CHAPTER

12

Aircraft Noise

Aircraft Noise

Overview

In an island nation the size of Australia with a highly dispersed population, aviation is an essential service, and its benefits, both economic and social, are enjoyed very broadly. However, the burdens of aviation – particularly aircraft noise – are borne locally, by the communities that live and work around Australia's airports.

Brisbane Airport Corporation, as the operator of a key piece of the nation's aviation infrastructure, is obliged to provide the facilities and growth capacity to meet the public's demand for air travel, freight and transport services. This obligation conflicts with some community demands for reduced aircraft noise.

Finding a balance between these competing interests and reducing aircraft noise, is complex, subjective, and requires the commitment of airlines, airports, and government agencies.

A Noise Action Plan for Brisbane is currently under development by Airservices Australia. As the investigations, options analysis, and decisions are not yet complete, Brisbane Airport is unable to reflect any future proposed changes in the noise contours and the assumptions in this Master Plan.

The Noise Contours on the following pages of this Master Plan are based on current flight paths and modelled from current actual noise levels.

Once the Noise Action Plan for Brisbane is complete by Airservices Australia, these contours will be reviewed and updated where necessary then will be published and made available to the public.

Finding a balance between meeting the growth of aviation and reducing aircraft noise is complex, subjective, and requires the commitment of airlines, airports, and government agencies.

Brisbane Airport's New Runway

In 2020 Brisbane Airport opened what was then known as its 'New' runway, parallel with its 'Legacy' runway which had been constructed in the 1980s. Now that the parallel runway system has been in operation for five years, it is appropriate to shift the naming of the runways to terms that reflect their positioning on the airfield. As a result, in this Master Plan and in the future, all references will be to the eastern (formerly the "Legacy") and western (formerly the "New") runways.

The opening of the western runway on 12 July 2020 marked the completion of the long-term planning for the Brisbane Airport airfield that commenced in the 1970s.

During the planning, design, and construction phases for the western runway Brisbane Airport Corporation undertook an extensive community engagement program, designed to reach as many community members as possible with the best available modelling and assumptions about the likely operations, flight paths and noise impacts of the new runway.

Nonetheless, some community members have found that noise impacts of the changes to Brisbane's flight paths to accommodate operations on the western runway have exceeded their expectations and that the noise is a genuine problem for them.

In 2022 the Airport Noise Ombudsman (ANO) assessed Brisbane Airport Corporation's public information campaign as 'extensive' and found no evidence of misinformation in either its documentation or supporting public material.

Brisbane Airport's western runway and the associated flight paths commenced operations on 12 July 2020.

Flight Paths

Brisbane Airport's western runway and the associated flight paths commenced operations on 12 July 2020. Following the opening of this runway, the Concept of Operations (CONOPS) changed the flight paths aircraft operate on, as they arrive and depart from Brisbane Airport.

The flight paths for Brisbane Airport are based on the finalised airspace design and CONOPS for the parallel runway system designed by Airservices Australia and are presented in Figures 12.1 and 12.2.

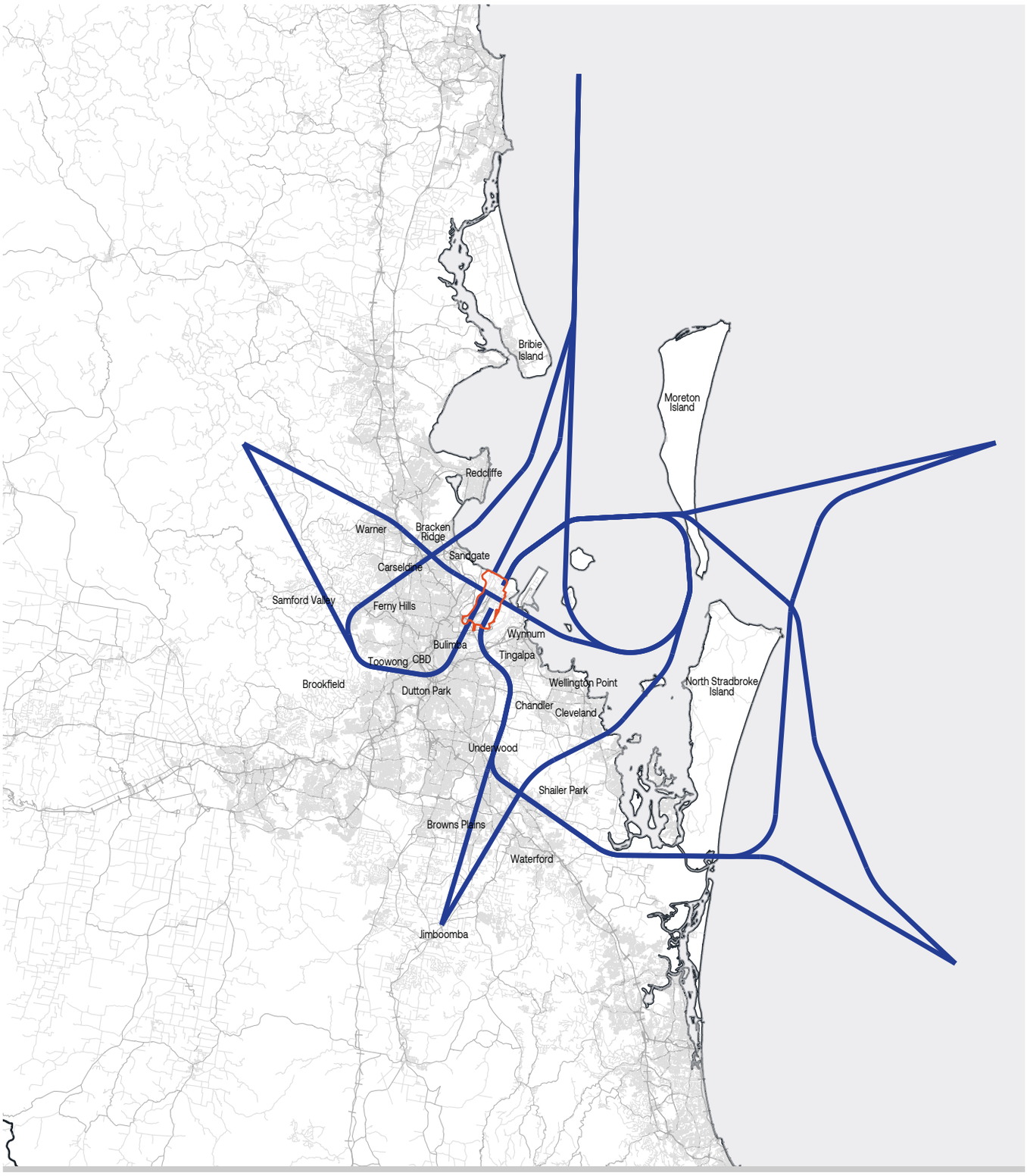
The basis of aircraft noise modelling is to adopt the designed flight paths and consider the variation or distribution of operations on these paths.

Modelling based on existing flight paths can include substantial analysis of historical operations to more accurately determine the distribution of flights.

As mentioned above, Airservices Australia is currently developing the Noise Action Plan for Brisbane, which is a review of the current flight paths at Brisbane Airport. Any changes to flight paths as a result of this will be integrated into future Master Plans for Brisbane Airport.

FIGURE 12.1: CURRENT ARRIVAL FLIGHT PATHS

FIGURE 12.2: CURRENT DEPARTURE FLIGHT PATHS



Describing Noise

Every person's reaction to noise is different and subjective. So, to better describe aircraft noise levels for the community, the Australian Government previously developed a system based on the number of aircraft noise events per day exceeding 70 decibels (dB(A)).

- A noise level of 70 dB(A) outside a building would generally result in an internal noise level of approximately 60 dB(A), if windows are open
- If the windows were closed you would expect the noise inside to decrease by a further 10 dB(A) to 50 dB(A)
- If you are outside, you would experience a noise level of 70 dB(A)
- The National Airport Safeguarding Framework has extended the original system to consider a noise level of 60 dB(A) for overnight operations.

What is a decibel?

Noise is measured on a logarithmic scale with the decibel (dB) as the unit of measure. Measurements of noise usually have a correction factor applied to reflect the sensitivity of the human ear.

This factor is referred to as “A-weighting” and environmental noise is usually measured in dB(A) units.

The noise level of normal daytime urbanbased activities typically varies between 40dB(A) and 85dB(A). On this scale, a change in noise level of 10dB(A) is perceived to be a doubling or halving in loudness. For example, most humans perceive a noise event of 85dB(A) to be about twice as loud as an event of 75dB(A).

Typical Sound Levels

Emergency Siren
140+ dB(A)

Roadways
80 dB(A)

Concert
110 dB(A)

Vacuum
70 dB(A)

Construction Site
90 dB(A)

Passenger car
(60km/h at 7m distance)
70 dB(A)

Modern twin-engine jet
(at take-off at 152m distance)
81 dB(A)

Cafes
50-70 dB(A)

Garbage collection
80 dB(A)

Libraries
30-40 dB(A)

Noise Management Plan

Effective noise management is a crucial aspect of airport operations, particularly in balancing the needs of a growing population and aviation industry with the well-being of surrounding communities. Brisbane Airport Corporation is one of many organisations which play a role in the management of aircraft noise.

Airservices Australia is the national air navigation service provider and is tasked with the responsibility for managing noise impacts associated with aircraft operations, ensuring both operational efficiency and community well-being are balanced. Other key parties include:

- Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts
- Airlines and aircraft operators
- State and Local Government.

Airservices Australia collaborates with industry partners and seeks to continuously improve practices in line with the internationally recognised ICAO Balanced Approach to Aircraft Noise Management. This approach focuses on four core principles:

- Reduction of noise at source and noise preferential treatment
- Land use planning and management
- Noise abatement operational procedures
- Operating restrictions.

Reduction of noise at source and noise preferential treatment

This principle of the ICAO Balanced Approach focuses on minimising noise generation through technological advancements in aircraft design, equipment and engine performance. By setting noise certification standards, ICAO encourages the development of quieter aircraft, leading to a decrease in noise emissions. This has been evident through increased Boeing B787 and Airbus A350 operations at Brisbane Airport as replacements for noisier legacy fleet such as the Boeing B747 and Airbus A330 aircraft, and implementation of satellite navigation technology.

Land use planning and management

Land use planning authorities apply the ANEF contours to land use planning and development applications in the vicinity of the airport.

The Airports Act identifies the ANEF 30 contour interval as a contour defining a significant noise level. The ANEF contours show that the majority of the ANEF 30 contour is generally contained within the Brisbane Airport boundary or over water in Moreton Bay.

For the areas on the Brisbane Airport site that are within the ANEF 30 contour, land use zoning and development controls continue to be used to manage significant aircraft noise levels. These areas are zoned as either mixed use or industry and AS2021:2015 siting acceptability principals are applied to any development.

In preparing this master plan, airlines as well as State and Local government have been engaged in the development of the land use plan and ANEF modelling, highlighting the areas covered by the ANEF 30 contour.

There is one small extension of the ANEF 30 contour beyond Brisbane Airport at Pinkenba which is zoned as general industrial within the Brisbane City Plan and is therefore consistent with land use compatibility standards established in AS2021. Brisbane City Council's ongoing intent is to maintain the industrial land use zoning in this area.

There are no residential zones or dwellings in the ANEF 30 contour for Brisbane Airport.

Effective land-use planning is the best way to reduce the impact of noise for local populations, while managing urban expansion. The NASF was established in partnership with states and territories as a supplement to the Airports Act. NASF was developed by the National Airports Safeguarding Advisory Group (NASAG), comprised of Australian Government, state and territory government planning and transport officials, Department of Defence (DCA), CASA, Airservices Australia, and the Australian Local Government Association. It provides a mechanism for all levels of government to consult on how to balance the objectives of reducing aircraft noise impacts on the community against the need to continue to provide land for development through strategic land-use planning.

Managing aircraft noise impacts involves adopting effective land use policies, development controls, and acoustic standards. This approach depends on accurately identifying and mapping noise-affected areas.

However, *NASF Guideline A: Measures for Managing Impacts of Aircraft Noise* stresses the need for a balanced approach, noting that aircraft noise does not stop at a fixed boundary, regardless of how that line has been modelled.

NASF Guideline A provides holistic guidance to land use planners assessing impacts of noise around airports and recognises the ANEF as a means of understanding noise impacts. Brisbane City Council and Redland City Council have incorporated NASF Guideline A into their respective planning schemes. Both councils actively apply these guidelines when assessing and deciding on development applications within the Airport Environs Overlay and more specifically within the ANEF contours.

AS2021:2015 recognises that the ANEF does not capture all high noise affected areas around an airport and is not necessarily an indicator of the full spread of noise impacts, particularly for residents newly exposed to aircraft noise. Consequently, it is crucial for land use planners to adopt a proactive approach in evaluating potential impacts on new developments beyond the ANEF contours, in line with AS 2021:2015 and NASF Guideline A. This means together, NASF Guideline A, AS2021:2015 and local governments' respective planning schemes play a vital role in safeguarding community well-being while supporting the sustainable growth of aviation infrastructure.

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Noise abatement and operational procedures

Noise Abatement Procedures are designed to reduce the impact of aircraft noise on the community.

They include procedures for runway use and flight paths to reduce flights over residential areas, as well as the designation of noise abatement areas. Noise Abatement Procedures are implemented by Airservices Australia, but their use is not mandatory and is subject to weather conditions and aircraft requirements.

When the western runway opened in 2020, a Noise Abatement Procedure (NAP) was introduced to prevent aircraft movement over land to and from that runway at night. This NAP was introduced by Brisbane Airport Corporation to minimise the impact of night-time noise for the community around the western runway. However, the NAP allows for use of the western runway at night when the eastern runway is closed for essential maintenance and in the event of emergencies.

Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS) – where flights both land and take off over Moreton Bay simultaneously – is the preferred mode for periods of low traffic density (up to approximately 35 movements per hour) at Brisbane Airport. There are other limitations preventing the use of SODPROPS including:

- when the runway is wet
- when there is a tail wind greater than 5 knots at Brisbane Airport
- there is low cloud cover (less than 762 m) in the vicinity of Brisbane Airport
- visibility at Brisbane Airport is less than 8 km.

The key advantage of SODPROPS is that it allows for flight paths that direct aircraft away from noise-sensitive areas in the vicinity of the airport. This approach, therefore, contributes to a more balanced distribution of noise and helps in meeting community expectations for quieter operations.

Operating restrictions

While Brisbane Airport provides essential services to the community it is recognised that there are adverse effects of aviation growth that need to be considered and balanced. Brisbane Airport's curfew-free status provides essential access that facilitates the continued growth of Queensland and Australian business and tourism interests, and public access to regional, national and international services. The ability to operate 24/7 allows global carriers to better link Brisbane to international networks, and for essential overnight freight operations between Brisbane and regional and remote areas.

Brisbane Airport continues to investigate options to reduce the impact of aircraft noise, particularly during nighttime operations whilst fulfilling its obligation to meet public demand.

Noise Action Plan for Brisbane

In December 2022, Airservices completed a Post Implementation Review of the western runway and initiated the Noise Action Plan for Brisbane. Brisbane Airport Corporation, as an active member of the Noise Action Plan for Brisbane, jointly manages the program with Airservices, participates in the development of new initiatives, explores potential flight path options and represents and responds to airport- related initiatives during community engagement sessions.

Acknowledging that future changes to existing flight paths may occur, Brisbane Airport Corporation remains committed to ongoing co-operation with Airservices Australia, industry partners, and the local community to adapt, supply noise modelling results and respond where possible.

24/7

operations allow global carriers to better link Brisbane to international networks

Working with Industry

Together with Airservices and our airline partners, Brisbane Airport Corporation has supported the development and implementation of noise reduction programs aimed at delivering benefits as quickly as possible to the community. BAC will continue to work with aviation industry participants to investigate further initiatives that balance growth with community needs. For example:

- BAC actively supports the Noise Action Plan for Brisbane and works closely with Airservices to implement the recommendations
- BAC is an advisory member of the Federally appointed community Airspace Advisory Board. This is an ongoing, independent community-based consultation body that provides an opportunity to share information and advice to and from the community to better manage consultation on aircraft noise around Brisbane Airport
- BAC has made representations to Airservices which saw an official NOTAM (Notice to Airmen) update to Air Traffic Control operations recognising that Brisbane's eastern runway should be prioritised from 10pm–6am. The only exceptions to this are in cases of emergency, the loss of infrastructure (such as the closure or maintenance of the eastern runway) or extreme weather conditions
- BAC and Airservices are developing an additional safety submission to CASA to permit aircraft to operate with greater tailwind limits than the current 5 knot restriction. This procedure would enable greater use of over over-water arrivals and departures, particularly during sensitive night-time hours
- BAC has been engaging with airlines that operate overnight to consider using their Standard Operating Procedures to accept a higher departure tailwind where safe to do so, to enable more flights to be conducted over the waters of Moreton Bay. As a result, there have been increases in over the Bay operations at night. BAC continues to work with airlines to enable further improvements, where safe to do so
- BAC strongly encourages the introduction by airlines of new aircraft technologies and types to reduce emissions and noise impacts. Currently, 56 per cent of international movements at Brisbane Airport meet the strict ICAO Chapter 14 criteria. This will increase to 70 per cent by the early 2030s
- Brisbane Airport is part of the Hydrogen Flight Alliance which supports the trial of quieter and cleaner air transport using hydrogen electric aircraft. Skytrans, a Queensland based airline and air charter operator, is in line to be the first customer
- In December 2024, BAC welcomed the release of the final report of the Senate Inquiry into the Impact and Mitigation of Aircraft Noise. BAC supports the recommendations and continues to work with relevant industry stakeholders to reduce the burden of aircraft noise on the community.

Brisbane Airport Corporation strongly encourages the introduction by airlines of new aircraft technologies and types to reduce emissions and noise impacts.

Aircraft Noise Assessment Methodology

To accurately forecast aircraft noise levels at any airport, details of actual and/or forecast operations are collated including the following information:

- The aircraft type
- The actual or forecast flight path
- The flight procedure or altitude profile, including fuel load for departures
- The meteorological conditions
- The time of day of the flight.

NASF Guideline A: Measures for Managing Impacts of Aircraft Noise provides guidance on utilising a supplementary set of noise metrics and frequency-based noise metrics, to aid in planning and to deliver clear, comprehensive information about aircraft noise to communities. Aircraft noise levels for Brisbane Airport have been derived in accordance with the guidance described under NASF Guideline A and the US Federal Aviation Administration's *(FAA) Aviation Environmental Design Tool (AEDT) (Version 3e)*.

The AEDT program is a comprehensive software model that calculates aircraft noise exposure in the vicinity of airports. Given its widespread use in Australia and internationally, and the extensive development of the procedures implemented by AEDT over a period of several decades, use of AEDT in the calculation of aircraft noise is considered part of current best practice and is the endorsed model approach by Airservices Australia to produce aircraft noise contours.

BAC recognises that whilst the AEDT model is an accurate and accredited tool, the lived experience of community members is sometimes different from the modelled predictions. The perception and impact of aircraft noise varies across communities, and individuals often experience different responses to aircraft noise as a result of the complexities of human perception and variances in the physical conditions in which the noise is experienced.

Before undertaking noise modeling for this Master Plan, BAC undertook a calibration process by comparing data collected from Noise Monitoring terminals located around Brisbane to the noise levels included in the AEDT software.

This means that the noise contours shown in this Master Plan are more reflective of noise levels experienced in the surrounding communities.

Australian Noise Exposure Forecast

The Australian Noise Exposure Forecast (ANEF) is the primary tool used for considering and managing the impact of aircraft noise in new property developments surrounding Australian airports. It maps forecast noise exposure levels around an airport (contours) based on projected future aircraft operations for land use planning purposes by governments and developers.

ANEF contours are displayed as 20, 25, 30, 35 and 40 ANEF levels with higher contour levels representing higher cumulative daily aircraft noise averaged over a year. Furthermore, to emphasise the effect of nighttime operations, the number of flights modelled to occur during night time periods is multiplied by a weighting of four. This forecast has been adopted in Australia to align with the International Civil Aviation Organization (ICAO) endorsed concept of a 'balanced approach to aircraft noise management'.

A holistic approach to managing aircraft noise aims to balance urban development with aviation safety, environmental considerations, and community well-being, ensuring that an airport's operations and future developments take into consideration the needs and expectations of the surrounding community. Planners, developers and local authorities use these contours to guide land use planning and development decisions, seeking to ensure that new developments are compatible with the surrounding noise environment.

This Master Plan provides the ultimate capacity ANEF to guide land use planning for local councils surrounding Brisbane Airport – being Brisbane City Council, Moreton Bay City and Redland City Council. The ultimate capacity of an airport is the maximum number of movements per annum that an airport could theoretically cater for. Brisbane Airport is expected to reach ultimate capacity around 2056, based on future forecasts.

BAC also considers the Australian Standard, *AS2021:2015 Acoustics – Aircraft noise intrusion – Building siting and construction* when developing the ANEF. The Australian Standard recognises that the ANEF does not capture all high noise affected areas around an airport and is not necessarily an indicator of the full spread of noise impacts, particularly for residents newly exposed to aircraft noise. This is supported in *NASF Guideline A: Supplementary Aircraft Noise Metrics* that notes while the ANEF system is a well-established and technically complete means of showing aircraft noise exposure, it is important for land use planning controls to recognise aircraft noise does not stop at the boundary of an ANEF contour.

This means the ANEF is an indicative area subject to noise exposure; it does not mean that development outside of the ANEF would not be affected by aircraft noise or that developments should be approved without consideration of the potential noise impacts.

Endorsement Process

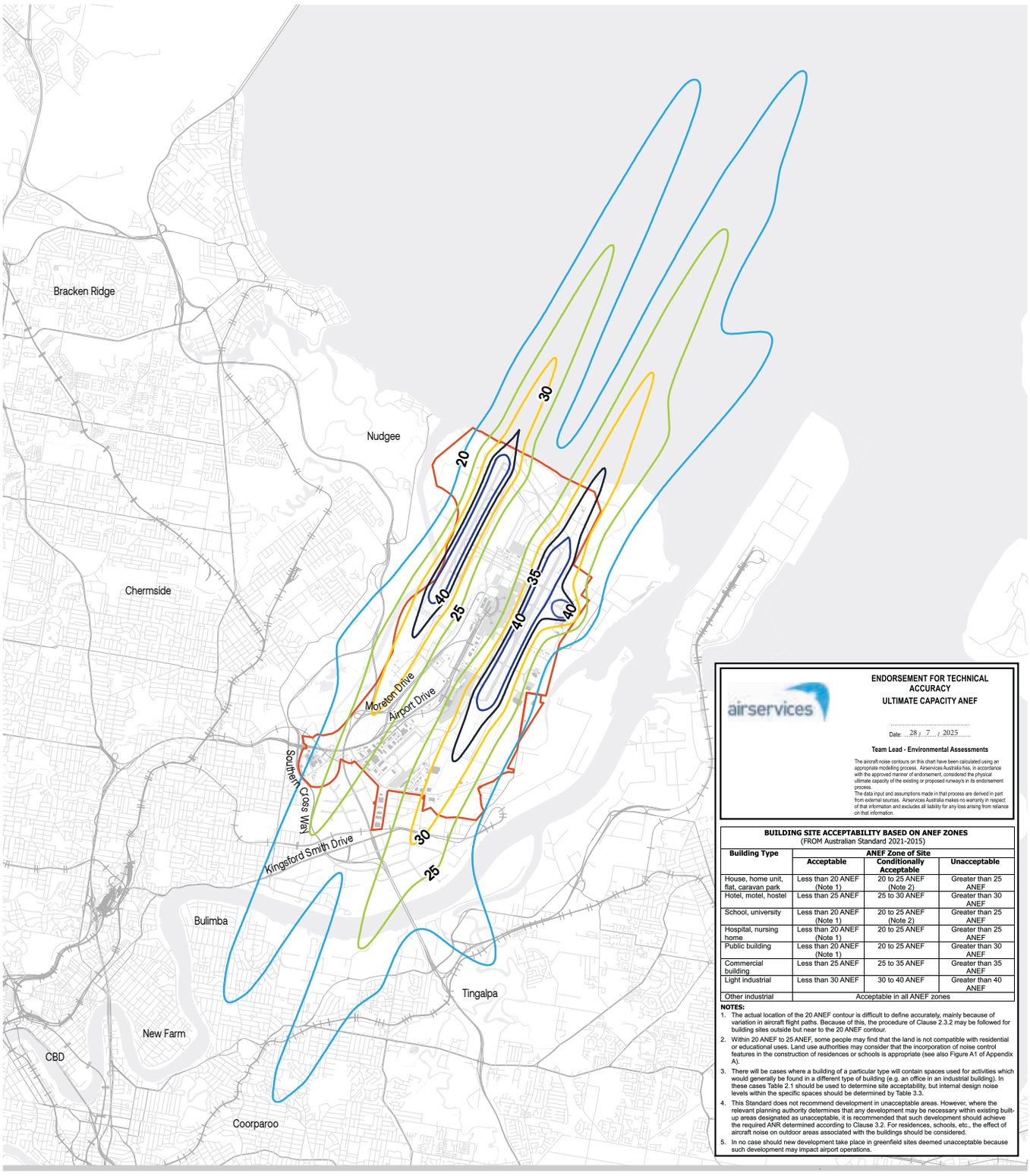
Airservices Australia must assess and endorse the ANEF for technical accuracy of predicted aircraft noise levels around an airport. Once endorsed, the ANEF is integrated into the airport's Master Plan and shared with State and local authorities to then be applied to guide land use planning decisions surrounding the airport.

2026 Australian Noise Exposure Forecast

The ultimate capacity ANEF contours for Brisbane Airport are shown in Figure 12.3 and are based on the best available actual and/or forecast operations. The ANEF has been endorsed for "technical accuracy" by Airservices Australia in accordance with the "Manner of Endorsement" for ANEFs on 28 July 2025. The 2026 ANEF supersedes the 2020 ANEF.

The Australian Noise Exposure Forecast (ANEF) is the primary tool used for considering and managing the impact of aircraft noise in new property developments surrounding Australian airports.

FIGURE 12.3: AUSTRALIAN NOISE EXPOSURE FORECAST



AIRCRAFT	ARR DAY	ARR NIGHT	ARR TOTAL	DEP DAY	DEP NIGHT	DEP TOTAL	CIRCUITS	ALL
RUNWAY 01L								
A20N	7.7225	2.7846	10.5071	5.3234	1.0372	6.3606	0.0000	16.8677
A21N	11.7225	3.4290	15.1515	4.9580	2.9279	7.8859	0.0000	23.0374
A223	13.2011	4.8570	18.0581	9.0944	2.7831	11.8775	0.0000	29.9357
A338	0.8190	0.3517	1.1707	0.2706	0.2832	0.5538	0.0000	1.7245
A359	5.0996	1.7459	6.8455	2.0400	1.1967	3.2367	0.0000	10.0823
AC50	0.8450	0.6183	1.4633	0.0000	0.6734	0.6734	0.0000	2.1367
ATR72-212A	0.0000	0.5208	0.5208	0.0000	0.3002	0.3002	0.0000	0.8211
B350	2.3371	0.2946	2.6317	1.5940	0.5441	2.1381	0.0000	4.7698
B38M	18.6958	6.0056	24.7013	8.4005	2.9758	11.3763	0.0000	36.0776
B737	0.3830	0.0000	0.3830	0.0097	0.0000	0.0097	0.0000	0.3927
B779	1.9684	0.8534	2.8218	0.5086	0.9475	1.4562	0.0000	4.2780
B788	0.3462	0.0000	0.3462	0.7240	0.0000	0.7240	0.0000	1.0702
B789	2.6915	0.7748	3.4664	2.8726	0.9022	3.7748	0.0000	7.2412
B78X	2.3371	0.8049	3.1420	1.2627	0.7017	1.9644	0.0000	5.1064
BD-700-1A11	0.1252	0.0000	0.1252	0.0061	0.0000	0.0061	0.0000	0.1313
BE30	2.4041	0.5895	2.9937	3.2111	0.1555	3.3666	0.0000	6.3602
BEC58P	0.4244	0.0000	0.4244	0.4107	0.0000	0.4107	0.0000	0.8351
C130	0.2153	0.0000	0.2153	0.3341	0.0000	0.3341	0.0000	0.5494
CL600	0.4248	0.0000	0.4248	0.3931	0.0000	0.3931	0.0000	0.8179
CNA510	0.0099	0.0000	0.0099	0.0044	0.0000	0.0044	0.0000	0.0143
CNA55B	0.2301	0.0000	0.2301	0.8477	0.0000	0.8477	0.0000	1.0778
DH8D	18.2220	3.9223	22.1443	11.1153	1.0908	12.2061	0.0000	34.3504
EMB190	12.7043	3.9321	16.6364	9.8646	2.3447	12.2093	0.0000	28.8457
MU3001	0.0462	0.2805	0.3267	0.5303	0.2679	0.7982	0.0000	1.1249
SF34	4.0769	1.1003	5.1772	2.4184	0.0716	2.4901	0.0000	7.6672
SW4	0.0000	0.7261	0.7261	0.0134	0.5145	0.5280	0.0000	1.2541
Total	**107.0521**	**33.5913**	**140.6434**	**66.2078**	**19.7181**	**85.9259**	**0.0000**	**226.5693**
RUNWAY 01R								
A20N	9.4566	7.0531	16.5097	13.1291	5.3925	18.5216	0.0000	35.0313
A21N	21.8581	10.1823	32.0404	28.6810	8.6603	37.3413	0.0000	69.3817
A223	10.2407	5.4278	15.6685	12.4372	4.0019	16.4391	0.0000	32.1076
A338	0.1189	0.2807	0.3996	0.6131	0.5595	1.1725	0.0000	1.5721
A359	1.6507	1.7392	3.3899	5.1324	3.1762	8.3086	0.0000	11.6985
AC50	0.0214	0.0126	0.0340	0.0000	0.0334	0.0334	0.0000	0.0674
ATR72-212A	0.0000	0.0149	0.0149	0.0000	0.0057	0.0057	0.0000	0.0206
B350	0.0708	0.0057	0.0765	0.1357	0.0101	0.1458	0.0000	0.2223
B38M	23.5336	12.6286	36.1623	36.4245	9.9396	46.3641	0.0000	82.5263
B737	0.0092	0.0000	0.0092	0.4223	0.0000	0.4223	0.0000	0.4315
B779	0.4626	2.0386	2.5012	1.8125	3.0504	4.8629	0.0000	7.3641
B788	0.2315	0.0000	0.2315	0.0000	0.0000	0.0000	0.0000	0.2315
B789	2.0381	1.5186	3.5567	4.9202	0.5547	5.4749	0.0000	9.0316
B78X	2.1108	1.4887	3.5996	4.8551	1.3612	6.2163	0.0000	9.8159
BD-700-1A11	0.0277	0.0000	0.0277	0.4217	0.0000	0.4217	0.0000	0.4494
BE30	0.0580	0.5492	0.6072	0.3059	0.3387	0.6446	0.0000	1.2517
BEC58P	0.0105	0.0000	0.0105	0.0082	0.0000	0.0082	0.0000	0.0187
C130	0.0332	0.0000	0.0332	0.0000	0.0000	0.0000	0.0000	0.0332
CL600	0.0084	0.0000	0.0084	0.0401	0.0000	0.0401	0.0000	0.0485
CNA510	0.4233	0.0000	0.4233	0.4288	0.0000	0.4288	0.0000	0.8521
CNA55B	0.5238	0.0000	0.5238	0.0000	0.0000	0.0000	0.0000	0.5238
DH8D	2.6541	0.6105	3.2647	9.3364	1.2291	10.5655	0.0000	13.8302
EMB190	4.4799	2.8703	7.3502	6.9231	1.5755	8.4986	0.0000	15.8488
MU3001	0.1067	0.4717	0.5784	0.2088	0.0000	0.2088	0.0000	0.7872
SF34	2.8304	1.3213	4.1517	4.8864	0.2464	5.1328	0.0000	9.2845
SW4	0.0000	0.3145	0.3145	0.1395	0.2624	0.4019	0.0000	0.7164
Total	**82.9594**	**48.5283**	**131.4876**	**131.2620**	**40.3976**	**171.6596**	**0.0000**	**303.1472**
RUNWAY 19L								
A20N	15.8313	18.0873	33.9187	16.7360	12.8688	29.6048	0.0000	63.5234
A21N	34.6695	26.5187	61.1882	37.0590	16.1797	53.2386	0.0000	114.4268
A223	19.6322	12.6606	32.2927	15.7656	10.6052	26.3708	0.0000	58.6635
A338	1.0465	1.2606	2.3071	0.1336	1.0215	1.1551	0.0000	3.4622
A359	7.3117	7.0445	14.3562	3.8492	4.3797	8.2288	0.0000	22.5851
AC50	0.1508	0.2271	0.3780	0.0000	0.5444	0.5444	0.0000	0.9223
ATR72-212A	0.0000	0.2605	0.2605	0.0000	0.1435	0.1435	0.0000	0.4040
B350	0.5082	0.1286	0.6368	0.1527	0.1105	0.2633	0.0000	0.9000
B38M	45.7378	31.1830	76.9208	44.0140	21.0530	65.0670	0.0000	141.9878
B737	0.1284	0.0000	0.1284	0.3164	0.0000	0.3164	0.0000	0.4448
B779	2.5428	5.1849	7.7277	1.7066	5.1291	6.8357	0.0000	14.5634
B788	0.7162	0.0000	0.7162	0.0618	0.0000	0.0618	0.0000	0.7780
B789	7.1315	5.5642	12.6957	4.5992	2.3795	6.9787	0.0000	19.6744
B78X	5.5051	4.0445	9.5497	3.4456	2.7703	6.2159	0.0000	15.7656
BD-700-1A11	0.5570	0.0000	0.5570	0.3082	0.0000	0.3082	0.0000	0.8652
BE30	0.7528	1.4526	2.2054	0.4876	0.9851	1.4728	0.0000	3.6781
BEC58P	0.0758	0.0000	0.0758	0.0397	0.0000	0.0397	0.0000	0.1156
C130	0.2595	0.0000	0.2595	0.0000	0.0000	0.0000	0.0000	0.2595
CL600	0.1036	0.0000	0.1036	0.0229	0.0000	0.0229	0.0000	0.1265
CNA510	0.3288	0.0000	0.3288	0.3124	0.0000	0.3124	0.0000	0.6412
CNA55B	0.5727	0.0000	0.5727	0.0431	0.0000	0.0431	0.0000	0.6158
DH8D	7.6552	2.1549	9.8102	4.8591	0.2389	5.0980	0.0000	14.9082
EMB190	10.0890	8.5467	18.6357	7.0731	4.2679	11.3410	0.0000	29.9766
MU3001	0.4458	0.9738	1.4196	0.6565	0.0319	0.6885	0.0000	2.1081
SF34	4.2467	3.3065	7.5531	8.4189	0.0092	8.4282	0.0000	15.9813
SW4	0.0000	1.4129	1.4129	0.5521	1.7570	2.3092	0.0000	3.7221
Total	**165.9990**	**130.0119**	**296.0109**	**150.6132**	**84.4752**	**235.0884**	**0.0000**	**531.0993**
RUNWAY 19R								
A20N	3.0512	3.5330	6.5842	10.0804	2.9523	13.0326	0.0000	19.6168
A21N	6.1749	6.6735	12.8484	14.4689	8.2937	22.7626	0.0000	35.6110
A223	7.5657	6.9781	14.5439	17.1789	8.6969	25.8758	0.0000	40.4196
A338	0.3175	0.4088	0.7263	1.2845	0.4376	1.7222	0.0000	2.4485
A359	2.0505	2.5140	4.5645	6.6256	2.7565	9.3820	0.0000	13.9466
AC50	0.5173	0.6765	1.1938	0.0000	1.8180	1.8180	0.0000	3.0117
ATR72-212A	0.0000	0.7383	0.7383	0.0000	1.0851	1.0851	0.0000	1.8234
B350	1.6875	0.3385	2.0260	1.9539	0.8698	2.8237	0.0000	4.8496
B38M	7.9414	9.2625	17.2039	22.4151	9.7659	32.1810	0.0000	49.3848
B737	0.2467	0.0000	0.2467	0.0189	0.0000	0.0189	0.0000	0.2656
B779	0.3971	2.6649	3.0619	2.1104	0.8475	2.9579	0.0000	6.0199
B788	0.2406	0.0000	0.2406	0.7488	0.0000	0.7488	0.0000	0.9893
B789	1.1824	0.5824	1.7648	5.2551	0.0000	5.2551	0.0000	7.0199
B78X	0.7887	1.3345	2.1232	3.4802	0.5376	4.0179	0.0000	6.1411
BD-700-1A11	0.0574	0.0000	0.0574	0.0313	0.0000	0.0313	0.0000	0.0887
BE30	2.1560	2.0123	4.1683	4.4353	0.0553	4.4906	0.0000	8.6589
BEC58P	0.2565	0.0000	0.2565	0.3086	0.0000	0.3086	0.0000	0.5652
C130	0.2593	0.0000	0.2593	0.4332	0.0000	0.4332	0.0000	0.6925
CL600	0.2305	0.0000	0.2305	0.3112	0.0000	0.3112	0.0000	0.5416
CNA510	0.0053	0.0000	0.0053	0.0216	0.0000	0.0216	0.0000	0.0269
CNA55B	0.2080	0.0000	0.2080	0.6437	0.0000	0.6437	0.0000	0.8517
DH8D	15.9702	5.5885	21.5587	23.0271	5.8812	28.9083	0.0000	50.4670
EMB190	8.7885	5.3671	14.1556	16.8045	7.9246	24.7291	0.0000	38.8847
MU3001	0.1685	0.5759	0.7444	0.9061	0.4675	1.3736	0.0000	2.1180
SF34	2.6569	1.1774	3.8342	4.2252	0.4399	4.6652	0.0000	8.4994
SW4	0.0000	1.3828	1.3828	0.0622	0.5351	0.5973	0.0000	1.9802
Total	**62.9183**	**51.8089**	**114.7273**	**136.8308**	**53.3645**	**190.1952**	**0.0000**	**304.9225**
HELICOPTERS								
B430	2.3018	1.5345	3.8363	3.0691	0.7673	3.8363	0.0000	7.6727
Total	**2.3018**	**1.5345**	**3.8363**	**3.0691**	**0.7673**	**3.8363**	**0.0000**	**7.6727**
Total	**421**	**265**	**687**	**488**	**199**	**687**	**0**	**1,373**

Comparison to 2020 Australian Noise Exposure Forecast

When comparing the 2020 Master Plan's ANEF to the new contours presented in this 2026 Master Plan, there is variation in their shape and extent. This is not unexpected. As traffic forecasts fluctuate over time, and assumptions on operational modes and aircraft types change, it is normal for contours to change from Master Plan to Master Plan. It's the sum of each of these influencing factors that contribute to ANEF contour forecasts.

The 2026 ANEF is a prediction of what will happen in 30 years and as such will also continue to change over time. Differences can be expected in the next Master Plan.

The changes seen in this latest ANEF iteration, compared to 2020, are primarily driven by the following:

1. New modelling tool used for ANEF generation

The 2026 ANEF has been prepared using the current Aviation Environmental Design Tool (AEDT) which is a more refined model than the Integrated Noise Model (INM) which was the standard used in prior Master Plans.

2. Model Calibration

The AEDT has the advantage of being calibrated with two years of actual flight and noise data from the new operations and flight paths introduced with the opening of the western runway. This has ensured modelled behaviour closely matches real world conditions. This calibration was not possible prior to the western runway opening and new aircraft fleet variants entering service.

Previous ANEFs for Brisbane Airport, including the 2020 ANEF, were developed using the best available data at the time, relying on assumptions on runway allocation and operating modes identified through consultation with Airservices. These assumptions were aligned with the 2007 EIS and predictions relating to the use of independent runway operations, the number of aircraft that would use RNP approaches, and the expected use of the SODPROPS operating mode.

3. Change to SODPROPS weather and capacity limit assumptions

The traffic density criteria for SODPROPS mode has been amended downwards for the 2026 Master Plan ANEF and represents Airservices Australia's latest advice on traffic limits for SODPROPS mode. Regulatory criteria for ATC runway nomination is limited to a maximum 5 knots tailwind including gusts. Should this regulation change in the future amendments would be made to this ANEF.

4. Allocation of RNP vs ILS approaches

A change in the assumption on the frequency with which Air Traffic Control will direct aircraft onto the Instrument Landing System (ILS) vs the Required Navigation Performance (RNP) approaches has also had a minor impact on noise contours. RNP use is anticipated to increase when independent parallel operations mode is implemented, and should continue to increase as aircraft fleets are updated, and airlines and their crews are certified to fly these approaches.

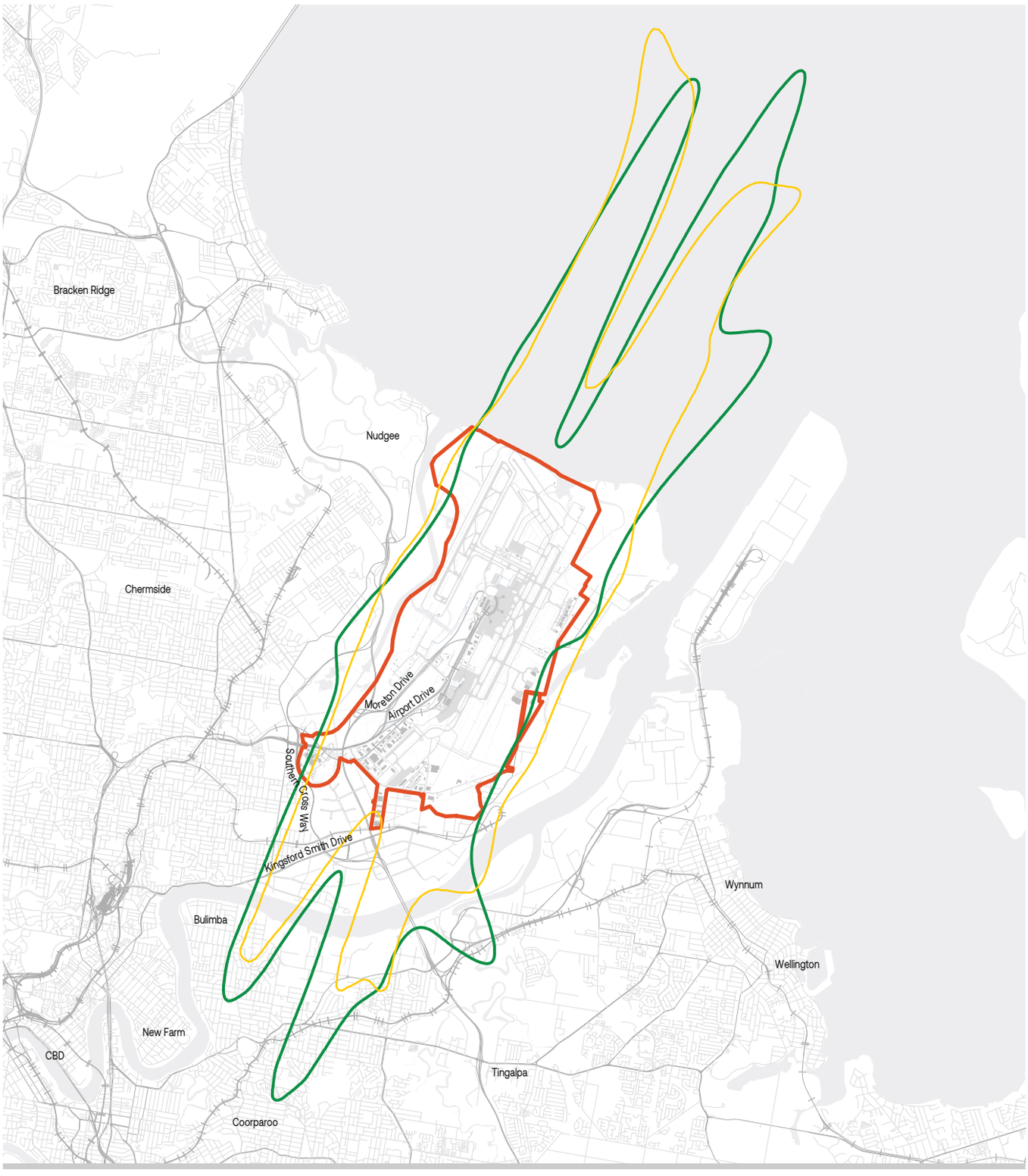
Compared to the 2020 ANEF, the 2026 ANEF at ultimate capacity shows minor changes in the ANEF 25, 30, 35 and 40 contours, with more significant changes to the extent and shape of the ANEF 20 contours. Figure 12.4 compares the 20 contours results between 2020 and 2026.

The 2026 ANEF 20 contour from the eastern runway extends further north, with a wider lateral extent over the water. It also extends further south over urban areas out to Camp Hill, as well as southeast over the industrial area of Hemmant. This is largely consistent with the 2014 ANEF 20 contour.

In contrast, the 2026 ANEF 20 contour from the western runway is narrower over the water and reaches slightly further south, over parts of Balmoral and Hawthorne.

While the ANEF is still based on long-term forecasts, and will continue to evolve as future flight paths, aircraft types and traffic levels change, the 2026 ANEF provides a more realistic picture of how aircraft noise is experienced in the community, given it includes a calibration of actual data as opposed to solely modelled information. This will help state and local governments make better-informed decisions about land use and future development off airport through integration with local planning schemes.

FIGURE 12.4: ANEF 20 CHANGE BETWEEN 2020 AND 2026



ANEF 20 change between 2020 and 2026 Master Plans

- 2026 ANEF 20 Contour
- 2020 ANEF 20 Contour
- Brisbane Airport boundary

N

0 1.25 2.5
Km

Aircraft Noise

Supplementary Noise Information

In addition to the ANEF, another important tool for assessing aircraft noise is the use of Number Above Contours (or N-Contours). N-Contours provide a different perspective on noise impact by showing the number of times noise levels exceed a certain threshold at various locations around an airport. Unlike the ANEF, which averages noise exposure over time, N-Contours focus on the frequency of high noise events, offering a more detailed understanding of how often communities are exposed to aircraft noise. Figure 12.5 shows the contours included in the National Airports Safeguarding Framework, Guideline A.

This method is particularly useful for understanding the community's experience of noise, as it focuses on the intensity and frequency of noise events rather than just overall exposure. N-Contours are increasingly being used alongside ANEF contours to give a more comprehensive view of aircraft noise exposure, helping to guide land use planning.

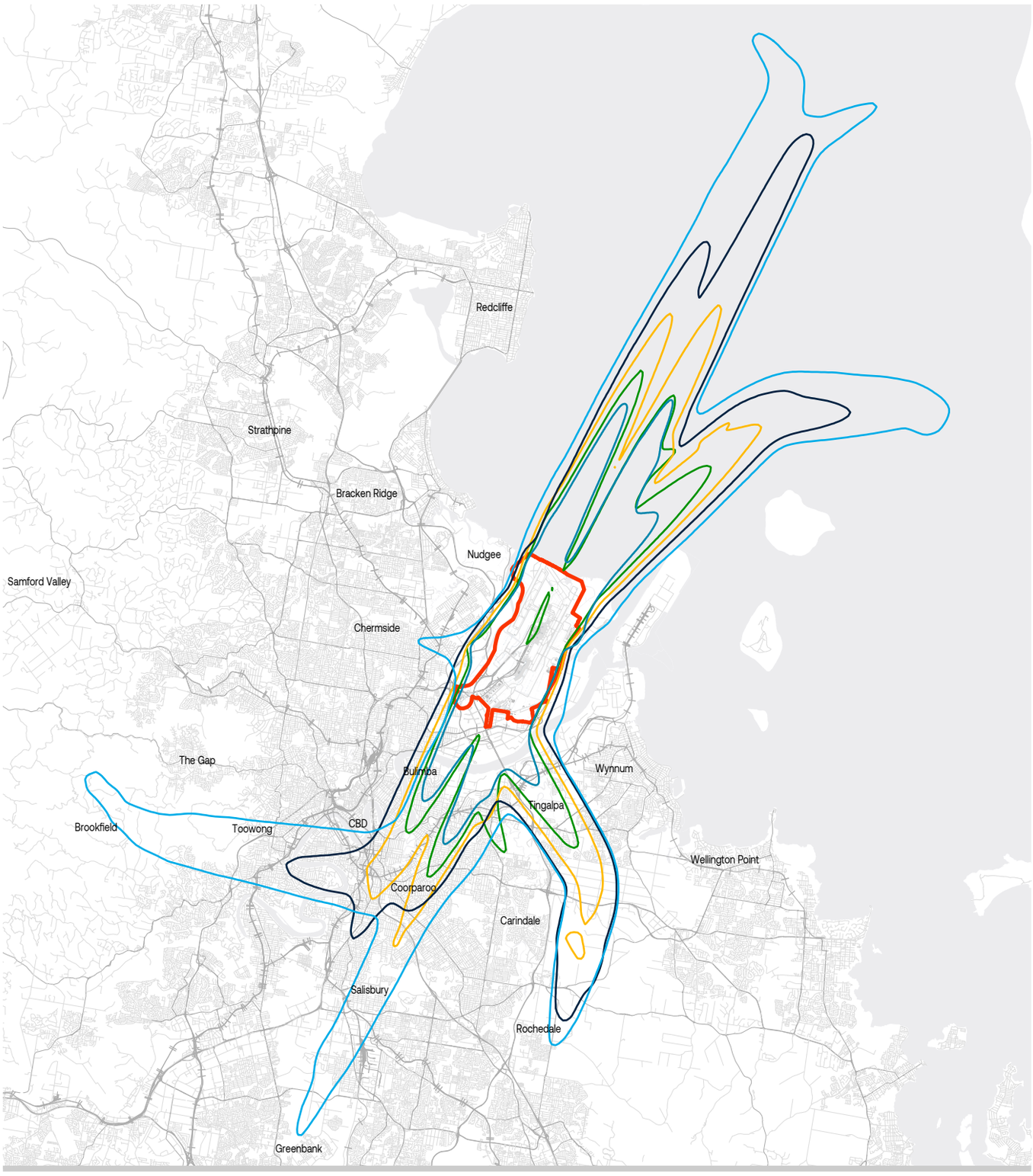
Number Above Contours

NASF Guideline A references N-Contours as a useful way of presenting the impact of aircraft noise to show the noise level of individual flight movements. This is commonly called the N70 (or N65 or N60) where N70 is the number of aircraft noise events louder than 70 dB(A). This approach is considered to provide the community with a more intuitive understanding of how many "noisy" events they might experience within an indicated zone.

70 dB(A) has often been used to categorise an event as 'noisy' as this corresponds to a 60 dB(A) noise level indoors, which can disturb conversation or other activities such as watching television.

N-Contours highlight the frequency of high noise events, offering a more detailed understanding of how often communities are exposed to aircraft noise.

FIGURE 12.5: SUPPLEMENTARY NOISE METRICS



Alternate Noise Metrics

NASF contours

- 20 or more daily events greater than 70dB(A)
- 50 or more daily events greater than 65 dB(A)
- 100 or more daily events greater than 60 dB(A)
- 6 or more events greater than 60 dB(A) between the hours of 11pm and 6am
- ANEF 20 contour
- Brisbane Airport boundary

N

0 3 6 Km