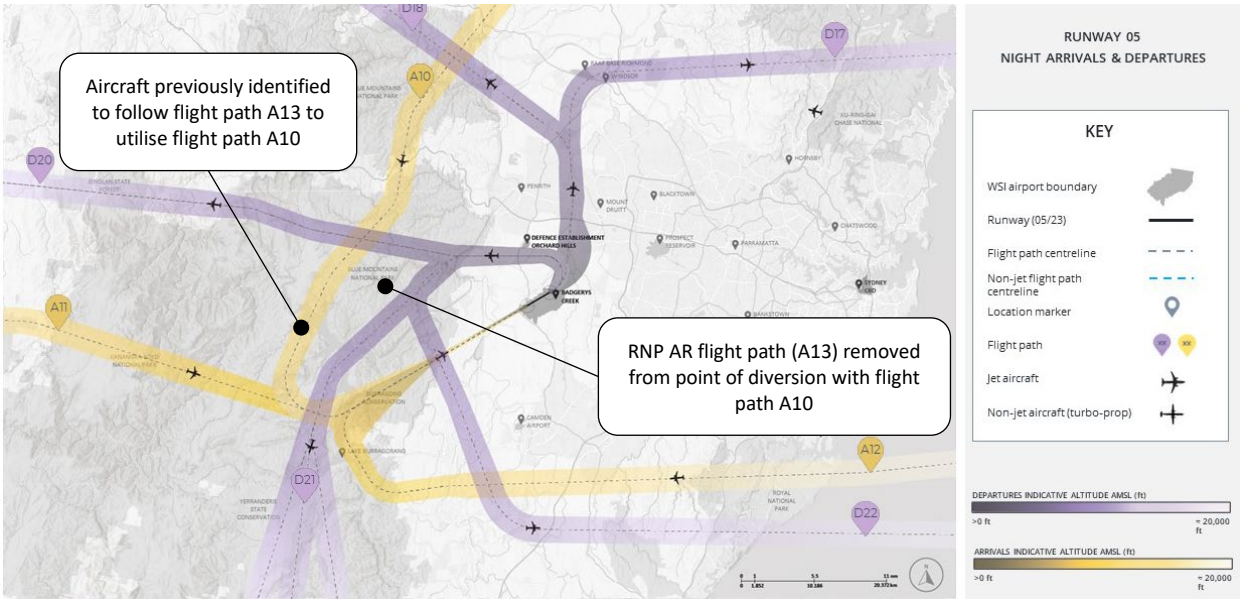


Figure G.4 Required Navigation Performance – Approval Required approach removal

The proposed removal of the RNP AR flight path would:

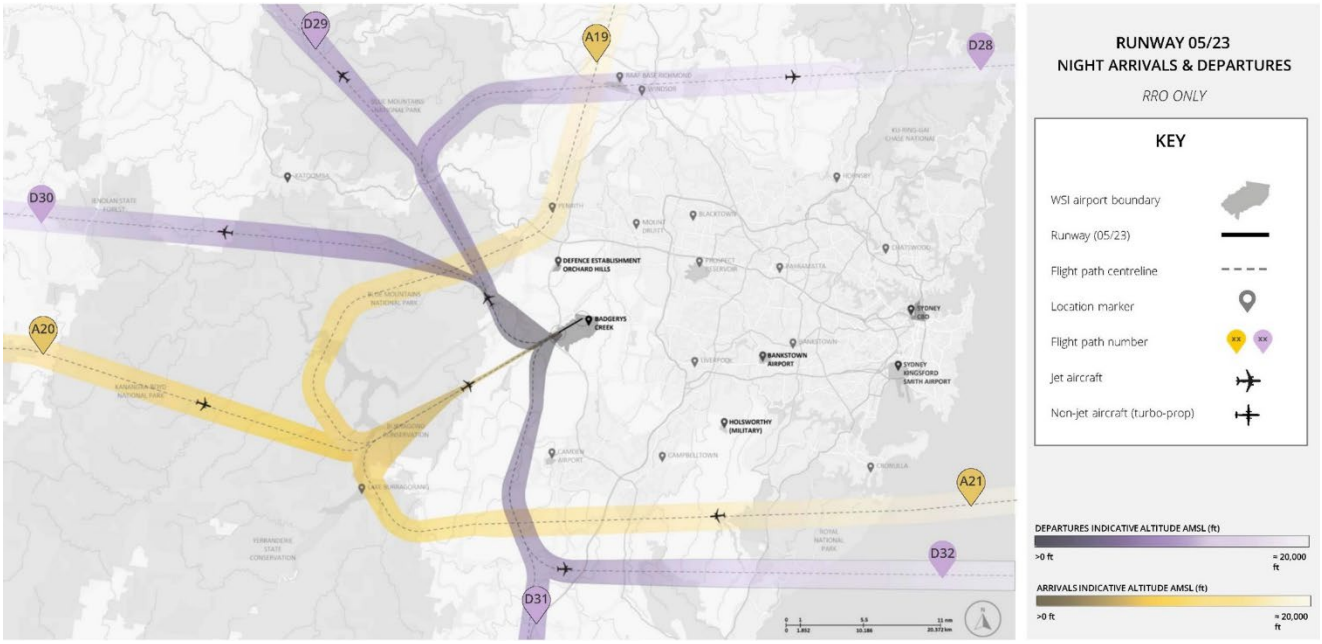
- result in a measurable noise benefit to the communities of Linden and Falconbridge when RNP AR capable aircraft are approaching Runway 05 at night
- allow aircraft passing over the Linden observatory to pass this location at a higher altitude, reducing the extent of visual intrusion to this site
- result in reallocation of aircraft to preliminary flight path A10, resulting in a minor increase in fuel burn for RNP AR capable aircraft at night.

G1.4 RRO night approach to Runway 05 (Arrival East)

The proposed change would move the Runway 05 Arrival East Night flight path (preliminary flight path A21) that approaches WSI from the east around 0.8 nm (1.5 km) further south at the point where it crosses the coastline south of Bundeena. Arriving aircraft at the point south of Bundeena would be at an altitude around 15,000 ft (4.5 km) (refer to Figure G.5 (Draft EIS) and Figure G.6 (refined flight path)).

The revised flight path would continue to provide separation between the arrival (A21) and departure (D22) preliminary flight paths. The realigned preliminary flight path would merge with the preliminary flight path at a point near the suburb of Mount Hunter (at an altitude of around 9,000 ft (2.7 km)). From this point, the revised flight path would continue to WSI along the same flight path alignment as presented in the Draft EIS (A21).

The proposed refinement to the flight path would result in a series of benefits compared to the preliminary flight path presented in the Draft EIS. The proposed refinement would reduce the level of direct community overflight to communities such as Bundeena.



Source: Draft EIS Figure 7.11

Figure G.5 RRO night approach to Runway 05 preliminary flight path as presented in the 2023 Draft EIS

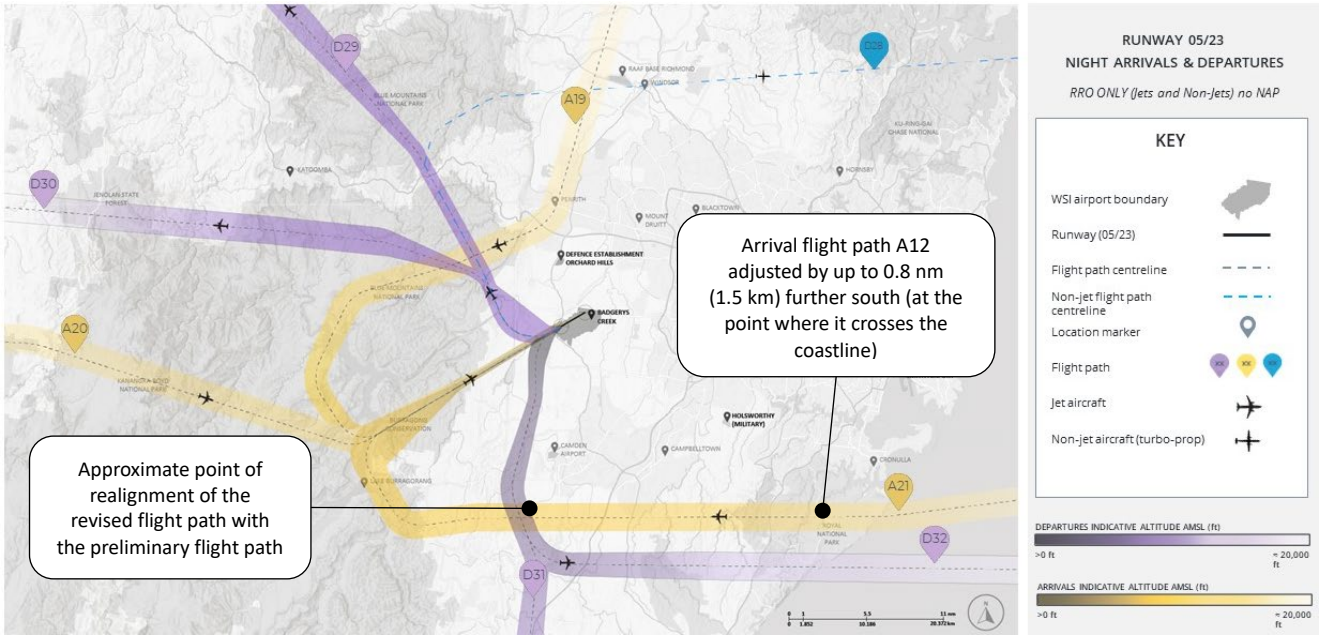


Figure G.6 RRO night approach to Runway 05 refined preliminary flight path

G1.5 Refinements to the RRO mode of operation

Changes have been proposed to the preliminary flight paths that aircraft will follow during RRO. The preliminary RRO flight paths presented in the Draft EIS showed departures from WSI would turn at an altitude as soon as safely possible after take-off to allow for maximum separation with other RRO arriving aircraft (refer to Figure G.7). This would allow air traffic control to maximise the use of the RRO mode of operation. These preliminary flight paths would continue to be used when required. The proposed changes to the RRO procedures and preliminary flight paths have sought to further improve community outcomes and would be implemented when it is safe to do so and when traffic permits.

G1.5.1 East flight paths

This change would discontinue use of the Runway 23 Departure Northeast Night (RRO) flight path (preliminary flight path D28) for jet aircraft. All jet traffic previously assigned jet aircraft along the Runway 23 Departure Northeast Night (RRO) flight path would be redistributed to the Runway 23 Departure Southeast Night (RRO) (preliminary flight path D32). The reassigned traffic includes all eastern departures to destinations in New Zealand, Pacific Island countries and the USA.

The change to the Runway 23 Departure Northeast Night (RRO) preliminary flight path would not affect non-jet aircraft which would continue to use this flight path (refer to Figure G.8).

G1.5.2 North and west flight paths

This change would include the introduction of a new night-time (11 pm to 5:30 am) RRO noise abatement procedure (RRO-NAP). Under the proposed new RRO-NAP, northbound and westbound departure aircraft will maintain the Runway 23 straight ahead runway heading (230 degrees) flight path for approximately 5 nm (9.3 km) rather than immediately turning as soon as safely possible. This would result in avoiding overflights of communities as much as possible, including Wallacia and Mulgoa. However, the RRO-NAP would result in additional overflight of parts of Silverdale and Warragamba.

Once past 5 nm (9.3 km) air traffic control would radar vector aircraft to their outbound tracks along a more southern route than the preliminary flight paths shown in the Draft EIS. Jet aircraft will be processed along a revised flight path south of the Great Western Highway avoiding communities and other noise sensitive areas such as the Greater Blue Mountains Area (GBMA), to the extent practicable (refer to Figure G.8). Non-jet aircraft proceeding west will also follow this path.

Non-jet aircraft proceeding north, after turning right at 5 nm (9.3 km), will be directed to join the preliminary Runway 23 Departure North Night (RRO) flight path (preliminary flight path D29). The expected number of non-jet aircraft operations to/from WSI in the night period (11 pm to 5:30 am) is expected to be extremely low.

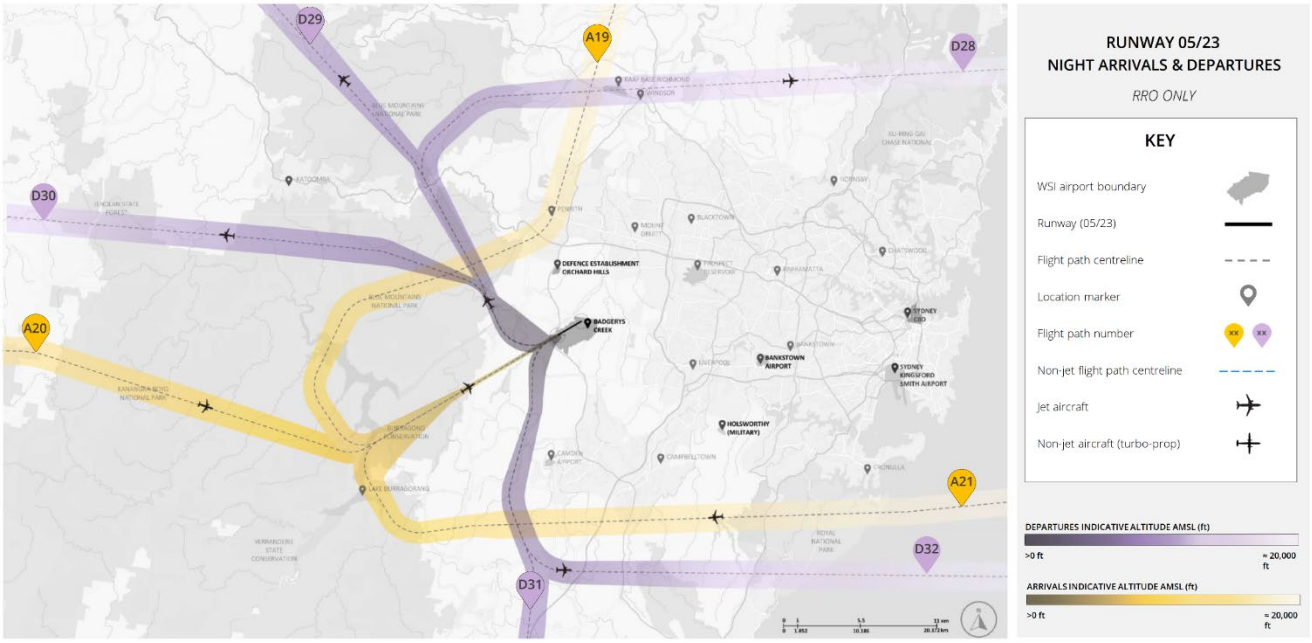
The RRO-NAP would only be able to operate during certain light traffic (low aircraft number) conditions. When night-time traffic demand exceeds around 12 movements per hour, air traffic would revert back to normal RRO departure procedures as presented in the Draft EIS. This procedure is expected to be available where the departure is rolling on its take-off roll, and the inbound aircraft is at or beyond 30 nm (56 km) resulting in a 10-minute separation between any departure and a subsequent arrival movement. Air traffic control may actively manage aircraft sequencing to create this 30 nm (56 km) gap between arrivals. Similar to normal RRO operations this throughput rate may vary when the demand is not balanced and a bias towards either departures or arrivals exists.

As overnight aircraft traffic increases, flight operations will increasingly need to use the published RRO standard instrument departure (SID) flight paths as presented in the Draft EIS, to ensure RRO use is retained (within the existing parameters of the RRO mode).

The proposed change offers alternative departure flight paths to aircraft travelling north and west during the RRO mode. These 2 new tracks are only available when traffic permits, as described above, and are direct alternatives to departure flight path D29 (Runway 23 Departure North Night (RRO)) and departure flight path D30 (Runway Departure West Night (RRO)) (refer to Figure G.7). The proposed RRO-NAP flight paths and procedure changes would only apply to west, north, and north-west departure operations.

The flight paths depicted are indicative. Air traffic control will radar vector aircraft along paths similar to these tracks as indicated by the shaded area in Figure G.8.

With respect to aircraft movements, the RRO-NAP is expected to be able to divert up to around 80 per cent of movements away from the northbound tracks in the RRO runway mode of operation initially (2033). As demand grows, this ratio is expected to decrease to up to around 40 per cent of movements by 2055.



Source: Draft EIS Figure 7.11

Figure G.7 RRO flight paths as presented in the Draft EIS

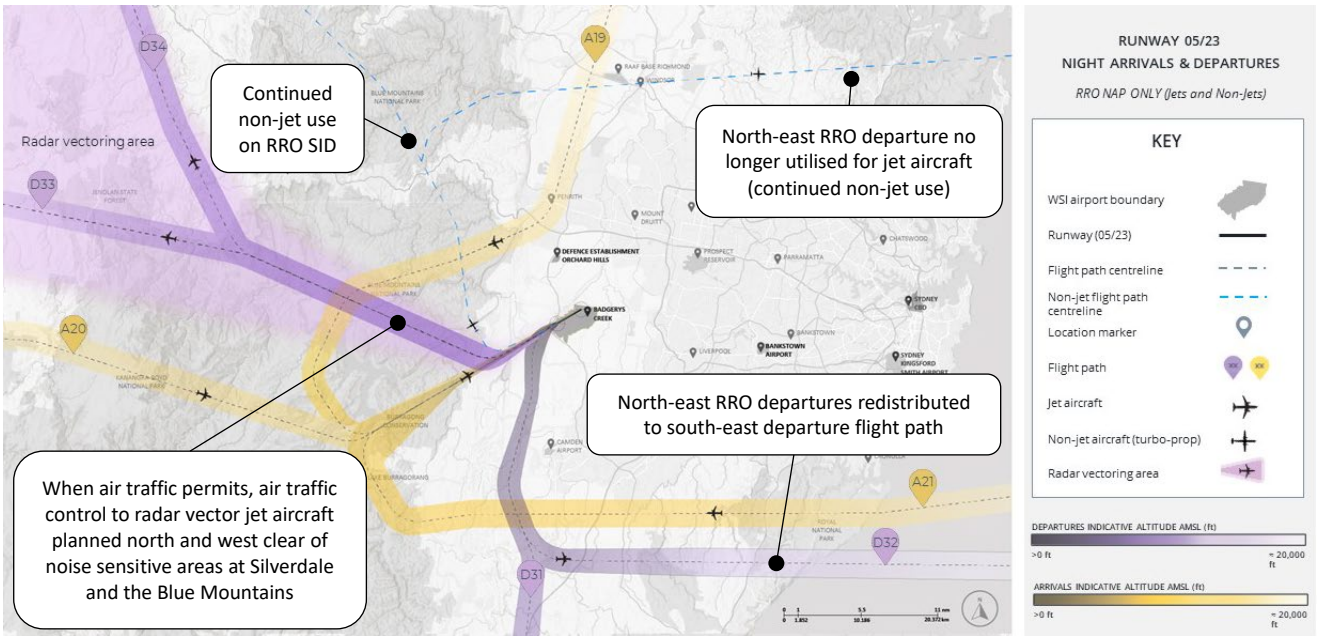


Figure G.8 Refined RRO runway mode of operation flight paths, RRO-NAP and proposed radar vectoring area

Overall, the proposed change to RRO procedures is focussed on reducing to the extent practicable, 'severely impacted' areas identified in the Draft EIS. The proposed refinement is aimed at reducing the number of aircraft overflights of these communities and sensitive sites, reducing noise impacts during night hours (11 pm to 5:30 am).

G2 Assessment of additional impacts

G2.1 Assessment approach

Part C of the Draft EIS presented the impact assessment for the project and identified the range of effects associated with the preliminary flight paths for single runway operations. The assessment considered all potential impacts and risks applicable to the project and addressed the relevant requirements of the Airports Act and the EPBC Act, in accordance with the EIS Guidelines for the project. The assessments were carried out on the preliminary flight paths as described in Chapter 7 of the Draft EIS.

The refined preliminary flight paths, as described in Section G1, were assessed against each of the environmental aspects considered in the Draft EIS. A screening assessment of the potential environmental impacts of each proposed refinement was undertaken as part of the development of the refined preliminary flight paths. Consideration of environmental, social and economic issues, and an assessment of the potential changes to the environmental impacts as compared to those described in the Draft EIS was undertaken. Where no material change in impact was identified, the corresponding environmental aspect was not considered further.

A summary of the environmental aspects potentially affected by each of the proposed preliminary flight path refinements is provided in Table G.1. Where a change in the environmental outcome compared to the Draft EIS is considered to occur, the item is marked with a tick. The changes are described in further detail in the following sections of this appendix. Where there is no change to the impacts assessed in the Draft EIS, the item is marked with a dash.

Table G.1 Summary of environmental aspect considered to be potentially changed in its impact by the refined preliminary flight paths (compared to the Draft EIS)

Refined proposal section	Potential change in environmental aspect outcome													
	Noise	Air quality	Greenhouse gases	Hazard and risk	Land use	Landscape and visual amenity	Biodiversity	Heritage	Social	Economic	Human health	Facilitated impacts	Cumulative impacts	Matters of National Environmental Significance (MNES)
Mt Tomah, Mt Wilson and Mt Irvine (as described in Section G1.2)	✓	–	–	–	–	✓	–	✓	–	–	–	–	–	–
Required Navigation Performance – Approval Required approach (as described in Section G1.3)	✓	–	–	–	–	✓	–	–	–	–	–	–	–	–
RRO night approach to Runway 05 (as described in Section G1.4)	✓	–	–	–	–	✓	–	–	–	–	–	–	–	–
Refinements to the RRO mode of operation and addition of the RRO-NAP (as described in Section G1.5)	✓	✓	–	–	–	✓	–	✓	✓	–	✓	–	–	✓

These assessments have been supported by additional detailed investigation which has been documented in the Addendum to Technical paper 1: Aircraft noise.

The following sections provide a summary of the impact assessment outcomes associated with each of the preliminary flight path refinements.

G2.2 Noise

Mt Tomah, Mt Wilson and Mt Irvine

A majority of the refined preliminary flight path would occur over the Blue Mountains National Park and would not generally affect populated areas. The refined preliminary flight path may have some minor benefit/reduced noise impacts to areas such as Mt Tomah and Mt Wilson/Mt Irvine due to the increased distance from the refined preliminary flight path compared to the preliminary flight path (resulting in an increased separation of around one nm to 0.9 nm (2 km to 1.8 km) from these communities respectively).

The refined flight path would move the preliminary flight path (as presented in the Draft EIS) around 1.7 km closer to the townships of Bell, Dargan and Clarence. However, the refined flight path would still be further from Bell, Dargan and Clarence than it will be from Mt Tomah and Mt Irvine at these locations. In addition, aircraft would be at an altitude of around 18,000 ft.

The N60 contours as depicted in the Draft EIS do not typically extend along this preliminary flight path with the exception of minor impacts (10 to 19 movements per 24-hour period) in 2055. These impacts however would occur over unpopulated areas. Therefore, any minor shift of the N60 to align with the refined preliminary flight path is unlikely to change the assessment that was presented in the Draft EIS. The other assessed scenarios do not generally have N60 noise contours that extend as far as the location of the proposed change.

Required Navigation Performance – Approval Required approach

The removal of the RNP AR would result in an overall increase in the altitude of aircraft above Linden and Faulconbridge using the Runway 05 approach during night time periods by around 6,000 ft to 7,000 ft (1.8 km to 2.1 km) for those aircraft that would have previously been assigned to the A13 flight path. This would result in a measurable noise benefit when RNP AR capable aircraft are arriving to Runway 05 at night.

Overall there would not be an increase in the number of flights using the section of arrival path from where the path turns toward the RNP AR approach to where it meets the longer approach to Runway 05, however with the removal of the A13 flight path, the spread of aircraft arriving across the two flight paths would be changed, with all aircraft now proposed to arrive along the A10 flight path. This aircraft approach however is generally over unpopulated areas and is therefore not expected to result in any change in noise impacts compared to those already discussed in the Draft EIS.

RRO night approach to Runway 05 (Arrival East)

A majority of the refined preliminary flight path occurs over Royal National Park at altitudes at from around 13,300 ft (4 km) (west of Gilead) to over 17,500 ft (5.3 km) (where the preliminary flight path crosses the coastline). The refined preliminary flight path would however result in reduced direct overflight of Rosemeadow, Gilead and Menangle Park, being around 600 m further to the south than the preliminary flight path at an altitude of around 12,000 ft (3.7 km). This refined preliminary flight path would result in negligible reduction in noise impacts to these communities. The change may also have some minor benefit through reduced noise impacts to areas such as Bundeena and Heathcote due to the increased distance of the refined preliminary flight path compared to the preliminary flight path identified in the Draft EIS.

The refined preliminary flight path would be slightly closer to the suburb of Waterfall (up to around 900 m closer in comparison to the preliminary flight path identified in the Draft EIS), but at altitudes of around 12,000 ft (3.7 km), the changes in impacts to those described in the Draft EIS are also expected to be negligible.

Refinements to the RRO mode of operation

These refinements would result in some changes to the noise assessment to that presented in the Draft EIS. A full assessment of the refinements is provided in the Addendum Technical paper 1: Aircraft noise.

Method of assessment

The assessment of aircraft noise impacts was undertaken using the same methodology described in Technical paper 1: Aircraft noise. The assessment focused on night time operations (11 pm to 5.30 am) as the RRO mode of operation would only occur during the night time when conditions permit. Impacts and benefits were identified based on absolute noise level or number of events, and are presented as a comparison against those presented in the baseline assessment presented in Technical paper 1.

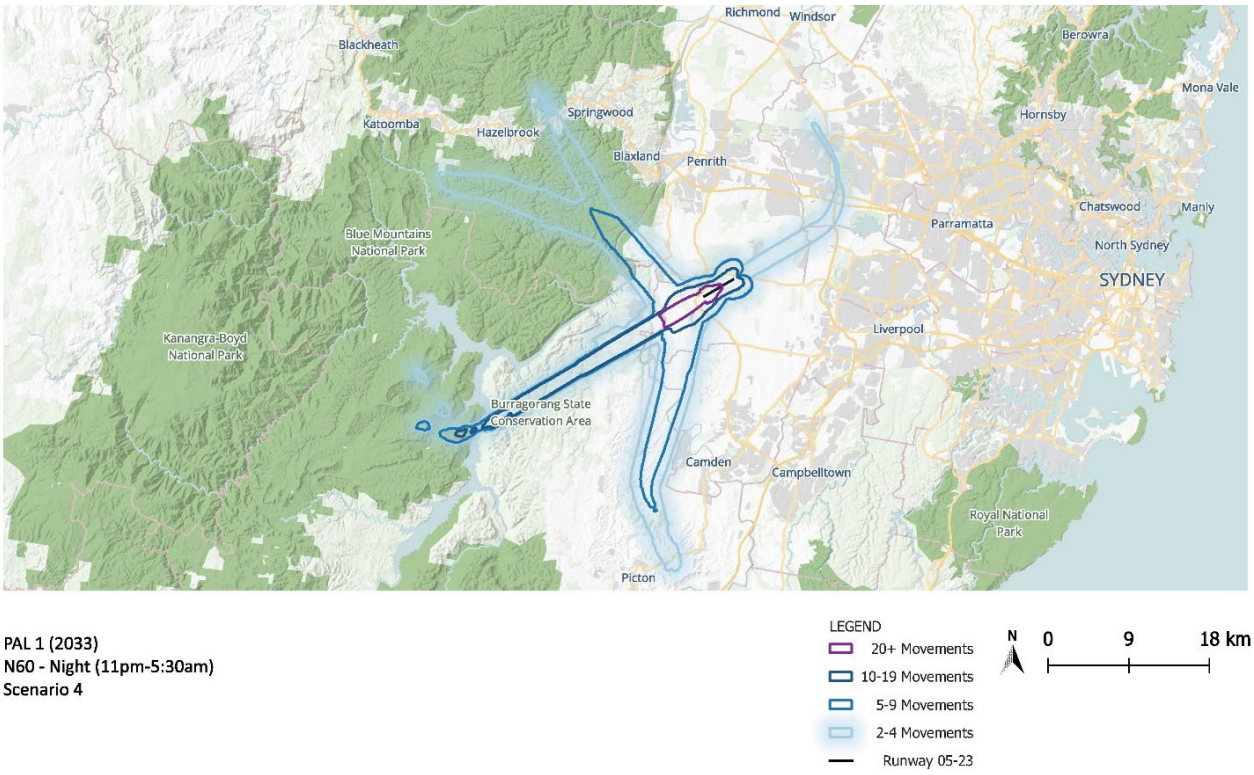
Changes in potential noise impacts

The proposed changes would result in a noticeable change to the N60 Night contours (as presented in the Draft EIS). However, these changes would have minimal impact to the N60 24-hour and N70 24-hour contours. Figure G.9 reproduces Scenario 4 with the assessment year 2033 as presented in the Draft EIS. Figure G.10 displays the same information with both proposed changes to RRO (reallocation of D28 departures and RRO-NAP).

Additional detail on changes to noise impacts is provided in the Addendum to Technical paper 1: Aircraft noise.

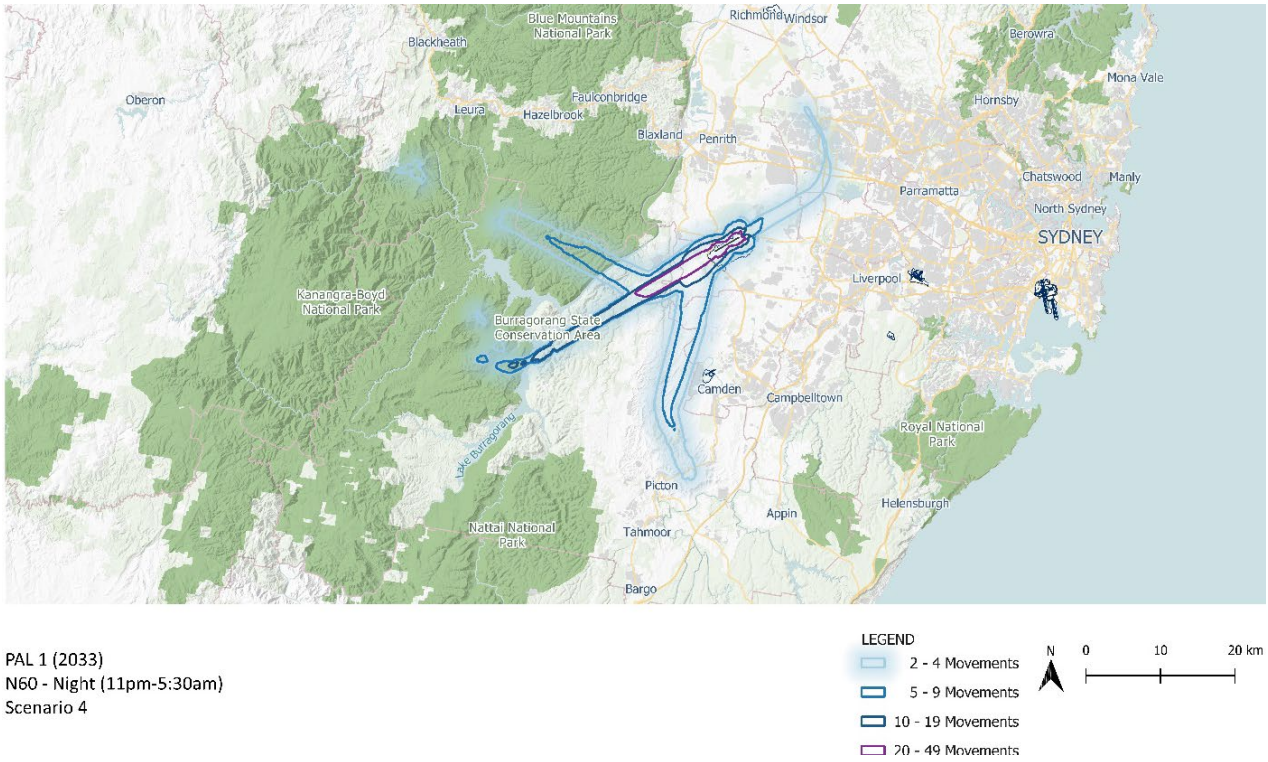
Impacts on the GBMA

Noise impacts to the GBMA are described in further detail in Section G2.15.



Source: Technical paper 1: Noise (Appendix C)

Figure G.9 N60 contour Night (11 pm to 5:30 am) –2033 (Scenario 4) – Draft EIS preliminary flight path



Source: Addendum Technical paper 1: Noise (Appendix C)

Figure G.10 N60 contour Night (11 pm to 5:30 am) –2033 (Scenario 4) – Refinements to the RRO mode of operation and RRO-NAP preliminary flight path

G2.3 Air quality

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the air quality impact assessment as the same number of aircraft would continue to operate, despite the location of these aircraft changing. Specifically:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would not result in any change to the air quality within the Sydney Basin
- Required Navigation Performance – Approval Required approach: the removal of this flight path and reallocation of aircraft to the alternative A10 flight path would not result in any change to the air quality within the Sydney Basin
- RRO night approach to Runway 05: the refined preliminary flight path would not result in any change to the air quality within the overall Sydney Basin.

Refinements to the RRO mode of operation

The implementation of the RRO-NAP would result in a change that would not affect the overall air quality assessment undertaken as part of the Draft EIS as the same number of aircraft would continue to operate, despite the location of these aircraft changing. Overall ozone (O_3) concentration, nitrogen dioxide (NO_2) concentration and other pollutant concentrations are not expected to change compared to those presented in the Draft EIS as a result of the additional runway mode of operation.

The redistribution of aircraft from the Runway 23 Departure Northeast Night (RRO) (preliminary flight path D28) to the Runway 23 Departure Southeast Night (RRO) (preliminary flight path D32) may result in a minimal change to air quality, however it is expected to be negligible due to the small number of affected flights (around 5 per night).

G2.4 Greenhouse gas

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the greenhouse gas impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would not result in any change to the greenhouse gas generated by the project or the effects on existing greenhouse gas within the Sydney Basin
- Required Navigation Performance – Approval Required approach: the removal of this flight path and reallocation of aircraft to the alternative A10 preliminary flight path would not result in any discernible change to the greenhouse gas generated by the project or the effects on existing greenhouse gas within the Sydney Basin
- RRO night approach to Runway 05: the refined preliminary flight path would not result in any discernible change to the greenhouse gas generated by the project or the effects on existing greenhouse gas within the Sydney Basin.

Refinements to the RRO mode of operation

The implementation of the RRO-NAP would result in a minimal change that would not affect the results of the greenhouse gas assessment undertaken for the Draft EIS as the same number of aircraft would continue to operate, despite the location of these aircraft changing. During the periods when RRO-NAP runway mode of operation is implemented, aircraft would be required to travel up to around 7.2 nm (around 13.6 km) longer than the standard SID RRO flight path, noting that the number of overall flights this would affect is low (up to around 4 movements per night in 2055). The change to the western flight path would also not add substantial travel distance for aircraft compared to the standard SID RRO flight path.

The redistribution of aircraft from the Runway 23 Departure Northeast Night (RRO) (preliminary flight path D28) to the Runway 23 Departure Southeast Night (RRO) (preliminary flight path D32) may result in minimal change to greenhouse gas impacts, however it is expected to be minimal due to the small number of affected flights (around 5 per night). The affected flight paths to North America and Pacific island destinations would have no significant increase in track miles that would result in increased greenhouse gas production.

G2.5 Hazards and risk

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the overall hazard and risk impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would represent a minor change which would not affect overall hazard or risk assessment undertaken. A majority of the refined preliminary flight path would occur over the Blue Mountains National Park and would not change risk(s) over populated areas
- Required Navigation Performance – Approval Required approach: the removal of this preliminary flight path would reduce the overall hazard and risk to locations that would be traversed as part of the preliminary flight path design, however the noted hazard and risk would be similarly transferred to the A10 flight path
- RRO night approach to Runway 05: the refined preliminary flight path would represent a minor change which would not affect overall hazard or risk assessment undertaken. A majority of the refined preliminary flight path would occur over the Royal National Park and would not change risk(s) over populated areas.

Refinements to the RRO mode of operation

The implementation of the changes to RRO to include the RRO-NAP are expected to result in an overall neutral change in relation to the level of hazard and risk of the north and west flight paths. The implementation of the RRO-NAP would generally redistribute current flights from one urban population to another (i.e. the change would result in additional flights over Warragamba and Silverdale, and generally reduce flights over areas such as Mulgoa, Luddenham and Orchard Hills as well as Lawson, Hazelbrook and Linden).

For the redistribution of the north-east flights to the south east preliminary flight path, aircraft would generally travel over less populated areas and the Royal National Park instead of areas of greater population in northern and western Sydney.

G2.6 Land use

None of the proposed changes to the preliminary flight paths are anticipated to result in a change to the overall land use impacts identified and assessed in the Draft EIS.

G2.7 Landscape and visual amenity

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the overall landscape and visual amenity impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: a majority of the refined preliminary flight path would occur over the Blue Mountains National Park and represents a small shift in the overall flight path location. The change may have some minor benefit/reduced visual impact to areas such as Mt Tomah due to the increased distance from this location compared to the preliminary flight path presented in the Draft EIS, meaning aircraft may appear slightly smaller/less visible.

- Required Navigation Performance – Approval Required approach: noting that a majority of the preliminary flight path was located over the Blue Mountains National Park, the removal of this flight path may have benefits through reduced visual impacts to the Linden and Faulconbridge communities as the lower altitude aircraft would now traverse this area at a greater height, meaning aircraft would appear slightly smaller/less visible than would have occurred with the implementation of the RNP AR design. It is also anticipated that the visual impacts to users of the Linden Observatory will also be reduced by the removal of this flight path.
- RRO night approach to Runway 05: a majority of the refined preliminary flight path would occur over the Royal National Park. The change may have some minor benefit through reduced visual impact to areas such as Bundeena and Heathcote due to the increased distance compared to the preliminary flight path as the refined preliminary flight path would be further south, meaning aircraft may appear slightly smaller/less visible than previously assessed in the Draft EIS.

Refinements to the RRO mode of operation

For urban and semi-urban areas including towns along the Great Western Highway, the assessment presented in the Draft EIS noted that there would be a low magnitude of change at night due to the low frequency and high altitude of aircraft. Additionally, due to the low visual sensitivity (and operation of this particular runway mode of operation at night), there would be low visual impact. Flights using the RRO-NAP would further reduce impacts as flights will continue to travel south of the Great Western Highway before turning north west of Katoomba.

The main change in overall visual impacts would be the changed impacts of lighting from the revised night-time flight paths between the suburbs of:

- Wallacia and Mulgoa, which would likely experience slightly reduced impacts due to a reduced number of overflights
- Silverdale and Warragamba, which would likely experience a slightly increased level of impact due to an increased number of overflights.

While there would be a difference in locations (i.e. Wallacia and Mulgoa, and Silverdale and Warragamba) affected by changed aircraft lighting, the impacts would generally be experienced by a similar number of people, therefore continuing to result in a negligible magnitude of change, and consistent with the assessment presented in the Draft EIS. Overall, the RRO-NAP runway mode of operation is expected to result in a minor positive change when the mode is in operation as it would reduce the number of flights over populated areas, therefore reducing the visual impact from these flights (noting that the number of applicable aircraft is low and that the changes would only occur during night time periods).

The redistribution of the Runway 23 Departure Northeast Night (RRO) (preliminary flight path D28) to the Runway 23 Departure Southeast Night (RRO) (preliminary flight path D32) (up to 5 flights redistributed from the north-east flight path to the south-east flight path) would result in aircraft traveling over less populated areas, as well as a portion of the flights being over the Royal National Park instead of larger areas of population in northern and western Sydney. The revised night-time flight paths result in an overall reduced level of visual impact.

G2.8 Biodiversity

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the overall biodiversity impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: a majority of the refined preliminary flight path would continue to traverse similar areas of the Blue Mountains National Park and would not result in a change in previously assessed impacts
- Required Navigation Performance – Approval Required approach: the existing flight path would be removed, reducing any potential impacts in this location under the affected runway mode of operation
- RRO night approach to Runway 05: a majority of the refined preliminary flight path would continue to traverse similar areas of the Royal National Park and would not result in a change to previously assessed impacts.

Refinements to the RRO mode of operation

The additional runway mode of operation would not result in any change in overall biodiversity impacts as assessed in the Draft EIS. A majority of the change would continue to traverse similar areas of the Blue Mountains National Park. During implementation of the RRO-NAP, a portion of the Blue Mountains National Park to the north of the Great Western Highway, would not be overflown however different areas of the southern portion of the Blue Mountains would be newly overflown by departing aircraft, resulting in a similar overall level of overflight of the area as a whole.

Additionally, the N60 contours for the additional runway mode of operation would generally be similar to the noise contours assessed as part of the biodiversity assessment in the Draft EIS. As such, the potential impacts of the additional runway mode of operation are expected to be consistent with the biodiversity assessment presented in the Draft EIS.

G2.9 Heritage

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the overall heritage impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path may result in a minor positive heritage impact compared to the impacts assessed in the Draft EIS. The refined preliminary flight path would increase the distance of the preliminary flight path to no longer travel directly over the Emu Cave Aboriginal Place. The revised flight path would be located up to around 0.8 nm (1.5 km) further to the south-west of the preliminary flight path (at an altitude of around 17,000 ft (5.2 km)). The refined preliminary flight path would however also slightly change the orientation of the flight path with respect to Emu Cave which may make the revised flight path somewhat more visible from a distance
- Required Navigation Performance – Approval Required approach: This change would provide some visual and noise amenity improvement (at night) to Aboriginal heritage sites along Linden Ridge and the Emu rock engraving site at Ticehurst Park, as aircraft would be at higher altitudes when passing above or near these sites
- RRO night approach to Runway 05: no identified heritage sites are located within the immediate vicinity of the refined preliminary flight path that would result in changes to the impacts identified in the Draft EIS.

Refinements to the RRO mode of operation

When in operation, the RRO-NAP flight path would provide increased separation between a number of significant heritage items including The Three Sisters, Kings Tableland and Upper Kedumba River Valley Aboriginal Places for flights travelling to the west. The RRO-NAP and/or the removal of jet aircraft from the Runway 23 Departure Northeast Night (RRO) flight path (D28) (when in operation) would also provide some benefit to Aboriginal heritage sites due to reduced overflight of the Linden Ridge sites, the Emu rock engraving site at Ticehurst Park, and/or Emu Cave Aboriginal Place for flights travelling north. The additional runway mode of operation would also not change the previously assessed impacts to the Bents Basin, Euroka Clearing or Red Hand Caves Aboriginal Places. The impacts on these sites would remain consistent with the assessment of heritage impacts as presented in the Draft EIS.

Impacts to the GBMA World Heritage site would also be consistent with the assessment presented in the Draft EIS, as the general height and overall impact on the aesthetic and Aboriginal values of this site would not change as a result of the relocation of the preliminary flight paths associated with the RRO-NAP. The altitude at which the refined preliminary flight paths would operate, and the limited number of aircraft expected to utilise this runway mode of operation, would mean that potential impacts would be consistent with the assessment previously presented. One additional State Heritage Register item (‘Coxs River Arms, Lake Burragorang, Warragamba Dam walking track’) would be located within proximity of the RRO-NAP flight path however this flight is overflown by several other preliminary flight paths (during daytime periods) and was considered as part of the heritage assessment presented in the Draft EIS. Impacts to this item are not expected as a result of the RRO-NAP.

Removal of the Runway 23 Departure Northeast Night (RRO) flight path for jet aircraft (preliminary flight path D28) would also result in a minor benefit to previously identified heritage impacts, reducing the overflight of the Commonwealth Heritage listed North Base Trig station and the RAAF Base Richmond both located at Richmond. It is noted however that the transferred flights from preliminary flight path D28 (for jet aircraft) to preliminary flight path D32 would result in a corresponding increase in flights over the southern portion of the Royal National Park and Garawarra State Conservation Area, and Cubbitch Barta National Estate (associated with the Royal National Park). These aircraft would pass over this area at an altitude of around 18,000 ft and above and is expected to result in negligible impacts to these heritage items.

Overall, it is not expected that the refinements to the RRO mode of operation would result in change to the heritage impacts as presented in the Draft EIS.

G2.10 Social

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the social impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would generally be over bushland areas associated with the Blue Mountains National Park and would not affect urban or known recreational areas
- Required Navigation Performance – Approval Required approach: the refined preliminary flight path would remove a preliminary flight path providing a general benefit to urban area(s) that were previously below this flight path
- RRO night approach to Runway 05: the refined preliminary flight path would generally be over bushland areas associated with the Royal National Park and would not affect urban areas.

Refinements to the RRO mode of operation

The social impact assessment within the Draft EIS examined a range of potential social impacts that would have the potential to occur as a result of the project. These were derived from a range of categories considered around factors such as community, way of life impacts, cultural impact, accessibility and livelihood impacts, and health and wellbeing impacts. The following sections provide a summary of the potential elements that may result in a change in impact as a result of these refinements.

Changes to community composition and cohesion

An increase in the noise levels experienced by those in the local and regional study area may lead to people deciding to relocate so they can maintain their current lifestyle. This can often result in changes to community composition and cohesion for both those who stay and those who leave. Section 6.1.1 noted that the magnitude of this impact is determined by understanding the proportion of people that will be subject to different levels of aircraft noise, including discussion of the potential number of residents that may be living within the 25 Australian Noise Exposure Concept (ANEC) composite contours and people within 30 ANEC composite contours. The implementation of these refinements would not change the extents of the ANEC, and would therefore not change the assessment of this issue as presented in the Draft EIS.

Increased inequality

The likelihood of aircraft noise-related disturbance on inequality was assessed through understanding existing vulnerability conditions, consulting with affected communities and understanding people's exposure to aircraft noise.

The proposed change would result in a reduction in aircraft flying over communities, including Wallacia and Mulgoa, however would result in additional overflight of parts of Silverdale and Warragamba. The Socio-Economic Indexes for Areas indicators notes that Warragamba has greater levels of disadvantage and Silverdale least disadvantage.

The volume of flight movements expected to occur typically corresponds to the magnitude of the inequality impact expected. 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 assessment of potential impacts as presented in the Draft EIS with respect to increased inequality. Consequently, people under vulnerable conditions residing in Silverdale and Warragamba and under the N60 24-hour, N60 night-time and N70 contours, would experience this change as a moderate impact, resulting in a high pre-mitigated impact, consistent with the conclusions within the Draft EIS. A proportionate reduction in impacts to vulnerable community members in Wallacia and Mulgoa is expected to occur as a result of the proposed refinement.

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

Changes to way of life as a result of loss of residential amenity were measured by considering disruptions that may occur due to aircraft noise during the day or night, including impacts on activities such as working from home, and the way people use and enjoy residential indoor and outdoor space (backyards). Given the low levels of aircraft traffic associated with this runway mode of operation, and restricted timing at which it can occur, it is not expected that the implementation of the refinements would change the overall magnitude of impact or assessment of potential impacts as presented in the Draft EIS.

It is noted that some of the potential impacts may shift from one urban population to another (i.e. there would be additional flights over Warragamba and Silverdale, and a reduction in the number of flights over areas such as Mulgoa, Luddenham and Orchard Hills when the RRO (and RRO-NAP) is in operation). All of these areas are considered in the Draft EIS and the overall impact magnitude is considered to be the same.

Changes to the use and enjoyment of social infrastructure

Impacts on social infrastructure such as the use of churches, playgrounds and walking tracks were considered. A majority of these facilities would not likely be utilised during the period of the RRO mode of operation (11 pm-5:30 am). The assessment provided in the Draft EIS would not change as a result of the implementation of these refinements.

Effects to wellbeing as a result of changes to amenity

Changes to health and wellbeing were determined by understanding the existing health and vulnerability conditions of people potentially affected by changes to amenity, including noise, air quality and night light. Noise and air emissions associated with the project were noted as having the potential to affect the physical and mental health and wellbeing of residents. 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 (refer to Section G2.12 for further detail). The assessment noted that residents in these suburbs are likely to experience moderate changes to their wellbeing as a result of changes to amenity.

The potential impacts on wellbeing may shift from one urban population to another (i.e. the change would result in additional flights over Warragamba and Silverdale, and generally reduce the number of flights over areas such as Mulgoa, Luddenham and Orchard Hills when the RRO-NAP is in operation). While this may shift the location of the potential impacts, such as the percentage of high sleep disturbance and high annoyance 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.

Social values associated with the Blue Mountains

Social value impacts associated with the Blue Mountains identified in the Draft EIS related to elements such as cultural values, recreation and tourism values (including various lookouts etc), wilderness values, social and economic, and scenic and aesthetic values. As the RRO mode of operation would only operate during night time periods, the operation of the refinements is expected to result in 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.

Other assessment considerations

The following impacts that were assessed in the Draft EIS are not expected to change as a result of the additional runway mode of operation:

- effects to Aboriginal culture
- effects to non-Aboriginal culture
- constrained housing availability and affordability
- socio-economic sustainability of Luddenham and accessibility to social services
- wellbeing for First Nations people
- changes to children's behaviour, attentiveness, and cognitive learning in educational settings as a result of aircraft noise
- sense of safety and clean environment due to air quality changes in the local area
- environmental values resulting from concerns about biodiversity being affected by noise and air quality
- impacts on residential property values
- impact to the tourism and livelihoods associated with the Blue Mountains World Heritage Listing
- capacity to participate due to a lack of understanding of preliminary flight paths and potential impacts.

G2.11 Economic

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the economic impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would generally be over bushland areas associated with the Blue Mountains National Park
- Required Navigation Performance – Approval Required approach: the refined preliminary flight path would generally be over bushland areas and would also result in removal of a flight path where this occurs over urban areas
- RRO night approach to Runway 05: the refined preliminary flight path would generally be over bushland areas associated with the Royal National Park.

Refinements to the RRO mode of operation

It is not expected that the operation of the refinements to the RRO mode of operation would result in changes to the economic impact assessment of the project as presented in the Draft EIS. Based on the identified changes to the N60 and N70 contours, it is not anticipated that the implementation of the refinements would negatively affect previously identified receivers. Specifically, the economic assessment prepared as part of the Draft EIS identified that 106 noise sensitive land uses were inside the 2055 N60 24-hour contour of which 19 are inside the N70 contour, with the impacts on the land uses outside the N70 contour considered to be insignificant. Within the N70 contour the impacts were considered to be moderate. Of the uses identified within the N70 contour, 6 of them were schools and 2 were childcare centres (which would not be active during operation of the RRO) and 2 were aged care homes (both of which are in Kemps Creek and would be unaffected by the refined preliminary flight path).

The implementation of the refinements is not expected to impact other identified potential economic aspects such as tourism (including short-term stay accommodation) or overall property values.

G2.12 Human health

Mt Tomah, Mt Wilson and Mt Irvine

The refined preliminary flight path would predominantly occur over areas of the Blue Mountains National Park and would generally not be directly located above populated areas. The refined preliminary flight path may result in some minor benefit through reduced human health impacts to areas such as Mt Tomah due to the increased distance compared to the preliminary flight path presented in the Draft EIS.

Required Navigation Performance – Approval Required approach

The refined preliminary flight path would predominantly occur over areas of the Blue Mountains National Park as well as the suburbs of Linden and Faulconbridge within the Blue Mountains.

The refined preliminary flight path is expected to result in some minor benefit through reduced human health impacts to the Linden and Faulconbridge communities due to the removal of the A13 preliminary flight path that would traverse this area at a lower altitude compared to the proposed routing of all flights along the A10 preliminary flight path at an increased altitude (therefore reducing noise impacts at this location for aircraft using this particular flight path).

RRO night approach to Runway 05 (Arrival East)

A majority of the refined preliminary flight path would occur over the Royal National Park. The change may have some minor benefit through reduced human health impacts to areas such as Bundeena and Heathcote due to the increased distance compared to the preliminary flight path as presented in the Draft EIS.

Refinements to the RRO mode of operation

The key health impact related to night-time noise is sleep disturbance. The methodology adopted for the assessment of sleep disturbance is detailed in Technical paper 12: Human health. The assessment of sleep disturbance considered both the maximum noise level during the night-time period (L_{max}) as well as the average noise level over the night-time period, or L_{night}. The average as L_{night} enables an assessment of the percentage of the population, or the change in the percentage of the population that is highly sleep disturbed (%HSD).

The revised night-time noise levels modelled at all the sensitive receptor locations considered in the Draft EIS have been used to revise the assessment of sleep disturbance for the community surrounding the WSI. This review has focused on changes relevant to the 2055 operational year (Prefer Runway 05 and Prefer Runway 23). These scenarios have been selected as it reflects the preferred use of the RRO mode of operation.

Revised sleep disturbance assessment

Threshold/maximum noise levels

In relation to aircraft noise, the WHO recommends that noise in the community as L_{night} should not exceed 40 dB(A), and L_{max} should not exceed 52 dB(A) to protect against sleep disturbance issues. It is noted that the L_{night} levels in the existing environment already exceed 40 dB(A), with background levels measured at the noise monitoring locations in the range 41 to 58 dB(A). In addition, the Draft EIS identified a number of exceedances of the L_{night} threshold in relation to aircraft movements. There are no additional receptors that exceed the L_{night} threshold in 2055 as a result of these refinements. However, there are 5 receptor locations (M18, R141, N13, N67 and N158) where L_{night} would drop below the threshold of 40 dB(A) where sleep disturbance has the potential to be of importance for health. The receptors where L_{night} is reduced to be below the threshold of 40 dB(A) are in the following locations (noting that these refinements would only operate during night time periods and would be unlikely to affect these receivers):

- Warragamba (M18: Warragamba noise monitoring location, N13: Warragamba Pre-school, N158: Warragamba Public School)
- Mulgoa (R141: Edmund Rice Retreat and Conference Centre)
- Eastern Creek (N67: Eastern Creek Public School).

The Draft EIS identified a number if receptors where L_{max} levels at night time predicted from aircraft operations exceeded the threshold of 52 dB(A) in 2055. The refinements would not result in any additional receptors exceeding the 52 dB(A) threshold for L_{max}.

Percentage highly sleep disturbed

The %HSD has been calculated for each of the noise sensitive receptors based on the addendum noise assessment outcomes relevant to Prefer Runway 05 and Prefer Runway 23 scenarios. Consistent with the approach adopted in the Draft EIS (Technical paper 12), the potential for the %HSD to be of potential significance is where the calculated %HSD is 3 per cent more than the %HSD relevant to the existing noise environment.

For all the noise sensitive receptors evaluated for 2025, the following is of note in relation to the significance of the %HSD for the addendum noise assessment compared with operations in the Draft EIS:

- the refinements would not result in any additional noise sensitive receptors where the %HSD is of potential significance
- the refinements would result in 2 noise sensitive receptors where the %HSD is no longer of potential significance. These receptors are located in Wallacia (R80: Wallacia Public School and R86: Blaxland Crossing Reserve).

Review of Figure 6.10 from Technical paper 12 indicates that the calculations for these refinements would not change the extent where the %HSD is of potential significance. This is because the 2 receptors where significance is no longer of concern are located in Wallacia where the %HSD remains of potential significance at other close-by receptors.

In relation to the %HSD, Table G.2 shows the calculations for 2055 as presented in the Draft EIS with comparison against outcomes of this revised assessment.

Table G.2 Summary of sleep disturbance impacts from aircraft noise – Draft EIS operations and RRO mode of operation refinements (including the RRO-NAP)

Suburbs and Localities	% population in area highly sleep disturbed (%HSD) as average [minimum – maximum] from all receptors evaluated				
	Existing/ background	2055 – Draft EIS		2055 – Revised	
		Scenario 3	Scenario 4	Scenario 3	Scenario 4
Austral	12#	0	0	0	0
Badgerys Creek	12#	12*	12*	12*	12*
Bringelly	14	3 [0–11]	3 [0–11]	3 [0–11]	3 [0–11]
Cecil Park	12#	0	0	0	0
Cobbitty	12#	19*	19*	19*	19*
Glenmore Park	16	0	0	0	0
Greendale	15–17	21 [11–33]	21 [11–33]	**22 [11–33]**	**22 [11–33]**
Horsley Park	20	0	0	0	0
Kemps Creek	15	4 [0–20]	4 [0–20]	4 [0–20]	4 [0–20]
Luddenham	15–29	19 [10–40]	19 [10–40]	19 [10–41]	19 [10–41]
Mount Vernon	20	0	0	0	0
Mulgoa	12#	9 [0–12]	9 [0–12]	**8 [0–11]**	**8 [0–11]**
Rossmore	12#	1 [0–9]	1 [0–9]	1 [0–9]	0

Suburbs and Localities	% population in area highly sleep disturbed (%HSD) as average [minimum – maximum] from all receptors evaluated				
	Existing/ background	2055 – Draft EIS		2055 – Revised	
		Scenario 3	Scenario 4	Scenario 3	Scenario 4
Silverdale	14	21 [14–27]	21 [14–27]	**22 [15–28]**	**22 [15–28]**
Wallacia	13–15	20 [17–27]	20 [17–27]	**18 [16–28]**	**18 [16–28]**
Warragamba	16	11 [11–12]	11 [11–12]	11 [10–11]	11 [10–11]

** Only one receptor in this Suburb and Locality*

Blue shaded values are 3% or more higher than the %HSD calculated on each area based on existing or background noise (noting that where no background data is available for a Suburb and Locality, the lowest level of background %HSD of 12% has been adopted, as flagged with #)

***22** = Values in **green** text relate to those where the average calculated for RRO-NAP is **higher** than presented in the Draft EIS*

***8** = Values in **blue** text relate to those where the average calculated for RRO-NAP is **lower** than presented in the Draft EIS*

The %HSD calculations presented in Table G.2 indicate that for the revised assessment the %HSD is essentially unchanged from that presented in the Draft EIS. A very small increase in the average %HSD is noted for Greendale and Silverdale, and a very small decrease in the average %HSD is noted for Mulgoa and Wallacia. These changes are small and are not considered to be significant.

In summary, there are some small changes in night-time noise impacts associated with the RRO mode of operation refinements that result in some receptors no longer exceeding thresholds for L_{max} or L_{night}, however overall, the changes associated with these refinements are small and do not result in changes to the conclusions presented in the Draft EIS in terms of sleep-disturbance.

G2.13 Facilitated impacts

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the facilitated impact assessment as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the refined preliminary flight path would not result in changes to identified facilitated impacts
- Required Navigation Performance – Approval Required approach: the refined preliminary flight path would not result in changes to identified facilitated impacts
- RRO night approach to Runway 05: the refined preliminary flight path would not result in changes to identified facilitated impacts

Refinements to the RRO mode of operation

The reallocation of north-eastern WSI departures to the Runway 23 Southern SID (D32) would not impact any Sydney (Kingsford Smith) Airport aircraft as this departure flight path already exists in the design. The potential facilitated impacts of the RRO-NAP with respect to its interaction with other Sydney Basin operations includes:

- *Sydney (Kingsford Smith) Airport*: Operations and facilitated airspace changes will not be impacted as the proposed WSI RRO departure track changes occur during the Sydney (Kingsford Smith) Airport curfew period between 11.00 pm and 6.00 am local time. Under the Sydney (Kingsford Smith) Airport Curfew Legislation a limited number of aircraft types can operate at Sydney (Kingsford Smith) Airport during the curfew, either as allowed planned operations by mostly propeller driven aircraft or light jets, emergency operations exemptions, or very rarely as a result of a

dispensation against the curfew regulations. Any possible interaction from these allowed Sydney (Kingsford Smith) Airport movements and the RRO-NAP northern and western departure tracks will be managed by air traffic control.

- *RAAF Base Richmond Airport*: The existing WSI RRO Runway 23 northern and western departure tracks are designed to cross above the western RAAF Base Richmond Airport STAR thereby ensuring vertical separation at the point of crossing. The new RRO-NAP northern and western departures would result in slightly more track miles than the preliminary flight paths before crossing the western RAAF Base Richmond Airport STAR and therefore would be able to meet the altitude requirement more readily to safely separate aircraft on these procedures. All other STARs and SIDs at RAAF Base Richmond Airport are clear of the RRO-NAP.
- *Bankstown Airport*: The RRO-NAP would not impact the new Bankstown Airport SIDs. Aircraft would be radar vectored prior to any interaction with the proposed RRO-NAP flight paths. The proposed western STAR into Bankstown Airport would also not be impacted.
- *Camden Airport*: The north-west STAR to Camden Airport is designed to allow WSI departures to readily meet a requirement to climb above it. The new RRO-NAP would continue to allow aircraft to readily climb above the Camden Airport STAR. On the very rare occasion where conflict between aircraft on these procedures is anticipated (e.g., thunderstorm activity) one or both aircraft would be managed by air traffic control to ensure separation is maintained.
- *Western Transit Route*: This Transit Route is designed as a low level (10,000 ft or below) route to allow non-pressurised aircraft to cross the Sydney Basin Airspace well clear of the congested airspace east of the Nepean River. All WSI flight paths, both arrivals and departures, have been designed to ensure vertical separation exists when crossing this low level route. The RRO-NAP would not affect the preliminary flight paths.
- *Sydney Basin Visual Flight Rules (VFR) Operations*: The implementation of the RRO-NAP would have no impact on Sydney Basin VFR operations.

G2.14 Cumulative impacts

None of the proposed changes to the preliminary flight paths are anticipated to result in a change to the overall cumulative impacts identified and assessed in the Draft EIS.

G2.15 Matters of National Environmental Significance (MNES)

Mt Tomah, Mt Wilson and Mt Irvine, Required Navigation Performance – Approval Required approach, and RRO night approach to Runway 05 (Arrival East)

The following preliminary flight path refinements are not expected to result in any change to the impact assessment of MNES as presented in the Draft EIS:

- Mt Tomah, Mt Wilson and Mt Irvine: the proposed change would generally continue to traverse areas of the Blue Mountains National Park consistent with the areas assessed as part of the Draft EIS and would have consistent impacts and would therefore not affect the assessment of MNES
- Required Navigation Performance – Approval Required approach: the proposed change would reduce the overall area of the Blue Mountains National Park traversed by the preliminary flight paths and consolidate 2 flight paths into one. It would also provide some visual and noise amenity improvement (at night) as aircraft would be at higher altitudes when passing above or near to Aboriginal heritage sites along Linden Ridge and the Emu rock engraving site at Ticehurst Park (noting the latter site is adjacent to the GBMA). This change is therefore not anticipated to affect the assessment of MNES previously presented in the Draft EIS
- RRO night approach to Runway 05: the proposed change would not change assessment on any MNES and would not affect flight paths over the GBMA.

The proposed refinements to these preliminary flight path would not result in any additional impacts to MNES (including impacts to the GBMA) compared to those presented in the Draft EIS.

Refinements to the RRO mode of operation

Some areas of the GBMA to the north of Lake Burragorang would be newly overflown as part of RRO operations during implementation of the RRO-NAP. Similarly, some areas of the GBMA to the south of the Great Western Highway and to the north and east of Blackheath would no longer be overflown during this runway mode of operation..

Based on the shift in preliminary flight paths, the implementation of the proposed RRO-NAP would not change the overall assessment on any MNES (including impacts on the GBMA) compared to the assessment presented in the Draft EIS. The additional areas of overflight associated with the RRO-NAP are also already overflown during daytime periods under the preliminary flight paths and would have similar impacts during the implementation of the RRO-NAP. The refinements would provide some visual or noise amenity improvement for Aboriginal heritage sites located in Linden and Faulconbridge, including the emu engraving site at Ticehurst Park (which is adjacent to the GBMA).

Noise impacts

The changes proposed in the RRO flight paths have potential to generate the previously identified noise impacts on the GBMA. The proposed changes redistribute a portion of the traffic further south over a different region of the GBMA. The shift in the aircraft producing at least 60 dB(A) is shown in Figure G.11. As presented in Figure G.11, blue shaded areas are anticipated to result in at least 2 less movement whereas red areas are anticipated to result in at least 2 additional movements of at least 60 dB(A) compared to the assessment presented in the Draft EIS. The selection of 2 movements is based on a likely threshold of noticeability in the number of aircraft overflights.

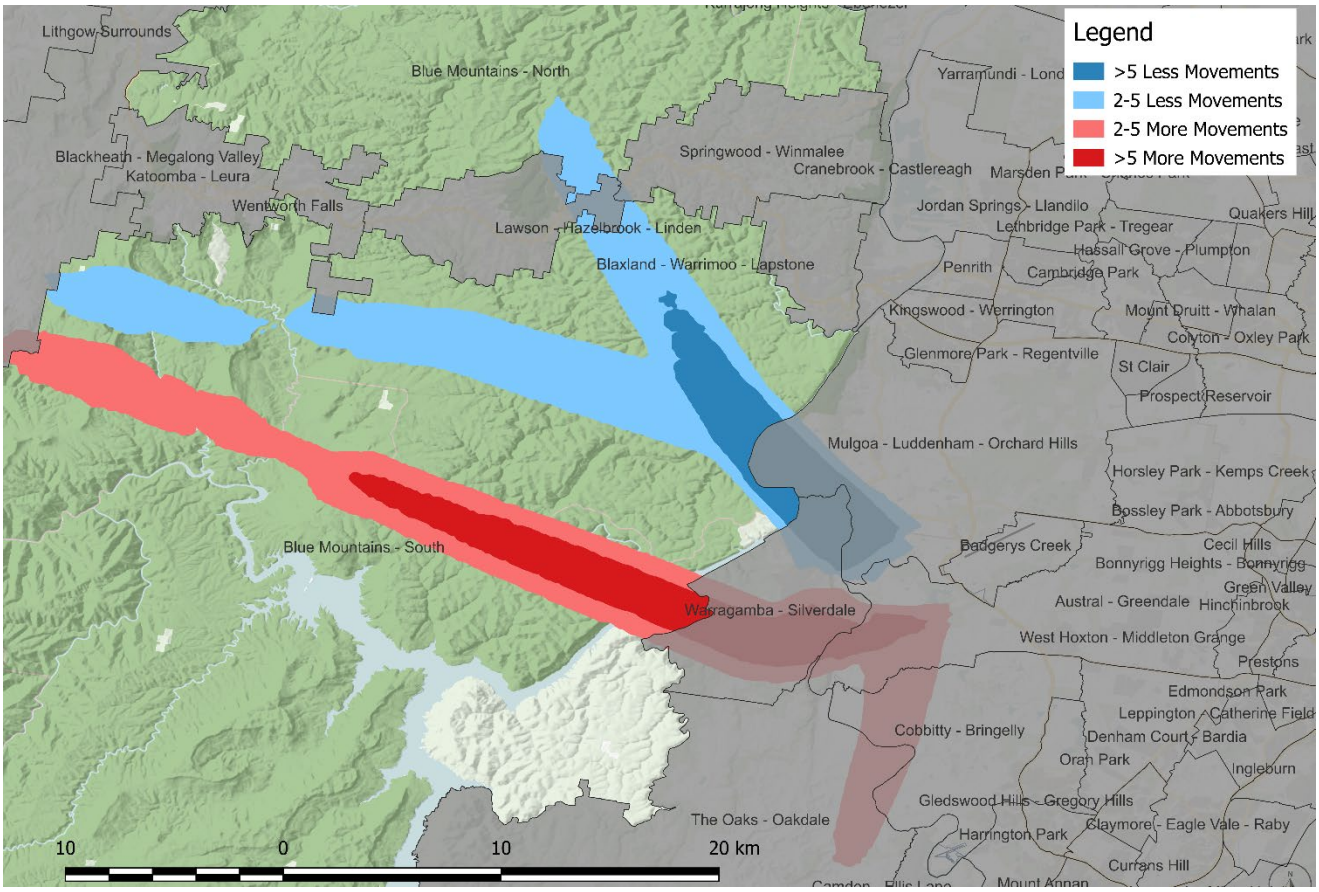


Figure G.11 Differential contours – N60 Night (11 pm to 5.30 am) – 2055

G3 Evaluation of the merits of the refined proposal

The project, including the preliminary flight path refinements that have been identified, has been designed, to the greatest extent practicable to respond to the issues raised by the community and stakeholders and to avoid and minimise potential impacts. As a result of the proposed refinements to the project, the refined preliminary flight paths proposed are considered to, in comparison to the preliminary flight paths identified in the Draft EIS, result in an improved overall outcome.

On balance, the refined preliminary flight paths are considered to result in an improvement to the project as described in the Draft EIS. The remaining impacts are generally consistent with those previously presented in the EIS.