

Discussion Document

Sydney Night Flight Arrivals Track on Runway 23

March 2022

1. INTRODUCTION

During 2018, Airways, AIAL, Air NZ and BARNZ worked to develop alternative routing for night flights arriving from Brisbane/North Australia and Melbourne/South Australia tracks, called Night STARS (standard arrivals routes). Lower domestic traffic volumes at night enabled these routes to be safely developed for night-time use, finishing at 6am. These routes were consulted with the community and implemented 1 September 2018.

Together these new Night Stars removed two thirds of night time traffic off the standard Night STAR used by Sydney flights.

Since the Brisbane/North Australia and Melbourne/South Australia flight paths were developed, the Orakei Local Board representative on the ANCCG has been requesting work be undertaken on an alternative Sydney night flight path for Runway 23 arrivals. Requests were also made for an alternative arrivals route for North American and Pacific Island flights arriving on Runway 05 in Easterly wind conditions so that these flights did not cross central Auckland either.

In 2020 the Airport, Airways and airlines were not in a position either financially, or resource wise with staff, to undertake either of these pieces of work, with all organisations being materially impacted by Covid-19 reductions to air travel and undertaking staff restructures and redundancies representing 30% to 40% of staff, and reducing all non-critical work. Work relating to noise monitoring, responding to noise complaints, the holding of the ANCCG, installation of noise mitigation packages and the Noise Trust nevertheless continued.

In early 2021, with the consensus of the ANCCG, a noise monitor located at Mt Wellington was removed for a period of 18 months, with the cost savings agreed to be diverted to fund the development of the North American Runway 05 night-time STAR. This new night STAR went live in December 2021, and has meant those North American and Pacific Island arriving flights cross to the North of Auckland rather than over central Auckland.

In the 2021 Annual Noise Management Report, Auckland Airport committed to preparing a discussion document to examine options for the Sydney Night Flights arriving on Runway 23. This document reflects that commitment and explores options available regarding Sydney Night flights on Runway 23. Airways has identified an as yet untested and untried concept flight path that could be used to move some or all of Sydney night flights onto the Melbourne/South Australia Night STAR (as illustrated on the plan at the end of this introduction section). This alternative route would result in an extra 8 track miles per arriving flight, or approximately 10 000 track miles per annum (at 2019 flight volumes). This would represent an addition 200 to 300 carbon tonnes.

The Discussion Document sets out the data around useage of the Sydney and Melbourne flight paths at night time, and seeks feedback on options ranging from:

- Maintaining the current distribution of night flights on the three tracks (being the Sydney, Brisbane/North Australia and Melbourne/South Australia tracks);



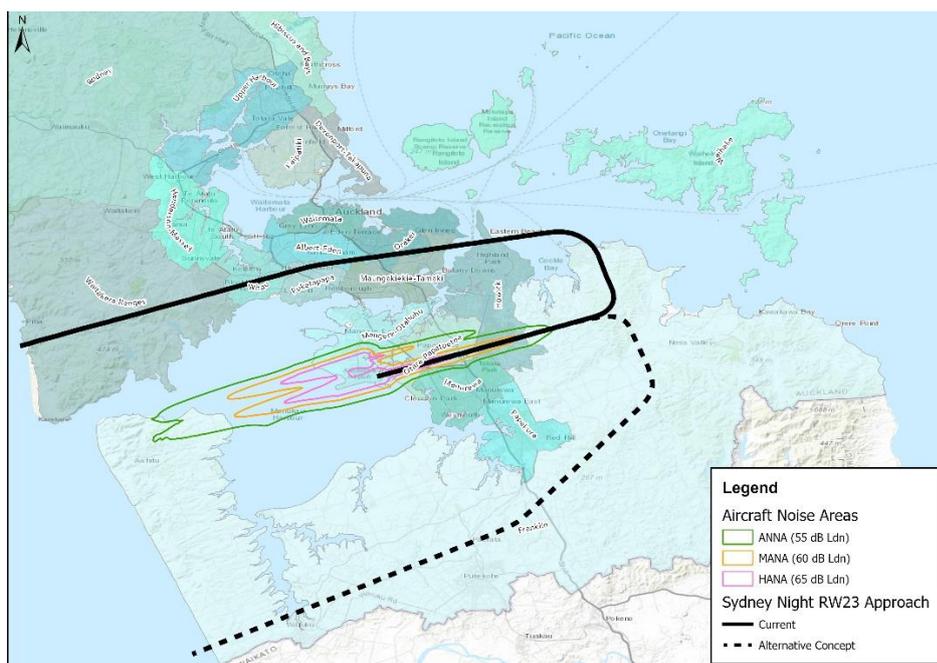
- A deferred introduction of the Sydney night flight concept when aircraft activity increases to a pre-determined trigger point;
- A partial introduction of the Sydney night flight concept (eg for flights post 1am or for older aircraft type with a greater noise footprint)
- A full immediate introduction of it (post testing, development and publication of it in the Aeronautical Information Publication (AIP)).

No decisions have been reached at this time by Auckland Airport. As noted above, the concept flight path is as yet untested and untried, and would need testing, development and publication in the the Aeronautical Information Publication (AIP) before it could be implemented. The development of flight paths is a complicated process, needing to reflect:

- the operability and safety of the proposed flight path
- the location of both the origin and destination airports
- prevailing wind patterns
- the inter-relationship with other flight paths
- the position of other airports in the region
- any government or local rules
- the efficiency of air space and the ability to manage flights
- the impact on residents and communities underneath the flight paths and
- the environmental carbon impact of track miles.

All of the above factors need to be taken into account in making any decisions on the most appropriate flight paths and changes to flight paths. Auckland Airport also needs to balance the interests of residents of one area of Auckland who might seek to have flights moved away from their area against the interests of residents of the area where flights are proposed to be relocated to who may be adversely impacted.

Auckland Airport invites feedback from ANCCG members, airlines and the Aviation Industry on the options put forward in this discussion document, as well as other alternative suggestions. A Microsoft FORMS survey has been developed to assist in collecting and collating this feedback, which may be found at <https://forms.office.com/r/T6ApwqXVU5>. Feedback is requested by 31 March 2022.



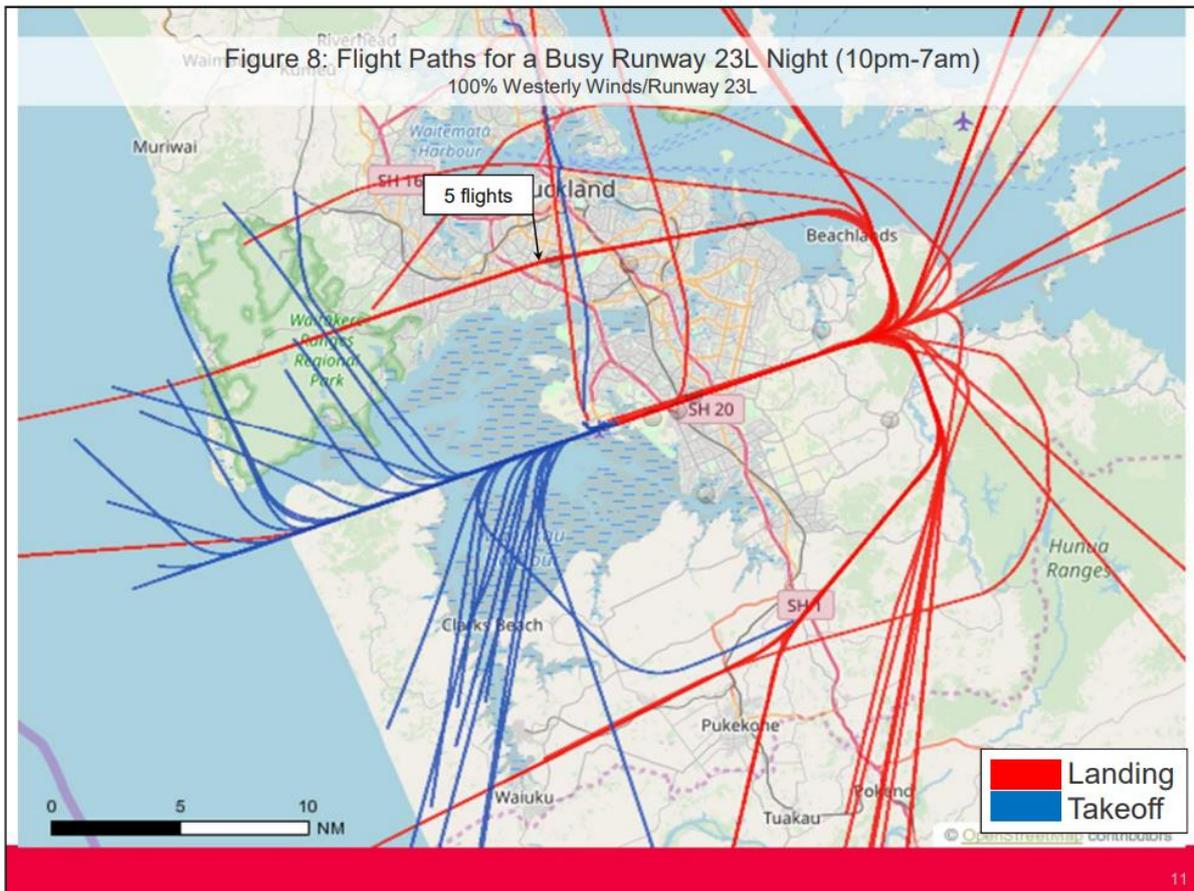


2. CURRENT NIGHT FLIGHT MANAGEMENT GENERALLY

2.1 Night flight distribution

Night flights are experienced by most areas of Auckland.

The map below shows the distribution of night-time (10pm – 7am) flight paths on Friday 20 December 2019, which was the busiest night in the three month period November 2019 to January 2020 when Runway 23 was primarily in use. As this map demonstrates, large areas of Auckland experience night flights. It is not an issue confined to just one suburb or area. There were 82 night flights on this night, and as highlighted on the map, 5 of them flew the Sydney STAR, crossing central Auckland. There were however flights using the Brisbane Night STAR to the North of the city, and the Melbourne Night STAR to the South. Several flights can also be seen using the night-time preferential runway mode¹ and landing on Runway 05 approaching from the Manukau Harbour. All domestic arriving flights flew over South Auckland, in the vicinity of Pukekohe, Tuakau, Pokeno and Clevedon. Virtually all arriving flights used the main approach flying over Flatbush, Manukau and Mangere before landing at the Airport. Departing flights departed to the West flying over the Manukau Harbour.

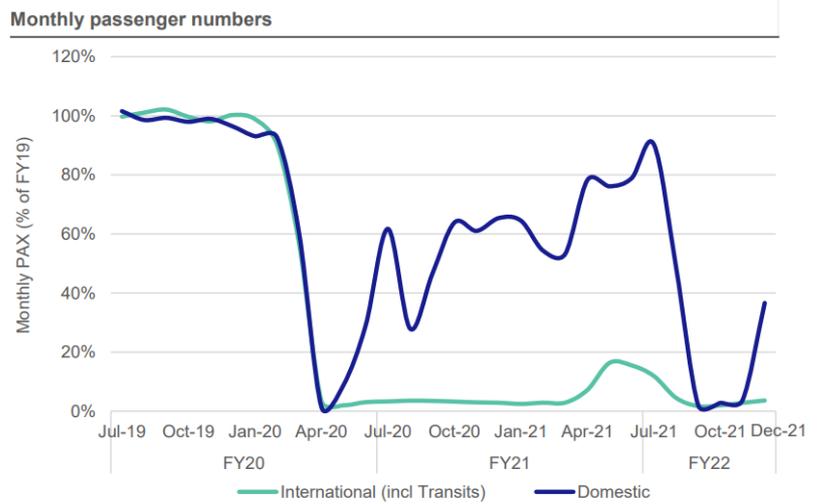


To provide further context, the busiest night for the preceding three month period in 2019 was Friday 25 October 2019, when Runway 23 was primarily in use. On this night there were 67 flights, 10 of which flew the Sydney Night STAR route.

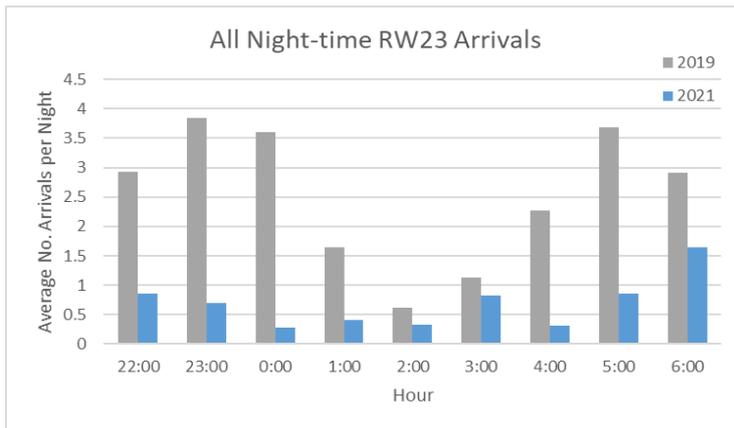


2.2 Night Flight Volumes

The reduction to aviation activity caused by COVID-19 has brought about the largest single reduction in aircraft volumes and passenger demand experienced in the history of Auckland Airport, with flights volumes during the highest levels of lock-down being similar at some points to when the airport opened in 1966. The impact to passenger volumes at Auckland Airport caused by Covid-19 can be seen in the graph to the right showing international and domestic monthly passenger volumes over the last two and a half years.



The reduced passenger volumes has flowed through to reduced flights, including lower night flight movements. In calendar year 2019 there were 8267 night flights arriving on Runway 23. By contrast, in calendar year 2021 there were only 2265, or 27% of pre-covid volumes.



The graph to the left shows the timing of night flights on Runway 23 in 2019 and 2021. In 2019, on average there was between 2 and 3 flights per hour arriving during the night on Runway 23, whereas in 2021 there was less than 1 flight per hour on average.

The reduced flights have resulted in corresponding reductions in aircraft noise. The noise levels recorded within the High Noise Aircraft Area reduced by 3.6 to 4.7 dB L_{dn} in 2021 compared to 2020.²

The Government has announced a staged border reopening, with New Zealanders from Australia and the rest of the World able to return in March, quarantine-free. Visitors from the rest of the world will be able to re-enter in a staged manner commencing over July to October, however currently still with Quarantine or isolation requirements. It is not certain when unrestricted travel will recommence without isolation requirements.

Auckland Airport’s market guidance provided with its February 2022 Interim results announcements was based on the following assumption:

The requirement for mandatory self-isolation will significantly dampen international demand over the remainder of FY22, with Tasman passenger numbers somewhere between 10-30% of pre-COVID levels from March 2022 onwards and long-haul international passenger numbers unlikely to exceed 5%.

At a global level, IATA is forecasting that international aviation volumes will not return to 2019 levels until 2023 to 2024. Australia and New Zealand are forecast to return to 2019 levels 2025 to 2026.

The timing of a return to 2019 night flight volumes is therefore likely several years away.

² Auckland Airport 2021 Annual Noise Management Report, page 6, available at [Auckland Airport Noise Management Annual Report FY21 \(1\).pdf](#).



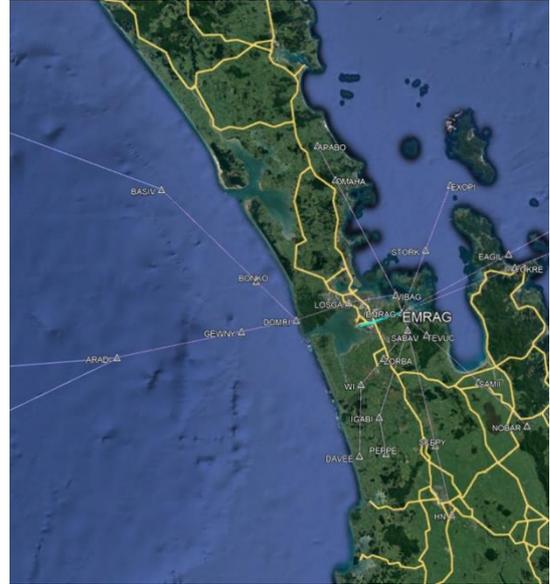
3. AUSTRALIAN NIGHT FLIGHTS

3.1 Australian standard arrivals routes for day-time flights

During the day, all Trans-Tasman traffic is brought together to join the standard arrivals route (Sydney Track), with Brisbane/ North Australian³ flights joining at DOMRI just off the West Coast and Melbourne/South Australia⁴ flights joining at the ARADI way-point. By design, the Sydney Track is the most efficient with minimal divergence i.e. it runs in nearly a straight line.

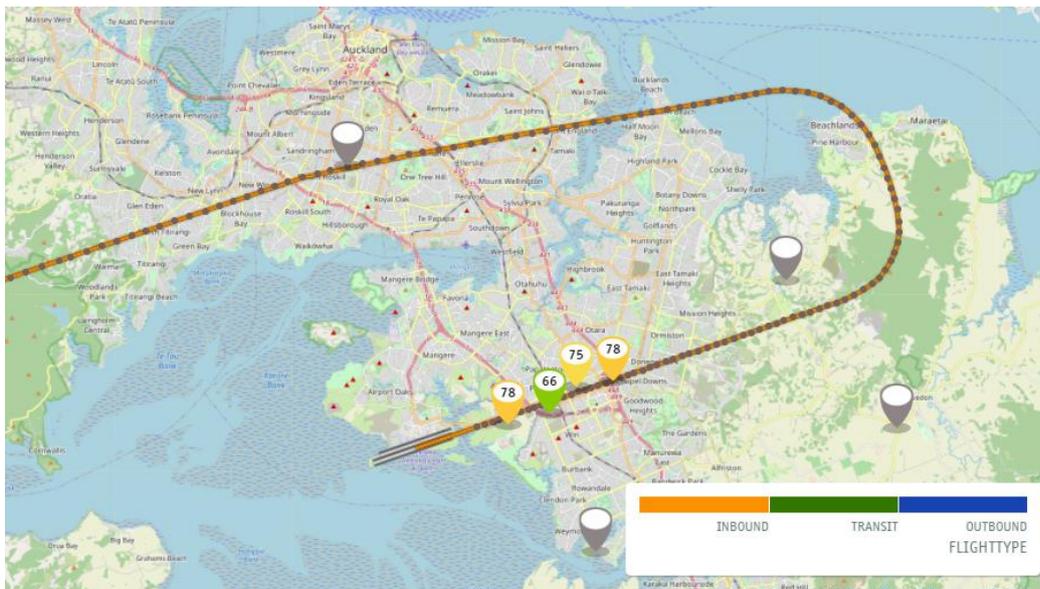
The map to the right shows the existing standard arrivals route flown for flights arriving from Sydney, Brisbane/North Australia and Melbourne/South Australia during the day.

Bringing all Trans-Tasman flights together off the coast of New Zealand, at the DOMRI waypoint in this way, has important safety critical Air Traffic Control management of airspace outcomes, as well as increasing the efficient operation of the airspace. It means the Tasman traffic all joins downwind on the same route and is kept clear of domestic traffic to and from Northland, International traffic to the Pacific Islands, Asia and North America and flights departing west to Australia. These departures leave the Auckland Terminal airspace through “gates” depending on their destination and are able to be kept clear of the arriving flights.



From the DOMRI waypoint, all flights then fly through LOSGA and VIBAG to intercept the main approach to the runway at EMRAG.

The standard arrivals route these flights fly over the urban Auckland area is shown in map below. It can be seen that flights on the standard arrivals route cross Auckland by flying a path over Titirangi, Blockhouse Bay, Mt Eden, Point England, Eastern Beach and turning South at Beachlands.



³ As well as Brisbane, North Australian flights include flights from Cairns, the Gold Coasts, Sunshine Coast and most of Asia (e.g. China, Hong Kong and Taipei)

⁴ As well as Melbourne, South Australia flights include flights from Adelaide, Tasmania and Perth.



3.2. Initiatives to date for Trans-Tasman night-flights

During 2018, Airways, AIAL, Air NZ and BARNZ worked to develop alternative routing for night flights arriving from Brisbane/North Australia and Melbourne/South Australia tracks, called Night STARS (standard arrivals routes). Lower domestic traffic volumes at night enabled these routes to be safely developed for night-time use, finishing at 6am. These routes were consulted with the community and implemented 1 September 2018. Together these new Night Stars removed two thirds of night time traffic off the standard arrivals route used by Sydney flights.

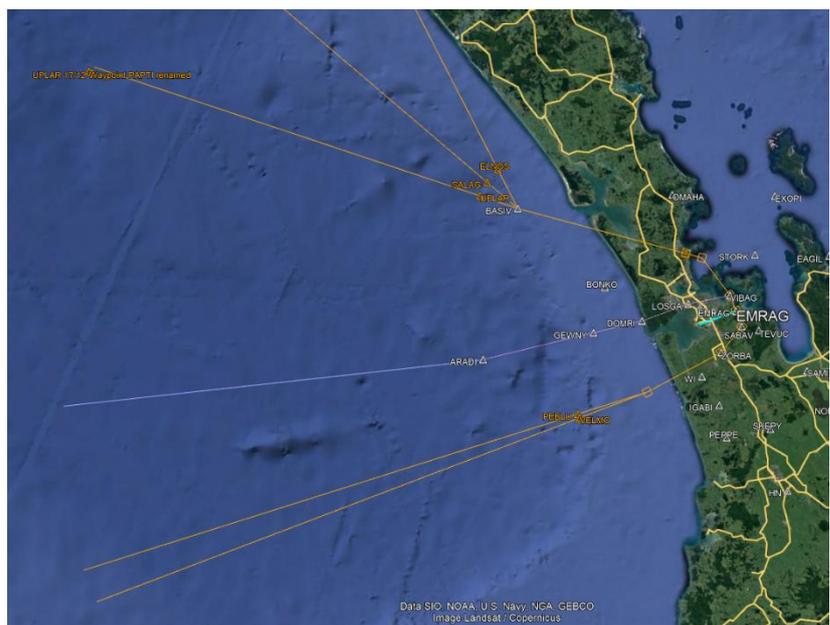
The Night STARS are flown from 11pm to 6am, however this is always subject to aircraft safety and operational requirements. For example, bad weather such as winds, storms or lightning may prevent the night routes from being able to be flown, or if flights arriving at the same time as a cluster of domestic flights, then the international flights may need to be routed on the day-time standard arrivals. This sometimes occurs close to 6am as domestic traffic commences for the day.

The Night STARS developed in 2018 are set out in the map below. In summary:

- When the Brisbane/North Australia flights reach the BASIV way-point, instead of moving South-east to BONKO and then to DOMRI to join the main arrivals route which crosses Auckland over LOSGA (ie the central Isthmus) as they would during the day under the standard arrivals route, the flight crosses North of Auckland (flying over Southhead to Whangaparoa) before turning South at VIBAG (a waypoint over the ocean between Waiheke Island and Beachlands) and joining the final approach at EMRAG. In short, the Brisbane/North Australia Night STAR crosses North of Auckland in the vicinity of Whangaparoa, avoiding flying over the central suburbs. This Night STAR is also used for flights from Cairns, the Gold Coasts, Sunshine Coast and most of Asia (e.g. China, Hong Kong and Taipei).
- Melbourne/South Australia flights remain on their same direction (instead of flying North East to join the Sydney flights at the ARADI way-point over the Tasman Sea as they would under the standard arrivals route) and cross New Zealand below Auckland (in the vicinity of the Pukekohe and Aririmu rural areas) moving through waypoints ZORBA and SABAV before turning North to intercept the final approach at EMRAG. In short, the Melbourne night STAR crosses South of Auckland North East of Pukekohe, also taking night flights off the central suburbs of Auckland.
- It is worth noting that flights from Singapore and Malaysia use either the Sydney standard arrivals route or the Brisbane/North Australia Night STAR, depending upon the upper wind levels over Australia and the Tasman, with the use split evenly across these two tracks.

The Sydney flights were left on the direct path over central Auckland represented by the standard arrivals route, as this was the most efficient direct route for these flights.

As noted earlier, the above changes resulted in approximately two thirds of Australian and Asian night traffic being moved off the Sydney standard arrivals route onto the two new Night Stars – being the Brisbane/North Australia Night STAR and the Melbourne/South Australia Night STAR.





3. SYDNEY NIGHT FLIGHTS

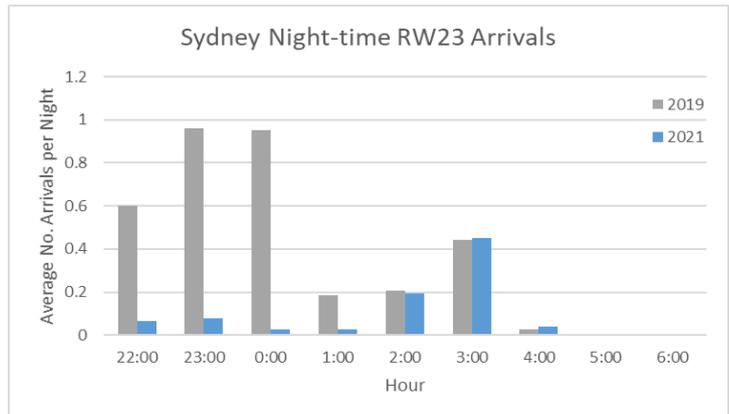
3.1 Volumes of Sydney Night Flights

In 2019 there were 1231 night flights from Sydney arriving on Runway 23L, an average of approximately 4 per night.

In 2021 only 26% of 2019 volumes of night flights were flown, with 319 night arrivals from Sydney on Runway 23L, an average of slightly less than one per night.

Sydney night flights represent 14% to 15% of all night-time arrivals on Runway 23L (15% in 2019 and 14% in 2021). 97% of these Sydney arrivals on Runway 23L fly the standard arrivals route crossing LOSGA (ie Titirangi, Mt Eden, Point England, Eastern Beach and Beachlands).

The spread of these Sydney arriving flights through the night, for both 2019 and 2021, are shown in the table to the right.



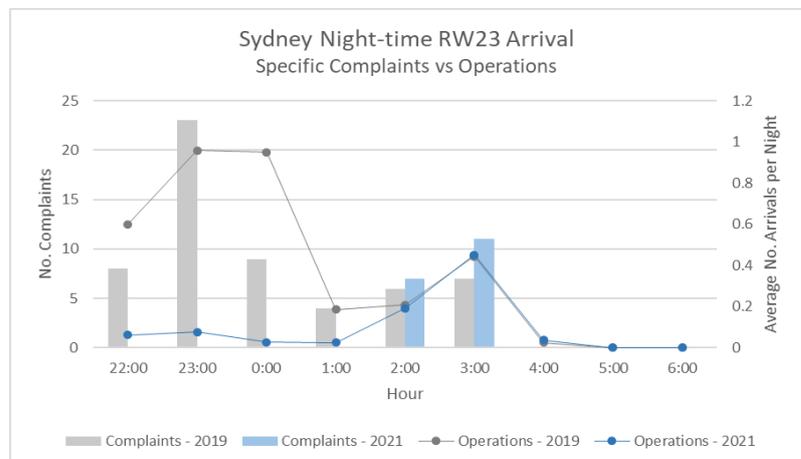
3.2 Complaints received regarding Sydney Night Flights

In 2019 there were a total of 249 night-time noise complaints, 131 (53%) of which related to the use of Runway 23, of which 57 related to Sydney night flights arriving on Runway 23L. The 57 Sydney night flight complaints relating to use of Runway 23L thus represented 44% of the 131 night-time related noise complaints on Runway 23 received during 2019 or 23% of all night-time noise complaints. These 57 complaints relating to the Sydney night flights were made by nine individual complaints in the suburbs of Greenlane, Mt Eden, Bucklands Beach, Beachlands, Flatbush and Papatoetoe.

In 2021 there were a total of 38 night-time noise complaints, 23 (61%) of which related to night flights arriving on Runway 23. 18 of these 23 night-time Runway 23L complaints concerned Sydney night flights arriving on Runway 23L. Thus 43% of night-time related noise complaints received in 2021 related to Sydney night flights landing on Runway 23L. These 18 complaints relating to the Sydney night flights were made by four individual complaints in the suburbs of Remuera, Mission Bay and Beachlands.

The pattern of the noise complaints by time, and also graphed against activity is shown in the graph to the right.

In 2019 most activity occurred from 23:00 to 01:00 and the highest complaints were from 23:00 to 00:00. In 2021 the highest flight volumes were from 2:00 to 4:00, and most complaints were received at this time period.



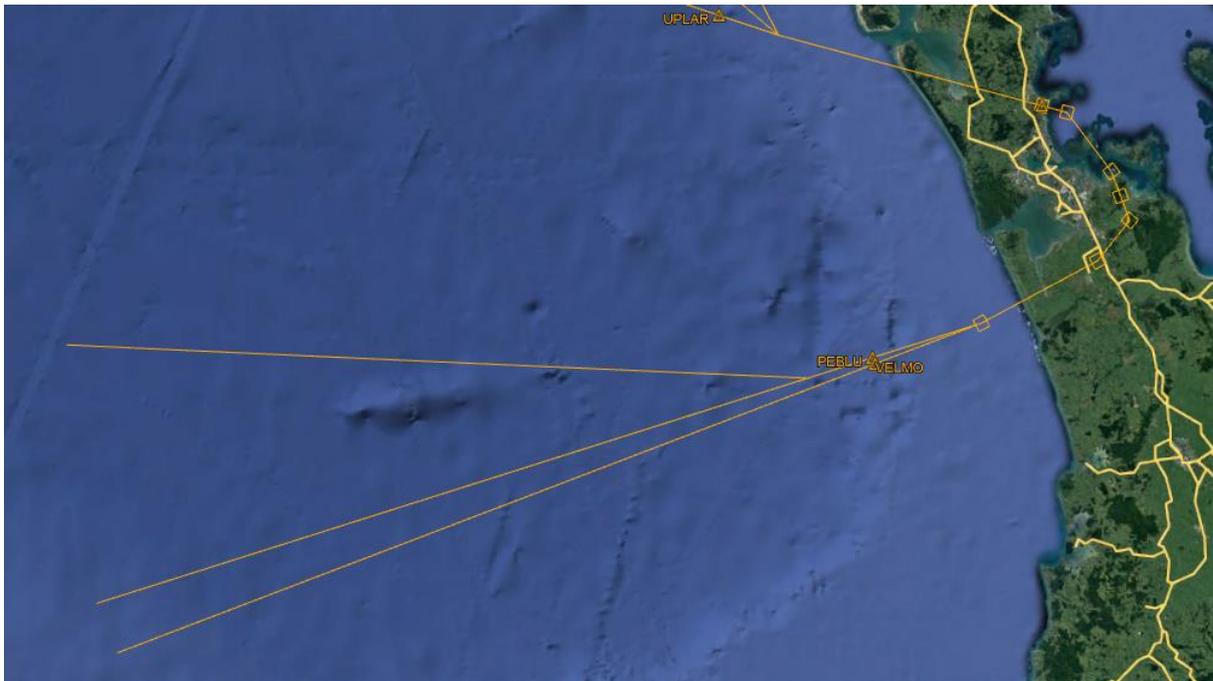


4 SYDNEY NIGHT STAR CONCEPT SUGGESTION

4.1 Southern based Night STAR Concept

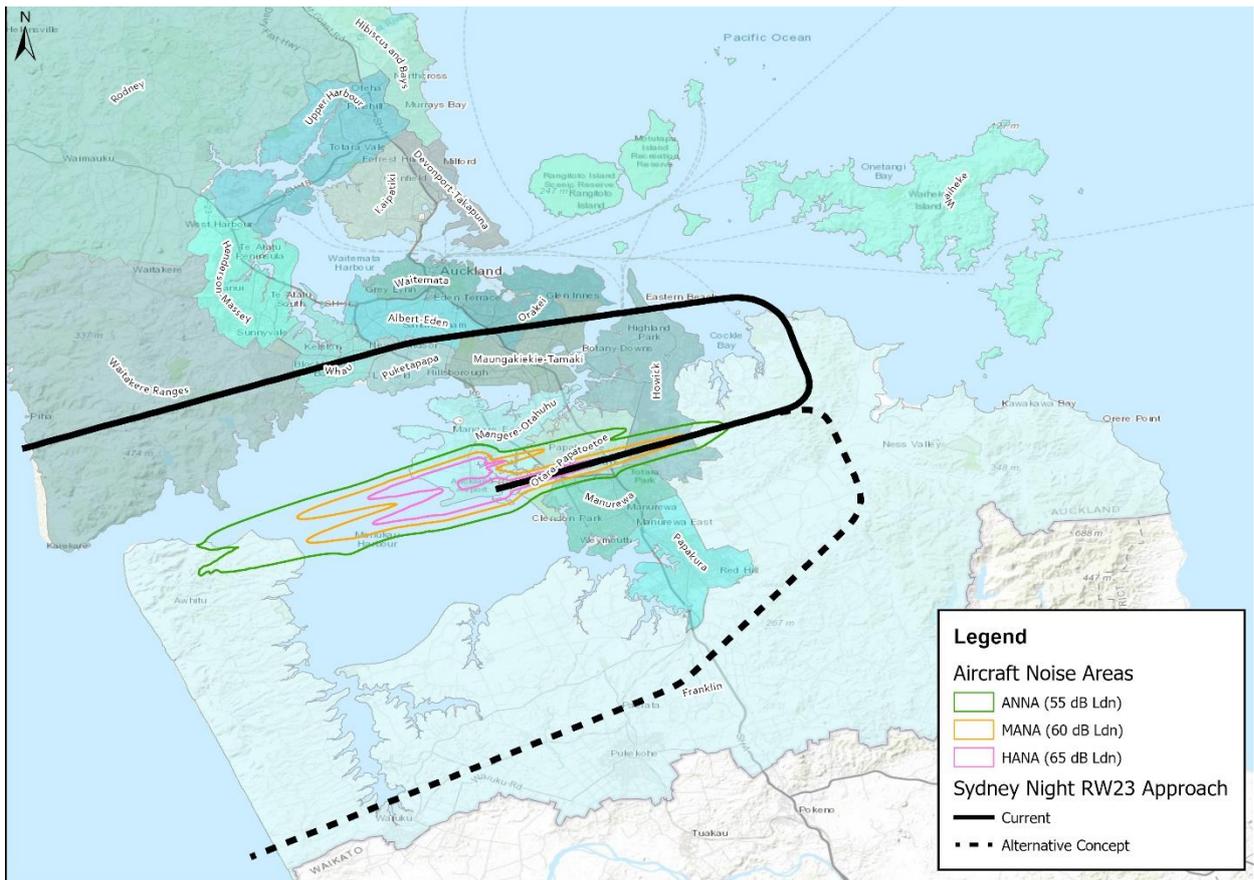
Airways has examined possible alternative arrivals routes for night flights from Sydney on Runway 23. The existing route is considered the most effective and direct by Airways from an airspace management perspective. However, an alternative concept of routing Sydney flights onto the same Southern night STAR used by Melbourne/South Australia flights has been developed as an untested concept. Note, this untested concept has not yet been subject to a safety test or to flight simulation or technical consultation with airlines, all of which would be necessary as part of its development before it could be confirmed.

The suggested route is set out below. In short, Sydney arriving flights in westerly conditions (historically 70%) using Runway 23 would divert Southward as they enter New Zealand domestic airspace approximately 200 nautical miles west of Auckland Airport to join the Melbourne Night STAR approximately 80 nautical miles from Auckland Airport (current waypoint PEBLU). By doing this any crossover of traffic or conflicts occur within one controller's airspace as opposed to near a sector boundary or edge of RADAR viewing. Once aircraft have joined the Melbourne track they would fly the same arrival as Melbourne traffic to waypoints ZORBA⁵ then SABAV then join the centre-line of the instrument approach at EMRAG and from there fly directly in a straight line on the standard centre-line approach over Flatbush, Manukau and Mangere to land at Auckland Airport. This route would need to cease being used by 6am, and possibly earlier, depending upon the volumes of domestic traffic.



An illustration of the alternative concept route, and illustration of current standard night approach for Sydney flights using runway 23L, plotted against Local Board areas is shown below:

⁵ ZORBA is an existing point North East of Pukekohe and is used on the night STAR from Melbourne as well as by all jets during the day flying either the RNAV S (orange) or the ILS approach into Auckland.



4.2 Carbon Implications

The current Sydney standard arrivals route represents the most efficient flight path for aircraft from Sydney to arrive at Auckland Airport, as it is the most direct, straightest route. The Southern based concept outlined above would add an additional 8 track miles to the current standard arrivals route for Sydney flights landing on Runway 23.

At the 2019 levels of 1231 night flights arriving from Sydney on Runway 23, this represents an additional 10 000 track miles per annum. This would represent an additional 200 to 300 tonnes of carbon per annum at 2019 flight volumes if this change was made for all Sydney night flights arriving on Runway 23.

Airlines are continually investing in carbon-reduction technology, including purchasing more efficient aircraft and younger average fleet age, investigating alternative means of fuel and use of battery power, looking to use electric based ground power units rather than fuel based ground power units or auxiliary engines, and more efficient approaches and departure using performance-based navigation. Adding track miles runs counter to the strong focus on fuel efficiency and reduced carbon footprint from air travel.

In 2009 the International Air Transport Association (IATA) set out three targets to address the impacts of climate change caused by commercial aviation:

1. Improve aircraft fleet fuel efficiency on average 1.5% per annum between 2009-2020 (achieving a 2.1% average improvement)
2. Carbon neutral growth of aviation emissions from 2020 (ICAO CORSIA scheme); and
3. Reduce net carbon emissions by 50% in 2050 relative to 2005 levels (ICAO CORSIA scheme)



Aircraft and engine manufacturers spend on average \$15 billion on R&D to develop more fuel-efficient aircraft. The result is each new generation of aircraft is between 15-20% more fuel efficient per passenger kilometre than the aircraft it replaces. Billions is also being spent annually developing alternative energies for aircraft, including Sustainable Aviation Fuel (SAF), hydrogen and electric power.

Airways, airlines and airports in New Zealand have also invested millions developing performance-based navigation (PBN) arrival and departure procedures. Utilising satellite-based navigation technology, aircraft fly more optimal flight paths with continuous ascent or descent, reducing track miles flown and the associated kilograms of carbon emissions, along with reducing noise by avoiding populated areas.

5. DISCUSSION OF OPTIONS

This paper is a discussion document examining options for Sydney Night flights landing on Runway 23. A full range of options from no change, to a new flight path are canvassed below, as well as some staged options between.

The options identified below are set out for the purposes of facilitating discussion and seeking feedback only. These suggestions do not represent any concluded views by Auckland Airport and they have not been the subject of community, industry or aviation feedback.

5.1 No change to existing Sydney arrivals STAR on Runway 23

As outlined in section 3.2 above, prior to 2018, all Trans-Tasman night flights arriving on Runway 23L, followed the standard arrivals route crossing Auckland via Titarangi, Mt Eden (LOGSA), Point England, Eastern Beaches and Beachlands before turning to join the centre-line at EMRAG and flying to land at the Airport.

At the end of 2018 Brisbane/North Australia/Asia flights and Melbourne/South Australia flights were removed from this route and flew North and South of Auckland respectively at night on new Night STARS. In 2021 a new Night STAR for flights arriving from North America and the Pacific Islands on Runway 05 was developed, also taking these flights off central Auckland by having them fly North of Auckland.

Most of Auckland experiences exposure to night flights. The Sydney night flights remaining on the central Auckland Night STAR represent 15% (14% in 2021) of arrivals on Runway 23. By contrast, the suburbs of Flatbush, Manukau and Mangere receive 100% of all arriving flights on Runway 23 overflying their suburbs. All domestic night flights overfly rural South Auckland areas.

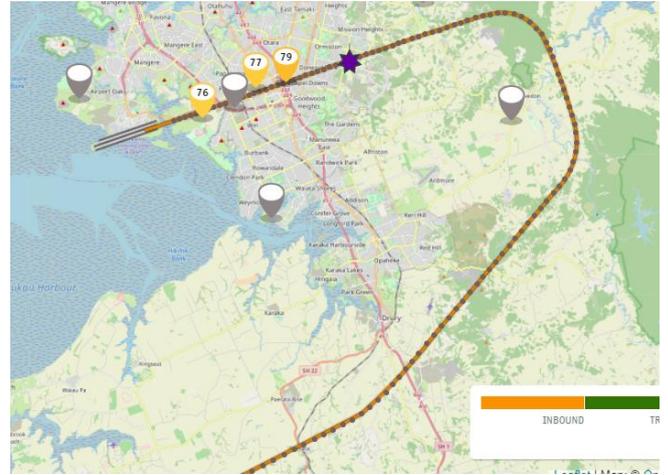
Moving Sydney flights to another part of Auckland will transfer noise from one group of residents to another. With the removal of Brisbane/North Australia/Asia flights and Melbourne/South Australia flights in 2018, it could be considered that noise from night flights is spread equitably across North Auckland, Central Auckland and South Auckland, and the remaining Sydney flights that fly over the central Auckland suburbs and represent 15% of arrivals on Runway 23 is an equitable share to remain over central Auckland.

Question 1: Is the current distribution of night flights over the Southern Auckland, Northern Auckland and central Auckland equitable, such that the 15% of Runway 23 night arrivals represented by Sydney flights should remain on the standard Sydney Sydney STAR crossing Auckland via Titarangi, Mt Eden (LOGSA), Point England, Eastern Beaches and Beachlands before turning to join the centre-line at EMRAG?



5.2 Develop a Southern Sydney Night STAR

As outlined in section 4 above, Airways have developed an as yet untested concept of a southern based Dydney Night STAR for Runway 23, which would involve Sydney night arriving flights diverting South East 200 miles prior to Auckland to join the Melbourne/South Australia Night STAR, and then flying the Melbourne/South Australia Night STAR route over South Auckland (Pukekohe and Tuakau districts) to join EMRAG and the centre runway approach.

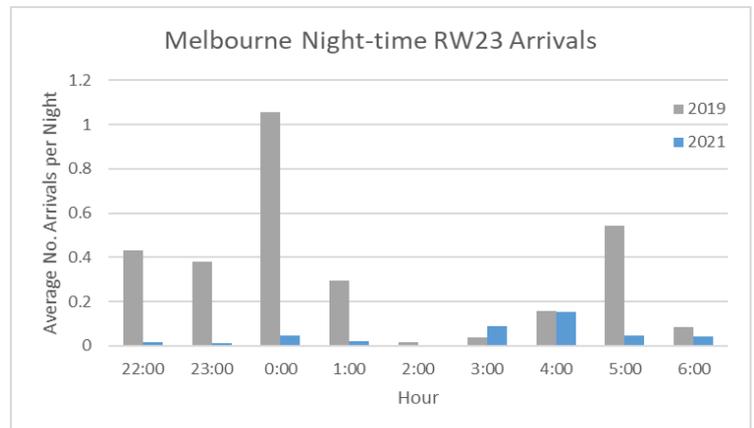


This route is shown in the map to the right in relation to South Auckland townships. It has been designed to avoid urban areas at Pukekohe, Drury and Papakura and to overfly more sparsely populated rural areas or lifestyle blocks such as the Pukekohe district or Aririmu. However, these residents can be sensitive to noise not being exposed to urban noise, and the aircraft noise can be more noticeable and irritating. Moreover, with urban development being targetted at South Auckland areas such as Takanini, Drury, Papakura and Pukekohe the size of Southern Auckland urban areas is expanding. In 2019 there were 14 noise complaints specifically in relation to Melbourne Night flights on Runway 23, which represented 11% of Runway 23 complaints.

This Southern route is already flown by Melbourne, Adelaide and Tasmanian and Perth night flights and parts of it are flown by domestic flights at night-time. It is also used by domestic jets during the day flying either the RNAV S (orange SMART approach) or the ILS approach into Auckland.

The trade-off of developing the concept Night flight path for Sydney based on the Melbourne/South Australia Night STAR would therefore be to transfer flights from central Auckland onto South Auckland residents, in addition to the flights already experienced by these South Auckland areas from the Melbourne/South Australia Night STAR and domestic night time flights from south of Auckland.

As set out to the right, noise complaints are already received with regard to the Melbourne/South Australia Night STAR from South Auckland rural residents.

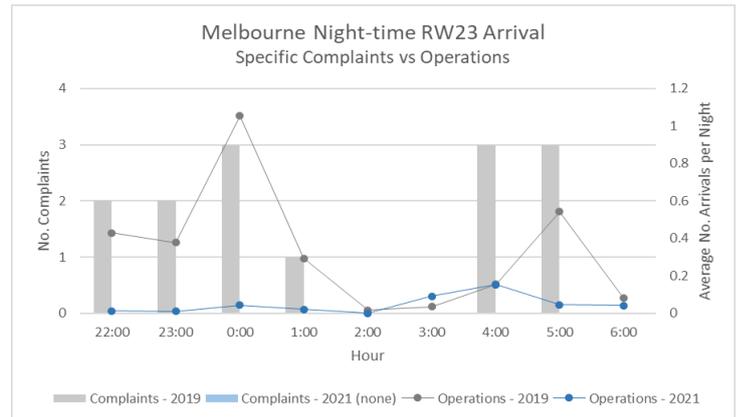


1091 flights used this Melbourne/South Australia Night Star in 2019, which is very similar to the 1231 Sydney flights. Melbourne flights represent approximately 13% of night arrivals on Runway 23.

If Sydney and Melbourne night flights arriving on Runway 23L both used this Southern route (as well as various other South Australian flights), that would represent 28% of Runway 23 night arrivals. In addition, the South Auckland area experiences virtually all night-time domestic flight arrivals using Runway 23L.



In 2019 14 noise complaints were received regarding Melbourne/South Australia night flights arriving on Runway 23L. This represented 11% of the 131 Runway 23L night arrival noise complaints received during 2019. No noise complaints were received in 2021 for night arrivals from Melbourne on Runway 23L with there being less than one flight per night on average flying this Night STAR. The pattern of the noise complaints by time, and also graphed against activity is shown in the graph to the right. In 2019 the highest complaints were from 23:00 to 01:00, and 04:00 to 06:00.



For Sydney flights to use the Melbourne/South Australia Night Star would involve these flights each incurring an additional 8 track miles per arrival, representing 10 000 additional track miles at 2019 flight volumes. This would equate to an additional 200 to 300 tonnes of extra carbon (at 2019 flight volumes).

- Question 2A: What is your view on a Sydney Night Star being developed (as set out in section 4) that diverts Sydney flights approximately 200 nautical miles off-shore from Auckland Airport and has them join the Melbourne/South Australia Night STAR flying over South Auckland rural areas in the vicinity of Pukekohe and Drury (via waypoints ZORBA⁶ then SABAV) then joining the centre-line the instrument approach at EMRAG and from there fly directly in a straight line on the standard centre-line approach over Flatbush, Manukau and Mangere to land at Auckland Airport.
- Question 2B: If the new Sydney Night STAR was developed, do you consider the additional carbon emissions from the new route are justified and proportional to the reduction in noise complaints.
- Question 2C: If the new Sydney Night STAR was developed, do you consider it should be trialled initially for one year like the SMART approaches, with monitoring of the flyability of the route and public feedback taken into account before any final decision is made? Or do you consider it should be developed and confirmed immediately, with just industry and ANCCG feedback (as was the case with the Brisbane/North Australia, Melbourne/South Australia and North American Night STARS)?
- Question 2D: If the new Sydney Night STAR was developed, what hours do you consider it should be operational? Should it operate from 11pm to 6am like other Night STARS; or should its use be restricted? For example, it could apply for a shorter period such as from 1am only, with the more direct standard arrivals route flown over central Auckland up until 1am, with the Melbourne/South Australia Night STAR applying from 1am to 6am, reflecting the complaints previously made up until 1am regarding the Melbourne/South Australia Night STAR.
- Question 2E: Should a distinction be made between older noisier aircraft and more modern quieter aircraft, with older aircraft required to fly the longer Melbourne/South Australia Night STAR over the predominantly rural areas, and modern aircraft only able to fly the central standard arrivals route at night?

⁶ ZORBA is an existing point North East of Pukekohe and is used on the night STAR from Melbourne as well as by all jets during the day flying either the RNAV S (orange) or the ILS approach into Auckland.



5.3 Develop a Southern Sydney Night STAR but defer Introduction until night flight volumes increase

International flight volumes in 2021 remain at 27% of 2019 levels. IATA is not forecasting aircraft activity levels returning to 2019 levels until 2023/24. Auckland Airport is forecasting activity levels for Tasman passenger numbers for the remainder of FY22 being somewhere between 10-30% of pre-COVID levels from March 2022 onwards

A significant reduction in aircraft noise has been experienced over the last two years, with the Annual Aircraft Noise Contours reducing in both 2020 and 2021.

From an aircraft noise perspective, this represents a significant improvement to residents living under flight paths, although from an economic perspective what was New Zealand's largest foreign export earner in the form of international tourism, has been decimated, with significant economic hardship to businesses and employees alike.

One option if implementing an alternative southern based Sydney Night STARS route is to undertake the work to develop the concept now, but defer its introduction until volumes of Sydney night flights resume a certain percentage of 2019 pre-Covid activity, for example 70%. This would have the advantage of having the Night STAR ready to go, but defer its introduction until residents were experiencing noise closer to 2019 levels, and airlines are closer to returning to a more financially sustainable position.

Question 3A: If a southern based Sydney Night Star is developed, when should its use commence?

Question 3B: What is your view on the option of developing a southern based Sydney Night Star, but not implementing it until traffic reaches a certain trigger?

Question 3C: If you support a trigger based approach, what do you consider the appropriate trigger point to be, ie what percentage of 2019 Sydney night flights.

6. Feedback Sought

This Discussion Document explores options available regarding managing Sydney Night flights arriving on Runway 23. This document has been prepared in response to requests from the Orakei Local Board Representative on the ANCCG for a Sydney Night STAR to be developed which removes these flights from over-flying central Auckland. No decisions have been reached by Auckland Airport at this point in time.

Auckland Airport invites feedback from ANCCG members, airlines and the Aviation Industry on the options put forward in this discussion document, as well as any other alternative suggestions. A Microsoft FORMS survey has been developed to assist in collecting and collating this feedback, which may be found at <https://forms.office.com/r/T6ApwqXVU5> . Feedback is requested by 31 March 2022.

In summary, the questions on which feedback is sought are:

Question 1: Is the current distribution of night flights equitable, such that the 15% of Runway 23 night arrivals represented by Sydney flights should remain on the standard arrivals route crossing Auckland via Titarangi, Mt Eden (LOSGA), Point England, Eastern Beaches and Beachlands before turning to join the centre-line at EMRAG?

Question 2A: What is your view on a Sydney Night Star being developed (as set out in section 4) that diverts Sydney flights approximately 200 nautical miles off-shore from Auckland Airport and has them join the Melbourne/South Australia Night STAR flying over South Auckland rural areas in the vicinity of Pukekohe and Drury (via waypoints ZORBA⁷ then SABAV)

⁷ ZORBA is an existing point North East of Pukekohe and is used on the night STAR from Melbourne as well as by all jets during the day flying either the RNAV S (orange) or the ILS approach into Auckland.



then joining the centre-line the instrument approach at EMRAG and from there fly directly in a straight line on the standard centre-line approach over Flatbush, Manukau and Mangere to land at Auckland Airport.

- Question 2B: If the new Sydney Night STAR was developed, do you consider the additional carbon emissions from the new route of 200 – 300 extra tonnes per annum are justified and proportional to the reduction in noise complaints?
- Question 2C: If the new Sydney Night STAR was developed, do you consider it should be trialed initially for one year like the SMART approaches, with monitoring of the fly-ability of the route and public feedback taken into account before any final decision is made? Or do you consider it should be developed and confirmed immediately, with just industry and ANCCG feedback (as was the case with the Brisbane/North Australia, Melbourne/South Australia and North American Night STARS)?
- Question 2D: If the new Sydney Night STAR was developed, what hours do you consider it should be operational? Should it operate from 11pm to 6am like other Night STARS; or should its use be restricted? For example, it could apply for a shorter period such as from 1am only, with the more direct standard arrivals route flown over central Auckland up until 1am, with the Melbourne/South Australia Night STAR applying from 1am to 6am, reflecting the complaints previously made up until 1am regarding the Melbourne/South Australia Night STAR.
- Question 2E: Should a distinction be made between older noisier aircraft and more modern quieter aircraft, with older aircraft required to fly the longer Melbourne/South Australia Night STAR over the predominantly rural areas, and modern aircraft only able to fly the central standard arrivals route at night?
- Question 3A: If a southern based Sydney Night Star is developed, when should its use commence?
- Question 3B: What is your view on the option of developing a southern based Sydney Night Star, but not implementing it until traffic reaches a certain trigger?
- Question 3C: If you support a trigger based approach, what do you consider the appropriate trigger point to be, ie X% of 2019 Sydney night flights.



APPENDIX

Below are three of the existing charts from the NZ AIP which are used by pilots showing the STARs as currently published.

The first is the existing STAR from Sydney that comes through LUNBI then flies the ARADI8A arrival. Melbourne traffic comes through PEBLU and can be seen joining at ARADI and Brisbane traffic from UPLAR flies through BASIV to DOMRI.

The second chart shows the TAZEY1N arrival flown off the Melbourne track between 11pm and 6am going through ZORBA and SABAV to intercept final approach.

The final chart shows the domestic traffic arrivals from the south of Auckland. Jets from WN, CH, DN and QN all come through DAVEE and fly the DAVEE6A arrival also going through ZORBA and SABAV to intercept final approach.



ELEV 23

CAT A,B,C,D

AUCKLAND

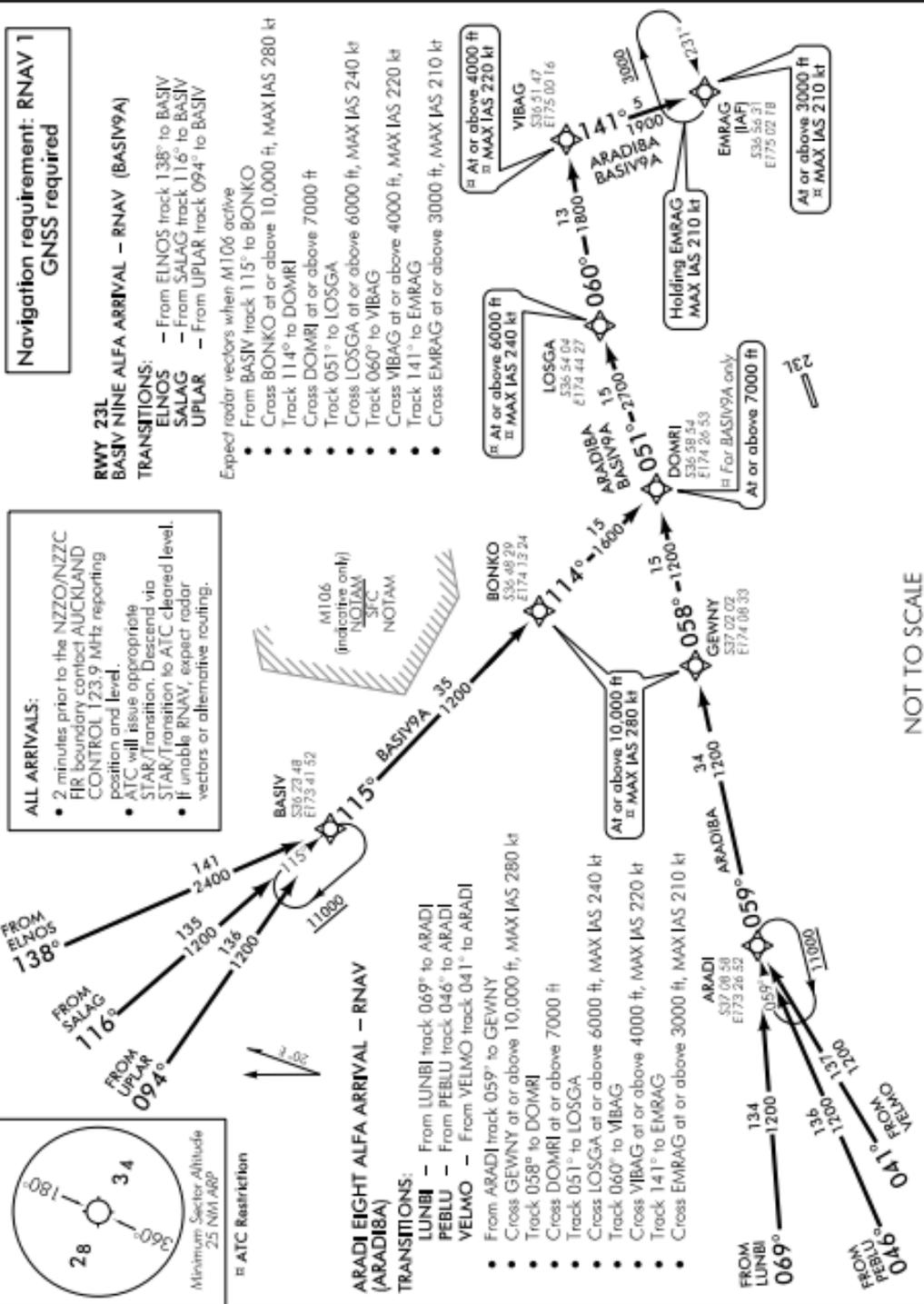
NZAA

RNAV STAR RWY 23L (5)

AUCKLAND CONTROL: 123.9 134.0

TOWER: 118.7 120.95

ATIS: 127.8 127.0



Effective: 7 NOV 19

Civil Aviation Authority

AUCKLAND
RNAV STAR RWY 23L (5)

Changes from 28 MAR 19: VELDIO to ARADI track, LOSGA crossing altitude.



ELEV 23
 NZAA
 AUCKLAND CONTROL: 123.9 134.0
 AUCKLAND APPROACH: 124.3 129.6

CAT A,B,C,D

AUCKLAND
RNAV STAR RWY 23L (7)
 TOWER: 118.7 120.95
 ATIS: 127.8 127.0

AMRNAVSTAR23L-7-Q



ALL ARRIVALS:

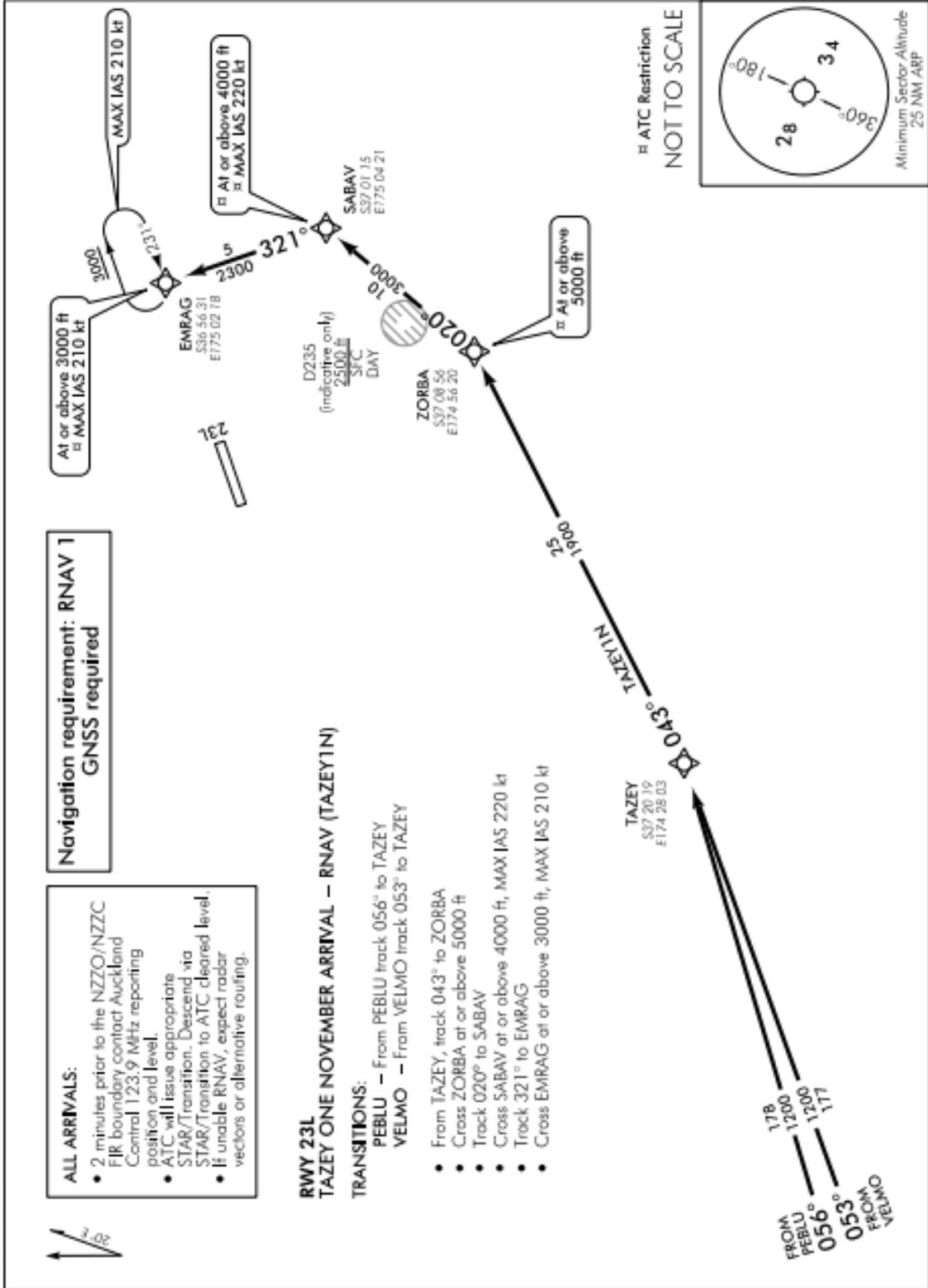
- 2 minutes prior to the NZZO/NZZC FIR boundary contact Auckland Control 123.9 MHz reporting position and level.
- ATC will issue appropriate STAR/Transition. Descend via STAR/Transition to ATC cleared level.
- If unable RNAV, expect radar vectors or alternative routing.

**Navigation requirement: RNAV 1
 GNSS required**

**RWY 23L
 TAZEY ONE NOVEMBER ARRIVAL – RNAV (TAZEY1N)**

TRANSITIONS:

- **PEBLU** – From PEBLU track 056° to TAZEY
- **VELMO** – From VELMO track 053° to TAZEY
- From TAZEY, track 043° to ZORBA
- Cross ZORBA at or above 5000 ft
- Track 020° to SABAV
- Cross SABAV at or above 4000 ft, MAX IAS 220 kt
- Track 321° to EMRAG
- Cross EMRAG at or above 3000 ft, MAX IAS 210 kt



Changes from 1 FEB 18: CAT A,B,C,D added to header, MAX IAS added to EMRAG HP.

Effective: 28 MAR 19

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AUCKLAND
RNAV STAR RWY 23L (7)



ELEV 23

CAT A,B,C,D

AUCKLAND

NZAA

RNAV STAR RWY 23L (9)

AUCKLAND APPROACH: 124.3 129.6

TOWER: 118.7 120.95

ATIS: 127.8 127.0

RWY 23L

DAVEE SIX ALFA ARRIVAL – RNAV (DAVEE6A)

- Cross DAVEE MAX IAS 280 kt
- Track 353° via OSAKU and ANSER to ZORBA
- Cross ANSER at or above 9000 ft
- Cross ZORBA at or above 6000 ft, MAX IAS 240 kt
- Track 020° to SABAV
- Cross SABAV at or above 4000 ft, MAX IAS 220 kt
- Track 321° to EMRAG
- Cross EMRAG at or above 3000 ft, MAX IAS 210 kt

PEPPE FIVE ALFA ARRIVAL – RNAV (PEPPE5A)

- Cross PEPPE at or above 11,000 ft
- Track 336° to ONISU
- Track 353° via UPTIB to KETOB
- Cross UPTIB at or above 9000 ft
- Cross KETOB at or above 5000 ft
- Track 357° to SABAV
- Cross SABAV at or above 4000 ft, MAX IAS 220 kt
- Track 321° to EMRAG
- Cross EMRAG at or above 3000 ft, MAX IAS 210 kt

SKEPY TWO ALFA ARRIVAL – RNAV (SKEPY2A)

Expect radar vectors when D234 is active

TRANSITION:

HAMILTON – From HN VOR track 325° to SKEPY

- From SKEPY track 325° via AA415 to SABAV
- Cross AA415 at or above 5000 ft
- Cross SABAV at or above 4000 ft, MAX IAS 220 kt
- Track 321° to EMRAG
- Cross EMRAG at or above 3000 ft, MAX IAS 210 kt

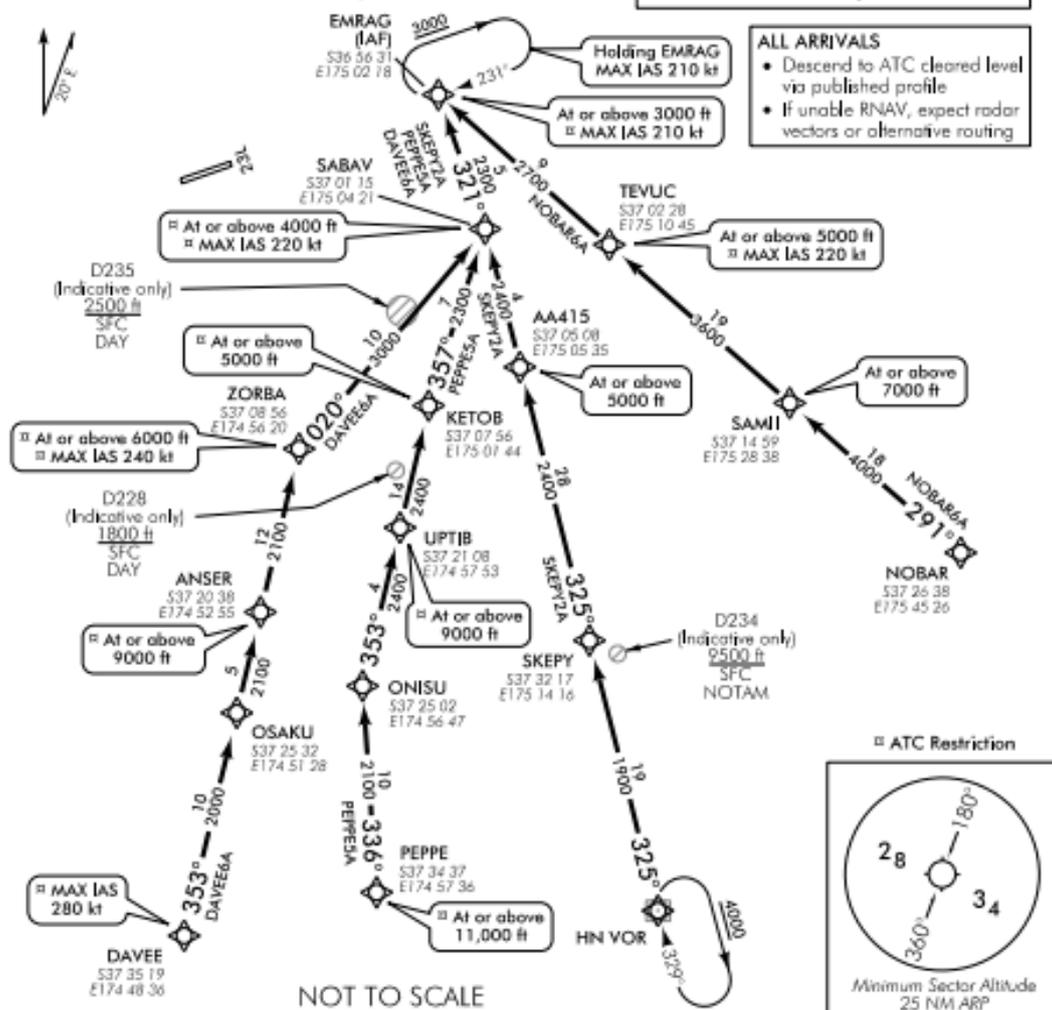
NOBAR SIX ALFA ARRIVAL – RNAV (NOBAR6A)

- From NOBAR track 291° via SAMII and TEVUC to EMRAG
- Cross SAMII at or above 7000 ft
- Cross TEVUC at or above 5000 ft, MAX IAS 220 kt
- Cross EMRAG at or above 3000 ft, MAX IAS 210 kt

Navigation requirement: RNAV 1
GNSS required

ALL ARRIVALS

- Descend to ATC cleared level via published profile
- If unable RNAV, expect radar vectors or alternative routing



AARNVSTAR23L(9-1)

Changes from 7 NOV 19: SKEPY2A replaces SKEPY1A, SKEPY track bearing.

Effective: 7 OCT 21

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AUCKLAND
RNAV STAR RWY 23L (9)