
CHAPTER 12
AIRCRAFT NOISE





“Unlike many Australian airports, Canberra Airport is curfew-free, providing significant capacity to facilitate growth in both international and domestic freight and passenger movements.”

2018 ACT PLANNING STRATEGY



12 Aircraft noise

This Chapter discusses the impact of aircraft noise on the community. The noise abatement areas covering all Canberra suburbs (Figure 12.11) ensure the ACT community is not overflowed by jet aircraft lower than 7,000 feet above mean sea level. There are however areas of our community in NSW where an abatement area is not possible because of aircraft arriving and departing the Airport. These existing houses are in the majority located in Jerrabomberra.

Canberra Airport's Aircraft Noise Policy is outlined in Section 12.5, reiterating our commitment to working with our community, industry partners, and governments to limit the impact of aircraft noise.

Aircraft noise is described using a range of metrics with the known and expected impacts of aircraft noise arising from aviation growth outlined alongside long running issues raised by members of the community.

Over many years, several abatement procedures have been adopted by air operators to reduce the impact on those previously or currently affected by aircraft noise. Also outlined are future opportunities to work with the community, Airservices Australia, and air operators to further reduce the impact of aircraft noise on households remaining under flight paths.

12.1 COMMITMENT TO NOISE DISCLOSURE

"The aim of aircraft noise disclosure is to help noise sensitive persons avoid finding themselves in a situation where they are unknowingly exposed to aircraft noise".

Department of Infrastructure, Transport, Regional Development and Communications

Canberra Airport has been, and continues to be, committed to informing its community about current and expected levels of aircraft noise. This commitment is fuelled with the knowledge that an informed community is able to make decisions about what suits their level of amenity and match their expectations with what they perceive as an 'acceptable level' of aircraft noise, now and in the future.

There is no simple definition of what is an 'acceptable level' of aircraft noise due to the subjective nature of aircraft noise impact. When considering purchasing a house in the region it is important that people understand they have a responsibility to be informed about aircraft noise, current and future, while making a decision about purchasing a property. There are a number of ways in which aircraft noise can be described and this is outlined in Section 12.4, Describing Aircraft Noise.

In addition to disclosing various metrics of aircraft noise in this 2020 Master Plan, and on various websites including the Canberra Airport website, the Aircraft Noise website, and the information available on the Airservices Australia website, Canberra Airport is consulting with the NSW Department of Planning, Industry and Environment to encourage the Department and local governments around Canberra Airport to issue aircraft noise notifications via a 10.7(5) Planning Certificate (*NSW Environmental Planning and Assessment Act 1979*) for any property transaction within, or nearby, the ANEF 20 (2019), similar to the Tralee rezoning approval.

TRALEE

In addition to notification of aircraft noise via a 10.7(5) Planning Certificate, (previously a 149(2) Certificate) prospective home buyers at Tralee will also be made aware through Section 88B8 Instruments on title that all homes must be built to comply with Table 3.3 of Australian Standard 2021:2015 - Indoor Design Sound Levels for Determination of Aircraft Noise Reduction.

Table 3.3 specifies the indoor design sound levels for houses and flats to be:

- Sleeping areas, dedicated lounges 50 dB[A];
- Other habitable spaces [ie, kitchens, rumpus rooms] 55 dB[A];
- Bathrooms, toilets, laundries 60 dB[A].

In order to comply with the above internal noise levels, it is necessary that external windows and doors are kept closed.

This 2020 Master Plan, the Canberra Airport website www.canberraairport.com.au, the Airservices Australia website www.airservicesaustralia.com, and the Aircraft Noise website www.aircraftnoise.com.au provide comprehensive information about the current and expected future aircraft noise levels for Canberra Airport. All buyers of houses should look at all this information in detail.

12.2 FROM THE GROUND UP

A new aerodrome site has been chosen for Canberra as a result of the recent visit of Colonel Brinsmead, Controller of Civil Aviation. With landing distances of not less than 1000 yards in all directions, the new aerodrome site is at the corner of the Majura Valley Road and the Queanbeyan-Duntroon Road.

The Canberra Times, November 1926

Canberra Airport was established on the existing site 93 years ago in 1927. The runways were initially hard surfaced in 1948. Construction of the present civil aviation area began in the early 1960s with the 'Jet Age', around the same time as the Instrument Landing System [ILS] was first installed as a precision guidance straight-in approach

to Runway 35 from the south. From this time Runway 17/35 became the primary arrival and departure runway for large civil and military aircraft.

As Canberra and the region grew rapidly in the 1960s and 1970s planners ensured a corridor was maintained free from residential development on the main north/south departure and approach flight paths to and from Canberra Airport. Notwithstanding the significant population growth in the region since this time (now over 190,000 dwellings), these planning outcomes ensure Canberra, Queanbeyan and the surrounding regional communities are largely protected from aircraft noise. Figure 12.2 presented in the State of Australian Cities 2012 report is illustrative of this planning outcome today.

In 1985, with Jerrabomberra under consideration, the then operator of Canberra Airport, the Australian Government, strongly urged Queanbeyan City Council to consider the impact of aircraft noise, and discouraged development to the south of the airfield. The correspondence reads:

"I have some comments on the proposal relating to aircraft noise. While it is true that the development area is located outside the 20 ANEF contour and is compatible with residential use, any residents in the area will be exposed to aircraft noise and some of them will be moderately or severely affected by the noise".

In response to aircraft noise complaints in 1995, Airservices Australia created two noise abatement areas, one over Queanbeyan and another over Canberra. For nearly two decades these areas in the sky have provided two very important outcomes for the Region:

- The vast majority of Canberra and Queanbeyan residents are protected from aircraft noise; and
- Aviation operations at Canberra Airport remain unconstrained, servicing a region which is home to over 950,000 people.

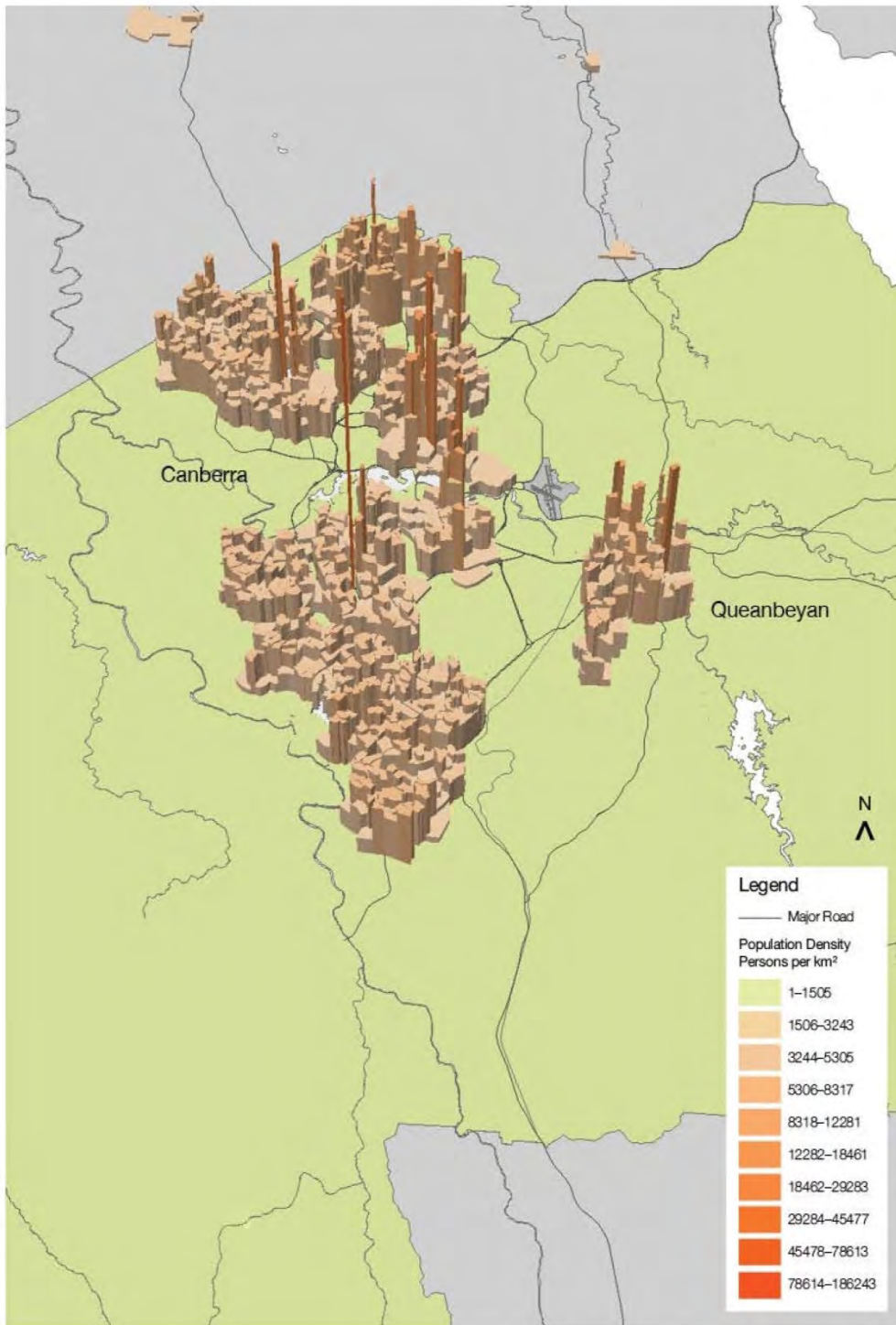
Canberra Airport continues its commitment to the noise abatement areas in this 2020 Master Plan and anticipates they will remain the cornerstone of the noise management framework for aviation operations in the region.

Figure 12.1 - Mass fly-past of aircraft at the opening of Parliament, 9 May 1927



Figure 12.2 - Population density in Canberra and Queanbeyan

Population density in Canberra – Queanbeyan



12.3 OPERATING RESTRICTIONS

"Canberra Airport is the only curfew free airport within reach of Sydney and provides the potential for night-time services which cannot be accommodated in Sydney, in particular international LCC services and overnight freight services. It is important that Canberra's 24-hour unrestricted curfew-free status be protected".

Joint Study on Aviation Capacity for the Sydney Region, March 2012

The forecast noise mapping presented in this Chapter is based on the practical ultimate capacity of the airfield including 24-hour unrestricted operations.

Practical ultimate capacity is a term used to describe the annual capacity of airfield infrastructure and associated airspace to facilitate anticipated aircraft. The practical ultimate capacity of the current Canberra Airport airfield has been assessed as 282,120 fixed wing movements a year and includes 24-hour a day operations.

At practical ultimate capacity the noise metrics show the majority of the 190,000 plus homes (over 99.5 percent) currently built in the ACT and Queanbeyan are not expected to be severely impacted by aircraft noise:

- Figure 12.3 illustrates the practical ultimate capacity N60 contours;
- Figure 12.4 illustrates the practical ultimate capacity contours N65 contours; and
- Figure 12.5 illustrates the practical ultimate capacity contours N70 contours.

It is important that as members of the community make their housing choices, they are aware of the extent of aircraft noise. Go to the Canberra Airport website at www.canberraairport.com.au/corporate/community/aircraft-noise-calculator/ to access the Canberra Airport Aircraft Noise Calculator and follow the steps to determine where a location falls within these N contours. A summary of your search can be emailed to your nominated email address.

Previous Master Plans have specifically excluded a curfew at Canberra Airport and similarly it is a central component of this Master Plan that Canberra Airport remains curfew-free. The long-term curfew-free status of Canberra Airport is supported by the ACT and NSW planning documents as set out in Chapter 4 of this 2020 Master Plan.

Curfews signify an intolerable aircraft noise problem, which is partially resolved with restrictions, and indeed the reality for many is aircraft noise will continue to cause concern regardless of restrictions to aircraft operations. It is important to make clear experience has shown a curfew is not a panacea for noise concerns, but an indication of a lasting impact on residential amenity.

Governments support Canberra Airport operating 24 hours a day.

The Honourable Brad Hazzard MP, Minister for Planning and Infrastructure [NSW], in making his 2012 decision to rezone land to the south of the Airport for residential development, expressed the Airport should remain curfew-free.

"We have met the challenge of getting more housing into the Queanbeyan area and ensuring that Canberra Airport remains a 24-hour, curfew-free passenger and freight hub.

This approach will allow Canberra Airport to pursue ongoing development with capacity to expand up to five times its current size and have as many aircraft movements as Sydney Airport had in 2010".⁸

The former Australian Government in its National Aviation Policy White Paper confirmed:

"The Government is conscious of the value of a network of curfew-free airports and has no current intention to introduce additional airport curfews".⁹

The Australian and NSW Government Aviation Joint Study, commissioned by the Australian Government made clear Canberra Airport's role in the airport network:

"Canberra Airport is the only curfew-free airport within reach of Sydney and provides the potential for night-time services which cannot be accommodated in Sydney, in particular international LCC services and overnight freight services. It is important that Canberra's 24-hour unrestricted curfew-free status be protected".¹⁰

The ACT Planning Strategy [2018] also confirms support for the continued 24-hour operation of Canberra Airport.

"Unlike many Australian airports, Canberra Airport is curfew-free, providing significant capacity to facilitate growth in both international and domestic freight and passenger movements."

⁸ Hazzard, B. 2012. Tralee Rezoning will Deliver More Housing and Allow Canberra Airport to Grow [media release].

⁹ Australian Government. 2009. National Aviation Policy White Paper. Page 214.

¹⁰ Mrdak, M et al. 2012. Joint Study on Aviation Capacity in the Sydney Region. Page 23

“The airport’s capacity to operate effectively is reliant on the effective management of the land surrounding it. Buildings, structures and landscaping that intrude into flight paths can limit or prevent use of airport. Residential development under flight paths can lead to complaints about noise and, eventually, pressure for operational restrictions or curfews”.¹¹

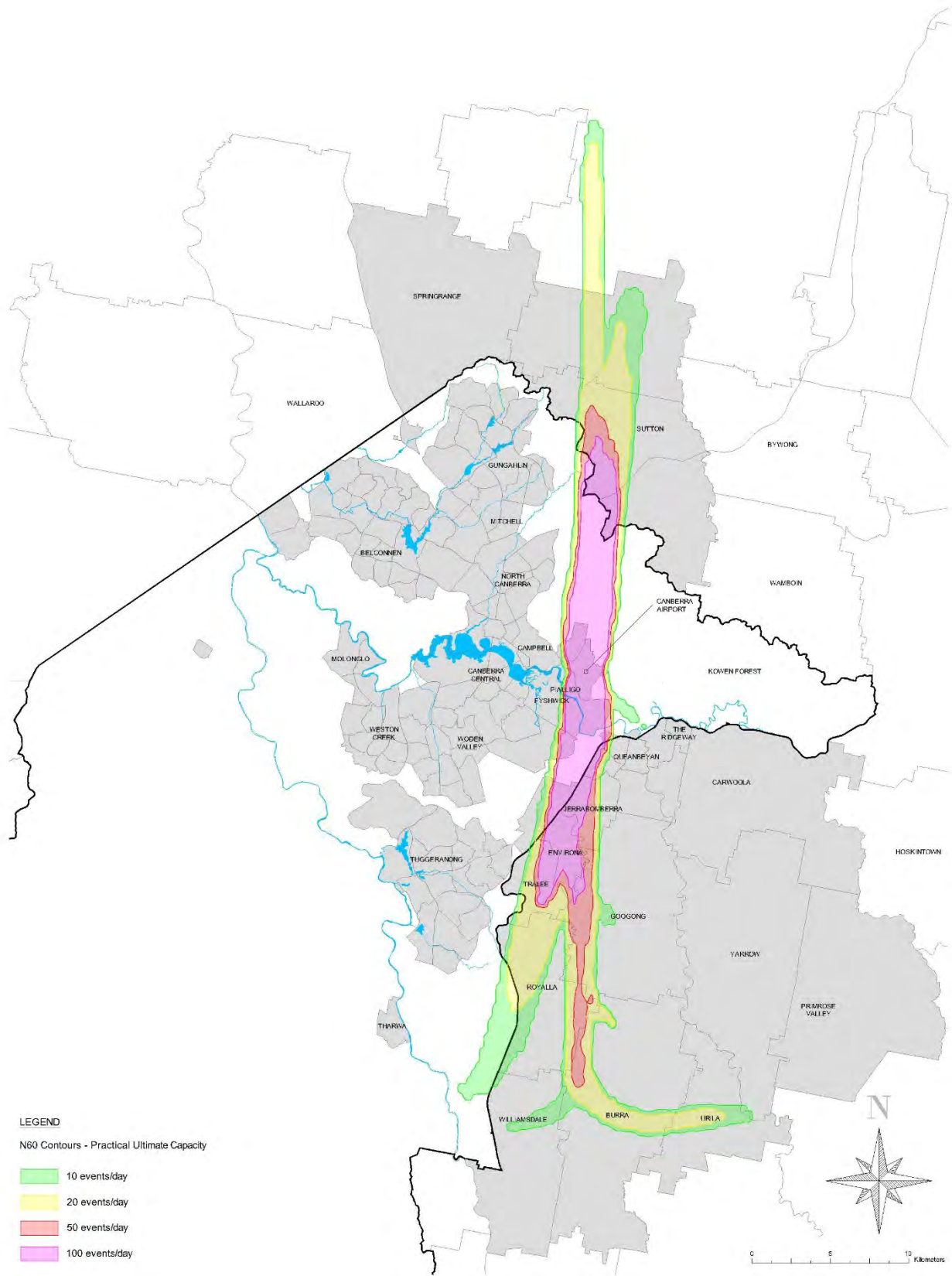
The South East and Tablelands Regional Plan 2036 released in 2017 outlines the opportunity to leverage off Canberra Airport for the economic growth of the Region, particularly in light of Canberra Airport’s curfew-free status.

“As there is no aircraft noise curfew, its international services are unconstrained. Its passenger terminal has capacity to offer more services, and the master planned freight precinct offers a realistic alternative to Sydney Airport.”

“Canberra Airport’s ongoing ability to operate and expand its services cannot be jeopardized by residential development.”

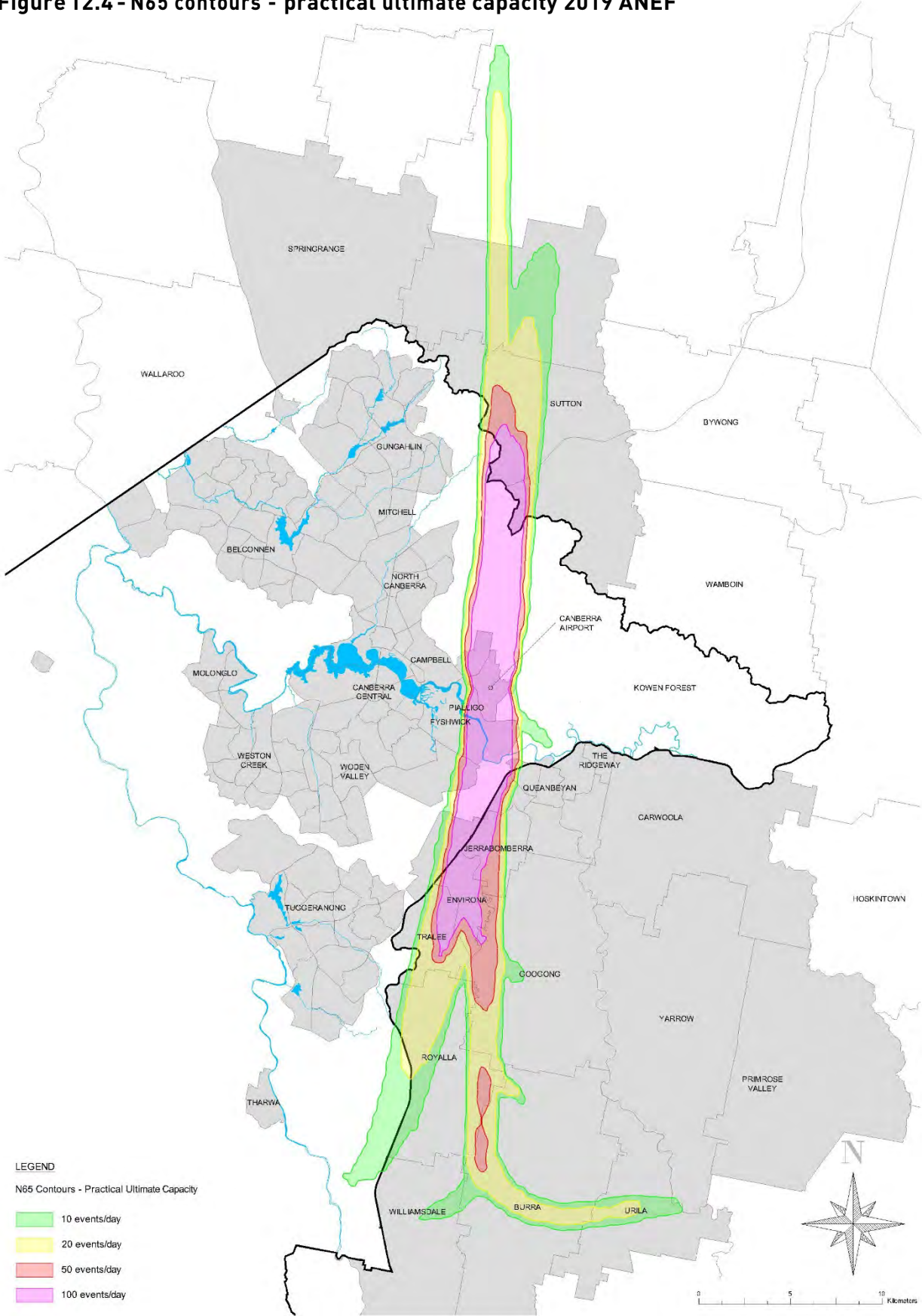
¹¹ ACT Government, ACT Planning Strategy [2018]. Page 63.

Figure 12.3 - N60 contours - practical ultimate capacity 2019 ANEF



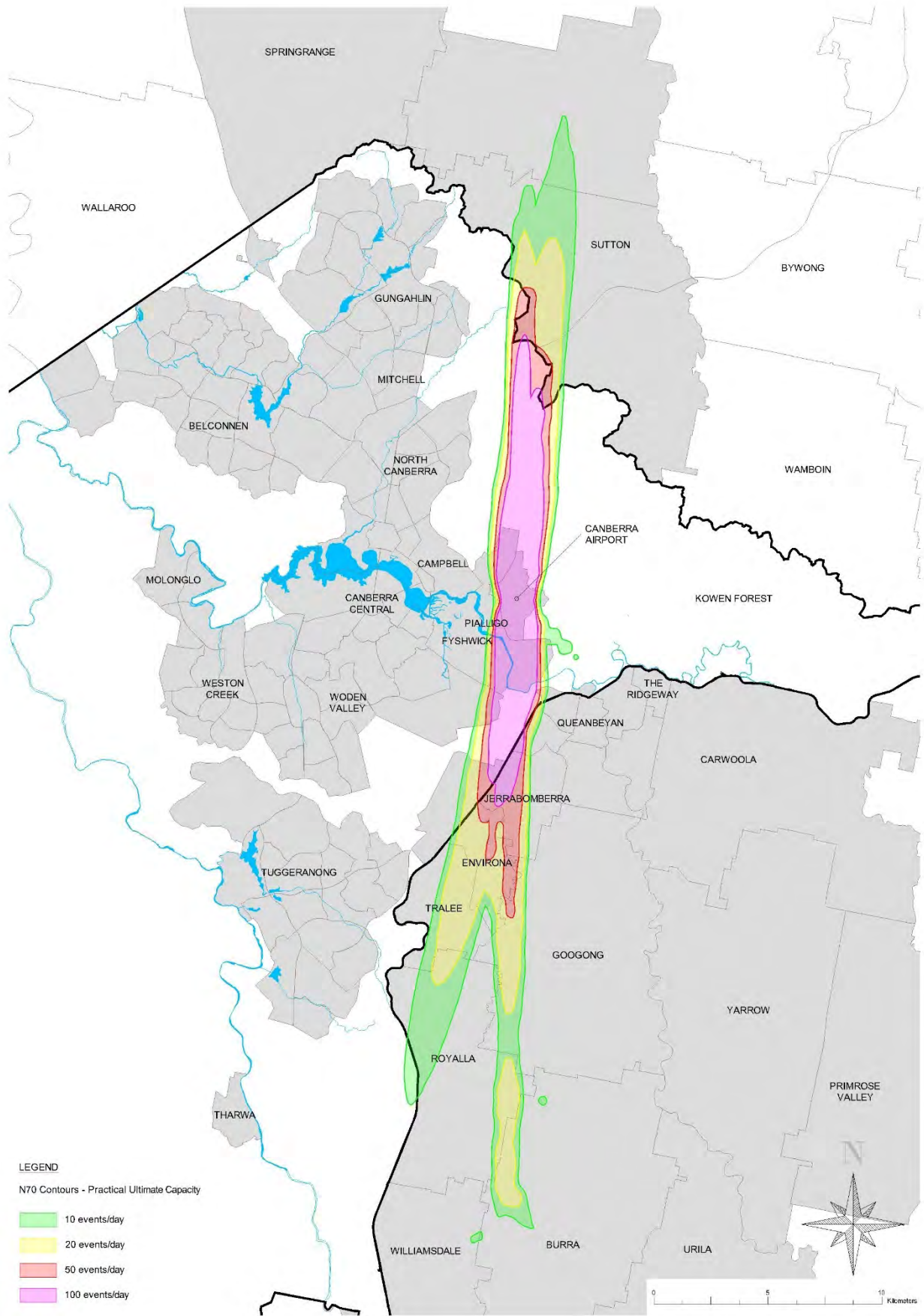
This is a plan of the areas receiving a sound level of 60dB[A] for practical ultimate capacity. Each contour shows the average number of times 60dB[A] is/will be reached in 24 hours.

Figure 12.4 - N65 contours - practical ultimate capacity 2019 ANEF



This is a plan of the areas receiving a sound level of 65dB[A] for practical ultimate capacity. Each contour shows the average number of times 65dB[A] is/will be reached in 24 hours.

Figure 12.5 - N70 contours - practical ultimate capacity 2019 ANEF



This is a plan of the areas receiving a sound level of 70dB[A] for practical ultimate capacity. Each contour shows the average number of times 70dB[A] is/will be reached in 24 hours.

12.4 DESCRIBING AIRCRAFT NOISE

"It is important to look at aircraft noise in as many different presentations as possible".

Ron Brent, Aircraft Noise Ombudsman (2010-2017)

The ANEF, outlined later in this Chapter at Section 12.6.3, is not useful in describing the level or frequency of aircraft noise. As the former Aircraft Noise Ombudsman [ANO] pointed out:

"it is impossible to convert an ANEF rating into a description of what the noise will be like."¹²

Similarly, as set out in the Australian Government's policy on aircraft noise, Attachment 1 to Guideline A of the Safeguarding Framework, the ANEF is of little use in aircraft noise disclosure.

"Following the opening of the third runway at Sydney Airport in December 1994, it was recognised that the ANEF, while a useful tool for land use planning, was deficient as a useful tool for describing information about aircraft noise to residents".

The role of the Canberra Airport ANEF in land use planning is outlined in Section 12.6.1.

The former ANO stated:

"Unfortunately, while this tool [ANEF] can provide high level guidance to those considering the suitability of certain areas for residential or other noise sensitive development, it does little to help those trying to decide if they can live with the noise at a certain level. By way of contrast, there are alternative measures. One example is an 'N70 contour'."

These alternative measures include:

- N Contours [Section 12.4.2];
- Flight Paths [Section 12.4.3]; and
- Single Event Noise Footprints [Section 12.4.4].

¹² Brent, R. 2013 *The Truth About Aircraft Noise* page 2.

The area of land corridor north and south of Canberra Airport located between the Canberra and Queanbeyan Noise Abatement Areas is subject to significant aircraft noise exposure. Aircraft flight paths including RNP procedures, Standard Instrument Departures [SIDs] and Standard Terminal Arrival Routes [STARs] have all been designed to concentrate aircraft flight paths in this area to the benefit of the overwhelming majority of residents in the region.

The former ANO stated:

"If developments are to occur in these corridors, I would like to see the possible impact of the noise emphasised rather than downplayed so that potential buyers can make an informed decision".

Canberra Airport continues to be committed to being transparent with the community about the impacts of aircraft noise, and this is why the level and frequency of noise expected is described here, including the flight paths aircraft will fly, as in previous Master Plans.

This approach allows the retention of the two very important outcomes set out in the introduction to this Chapter, the provision of noise abatement areas and unconstrained aviation operations. Less noise is experienced outside this location as indicated by examining aircraft flight paths and single event aircraft noise contours. This is very important information to intending home buyers.

12.4.1 THE TRUTH ABOUT AIRCRAFT NOISE

In January 2013, Mr Ron Brent, the former Australian Government ANO, released his paper *The Truth about Aircraft Noise*. As Government recognised the growing task in managing aircraft noise appropriately Mr Brent was assigned as the first Aircraft Noise Ombudsman in 2010.

"In the end, the best approach would be to avoid building homes or other noise sensitive developments in high noise zones. On the other hand, it can be difficult to argue that people for whom the noise is not a problem should be denied access to homes in convenient locations that suit them.

If there are to be homes in these areas, I would want to see clear statements about the aircraft noise. It is not helpful to point out that the houses are not under a flight path or outside a particular noise level contour if the truth is that the houses are right on the edge of a noise contour, and that they are near enough to a flight path that planes will fly overhead. Even if the aircraft do not fly directly overhead the noise will be no less than when the planes fly over the parkland the other side of the back fence".

The above statements confirm people have a right to be informed about current and future aircraft noise impacts, and to use this information, to make the decision that suits them about buying and living in areas subject to aircraft noise.

Canberra Airport continues to commit to disclosing the impacts of aircraft noise and to notifying relevant areas within our community about expected noise levels and the frequency with which noise will be heard. The Airport expects current and prospective owners of property around the Airport to take warnings about aircraft noise seriously and be proactive about ensuring their own amenity as the impact of aircraft noise increases over time.

12.4.2 N CONTOURS

The Australian Government Discussion Paper, *Expanding Ways to Describe and Assess Aircraft Noise* describes N contours as "the total number of instances on the average day where a person is exposed to a noise event greater than [70 dB(A)]"¹².

Figures 12.3, 12.4 and 12.5 illustrate N60, N65 and N70 contours respectively at practical ultimate capacity of the Airport. These contours have been prepared using the same fleet mix at practical ultimate capacity as that used to prepare the 2019 ANEF. Guidance in interpreting noise impact can be found in Guideline A of the Safeguarding Framework, *Managing the Impacts of Aircraft Noise*.

Purchasers of homes should study these plans and this document carefully. The Figures represent events for an average 24-hour period and therefore are not a representation of the number of events during for example night time hours. Runway 12/30 is generally closed overnight between 11pm and 6am.

12.4.3 FLIGHT PATHS

The expected future flight paths are substantially similar to the existing flight paths into and out of Canberra Airport, with GPS and RNP approaches, in the endorsed Practical Ultimate Capacity ANEF.

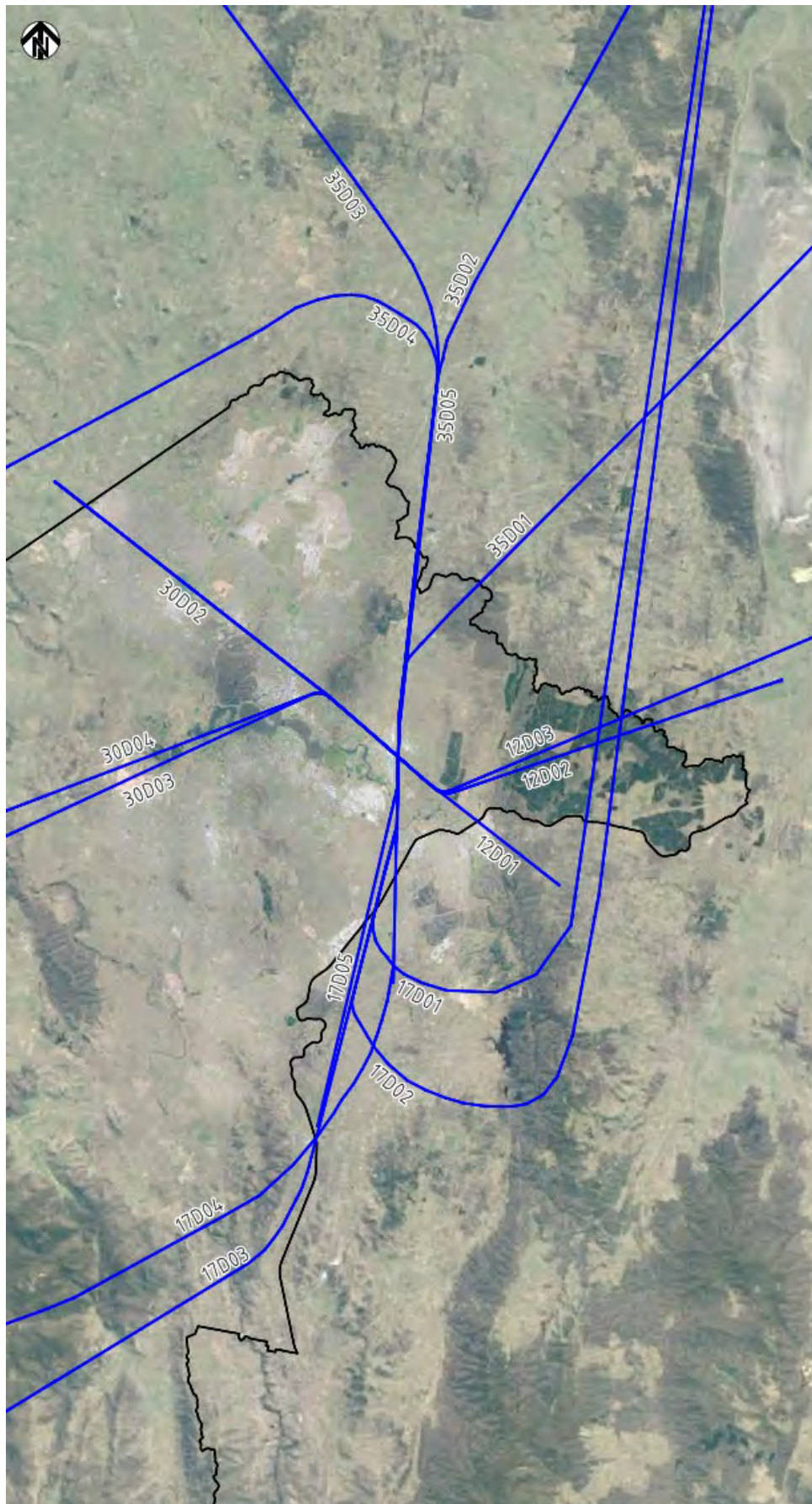
The arrival and departure flight paths modelled in the 2019 Practical Ultimate Capacity ANEF are shown in Figures 12.6 and 12.7.

In December 2008, Airservices Australia introduced a public web-based aircraft noise and flight path monitoring service known as WebTrak, where actual aircraft events can be tracked and noise readings viewed on the Airservices Australia Website by members of the public.

Figure 12.6 – 2018 Arrival flight paths



Figure 12.7 – 2018 Departure flight paths



12.4.4 SINGLE EVENT NOISE CONTOURS

The Single Event Noise Contours of representative aircraft operating on existing Canberra Airport flight paths are depicted in Figures 12.8 and 12.9, showing the noise footprint at maximum load of a:

- Boeing 7378MAX; and
- Dash 8-300 [cross runway].

These Figures illustrate the extent of aircraft noise 65 dB[A] and above.

The Boeing 7378MAX footprint illustrates the offset RNP approaches as well as other existing arrival and departure paths. The single event contours are modelled to take terrain, temperature, and altitude into account and are based on a nil-wind scenario.

Noise footprints for the Boeing 747-800 freight aircraft are illustrated in Chapter 6 of this 2020 Master Plan.

These three aircraft types have been chosen for inclusion in this 2020 Master Plan because they are indicative of the largest noise footprint and loudest regular passenger or freight transport aircraft expected at Canberra Airport over the next eight to twenty years.

Figure 12.8 - Single event noise contour - Boeing 7378MAX

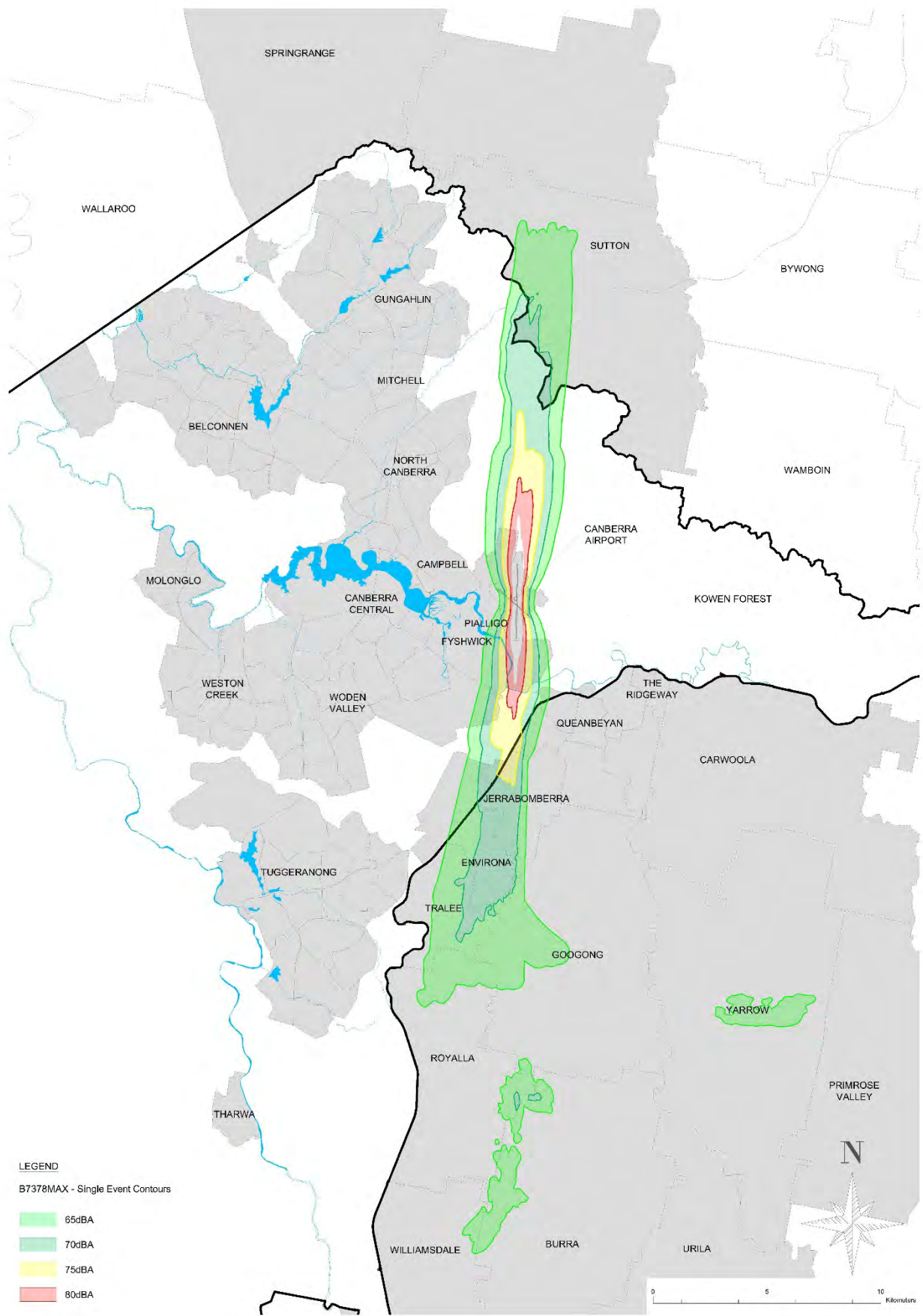


Figure 12.9 - Single event noise contour - Dash 8-300 (Runway 30 arrival)



12.5 NOISE POLICY

Canberra Airport is committed to the principles of the ICAO Balanced Approach to aircraft noise management and continues to enact the first three initiatives in conjunction with industry partners and governments, and continuing to inform the community:

1. Reduction of noise at source;
2. Land use planning and management; and
3. Noise abatement operational procedures.

Operating restrictions are to be used only when the above noise management practices have been exhausted.

12.6 REDUCTION OF NOISE AT SOURCE

In March 2018, the Australian Government brought into force the Air Navigation (Aircraft Noise) Regulations 2018, superseding the Aircraft Noise Regulations 1984. “The Air Navigation (Aircraft Noise) Regulations require all aircraft operating in Australian airspace to comply with noise standards and recommended practices set out in the International Civil Aviation Organization’s (ICAO) document Annex 16, Environment Protection – Volume 1. Under the Regulations aircraft without a noise certificate and those that have been noise certificated at Annex 16 Chapter 2 noise standards, are not permitted to operate in Australia.”¹³

The manufacture and purchase of new aircraft is largely an issue for air operators. Most jet operations in Australia are by new generation aircraft, fully compliant with either ICAO Chapter 3 or 4. In the medium term it is expected newer generation fixed wing aircraft, like the Boeing 787 Dreamliner, will use Canberra Airport.

The very significant reduction in noise emitted by modern aircraft over the last 30 years is not an opportunity to build houses nearer to airports. This is largely a one- off structural step down in the noise of individual aircraft over time while the predominant future impact of Canberra Airport operations will be from more flights creating noise more often and by larger aircraft.

¹³ Department of Infrastructure and Regional Development, *Aircraft Noise Regulations – Overview*. Accessed 5 April 2019, infrastructure.gov.au/aviation/environmental/files/DoIRD_AIRCRAFT_NOISE_FACTSHEET

12.6.1 LAND USE PLANNING

National Airports Safeguarding Framework: Over the long-term inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity. These impacts need to be managed in a balanced and transparent way.

Some development outside of the ANEF 20 contour will be subject to aircraft noise and Canberra Airport urges, as outlined elsewhere in this Chapter, the community to be aware of aircraft noise where aircraft fly and how noise may affect them.

12.6.2 NSW GOVERNMENT SECTION 9 DIRECTION (FORMERLY 117 DIRECTION)

In 2013 the NSW Government released a draft planning direction under Section 117 of the *Environmental Planning and Assessment Act 1979* [NSW]. The proposal provided that no new residential development will be approved within the ANEF 20 contour for Canberra Airport. Canberra Airport now accepts current and future residential development will occur outside the ANEF 20 contour in NSW.

There are approximately 800 homes within the ANEF 20 contour for Canberra Airport.

The Honourable Pru Goward MP, then Minister for Planning and the Environment, advised in June 2014 "I have determined not to proceed with its [draft planning direction under Section 117] finalisation ... I am confident that planning pathways currently available will deliver an equivalent outcome without the need to introduce a new regulatory imposition via a minister direction. To this end I have instructed the Department of Planning and Environment, when considering any future proposals for residential or other noise sensitive uses in this area, to ensure that the strategic economic importance of Canberra Airport and its 24 hour curfew-free status are given full weight in the decision making process."

Further, Mr Richard Pearson, then Deputy Secretary Department of Planning and Environment NSW, advised in July 2014 "Consistent with the Minister's instructions ... the Department's policy position remains that rezonings for large scale urban release within the Australian Noise Exposure Forecast 20 for Canberra Airport are not supported ... future development at South Jerrabomberra will be required to meet those internal noise levels set out in Table 3.3 of the AS2021-2000 Australian Standard, similar to the requirements introduced for South Tralee."

Canberra Airport is concerned however that the views of previous Minister Goward about the need to restrict noise sensitive zoning near Canberra Airport may be disregarded by future governments, and a Ministerial Direction issued under Section 9 of the *Environmental Planning and Assessment Act 1979* about noise sensitive land uses around Canberra Airport will provide clarity to relevant councils when revising their Local Environment Plans.

Canberra Airport hopes to work with NSW Planning, Industry and Environment in the preparation of a Ministerial Direction to ensure “rezonings for large scale urban release within the Australian Noise Exposure Forecast 20 for Canberra Airport” do not occur into the future.

12.6.3 AUSTRALIAN NOISE EXPOSURE FORECAST

The ANEF is designed to create a land use planning tool to manage noise sensitive land uses around the Airport, providing guidance to the National Capital Authority, ACT and NSW Governments and councils to make informed planning and development decisions. The system is underpinned by Australian Standard AS2021-2015. The Standard defines areas where construction of certain building types is 'acceptable', 'conditionally acceptable' and 'unacceptable'.

While the ANEF is a requirement of the Airports Act, it is essentially a land use planning tool of most relevance and importance to state, territory and local governments who are making planning decisions for future decades. Because of its aggregate nature and lack of meaningful information about decibel levels, flight paths, aircraft height or movement frequency, an ANEF provides little assistance to individuals in the community seeking to understand specific future noise impacts.

Important Note: Aircraft noise does not stop at a line on a map. Those currently living in or considering purchasing a property within the vicinity of Canberra Airport flight paths, aircraft noise footprints, or noise contours, are right to seek information about aircraft noise because they have a responsibility to ensure their amenity.

An ANEF is an aggregate calculation of noise modelling, combining current and future aviation operations. It shows the cumulative noise effect of a full year of operations so that seasonal changes in weather patterns and airline schedules are taken into account. The resulting contours are a measure of the total noise exposure over a 12-month period divided by 365 to show an average annual day. It does not represent the maximum exposure on any day, or the maximum exposure caused by a single aircraft.

The 2019 ANEF was developed by independent expert consultants in consultation with Canberra Airport with the assistance of two reports; one determining the practical capacity of the runway system using the Federal Aviation Administration demand and capacity methodology (currently under review), and the other a detailed meteorological analysis to model actual and theoretical runway capacity. The ANEF considers terrain, altitude, and temperature.

The Practical Ultimate Capacity Australian Noise Exposure Forecast (ANEF) prepared in 2019 for Canberra Airport is provided at Figure 12.10. This ANEF was prepared in consultation with Airservices during 2019 and formally lodged with Airservices in April 2019 for technical endorsement. Formal endorsement occurred on 12 August 2019 ahead of its inclusion in the preliminary draft Canberra Airport 2020 Master Plan which was released on 14 August 2019.

The 2019 ANEF has been prepared to take into account operations from the end of the existing main Runway 17/35 and is a representation of the Airport's Practical Ultimate Capacity with the threshold relocated as proposed in Chapter 7.

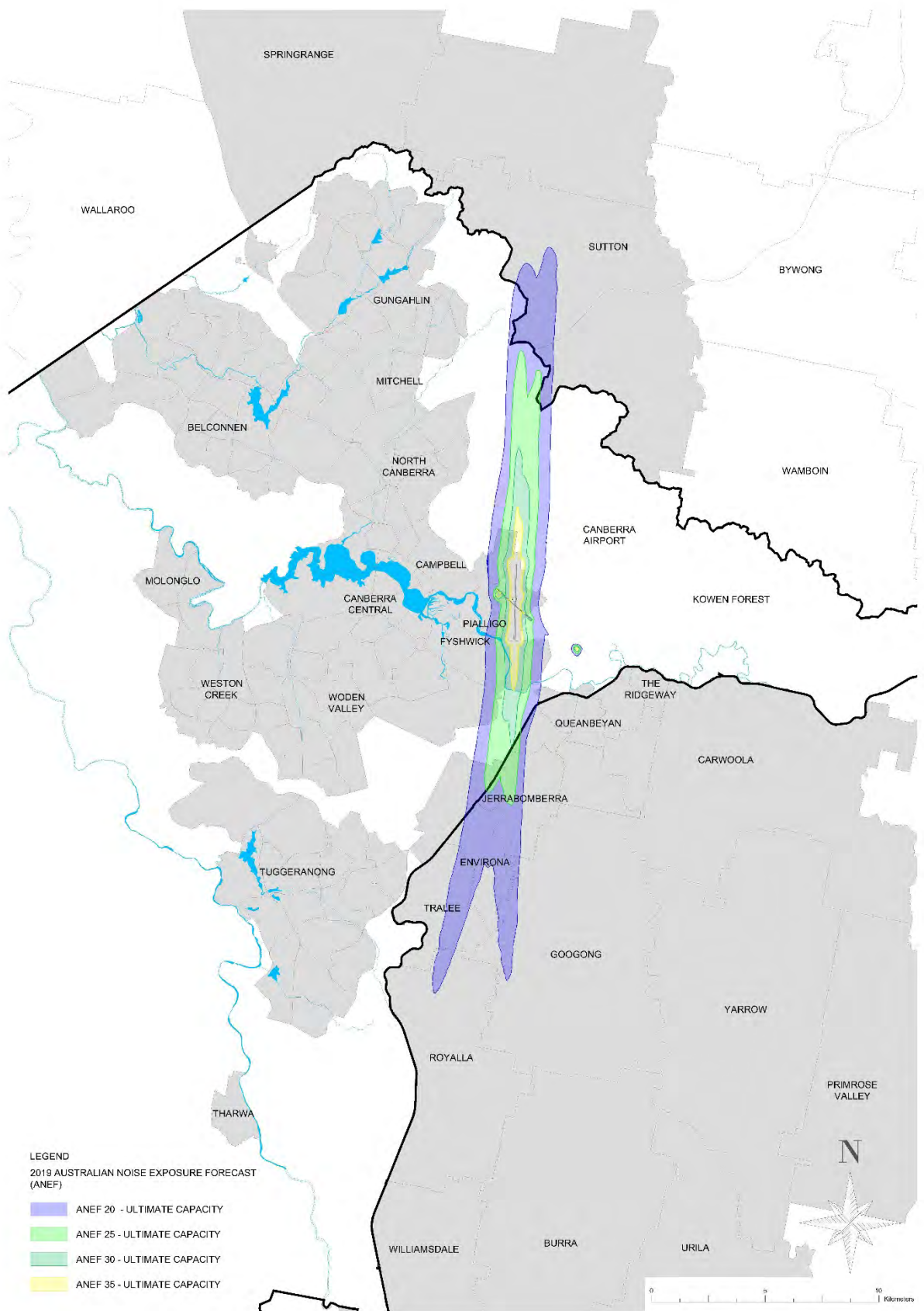
The ANEF is utilised for land use planning purposes and should not be solely relied upon by communities or prospective purchasers of property for information about the impact of aircraft noise.

The ANO describes the ANEF:

"The ANEF level comes from a complex formula and is not easy to understand or explain. It includes factors such as; how loud the noise is, how frequent it is and the distribution of the noise across the day and the night. It is based on a forecast of aircraft activity (which may or may not bear out) and uses standard noise estimates for known aircraft types. It assumes consistent flight routes (which do not necessarily correspond to how planes fly in reality). The final averaged level will not tell you if you will get occasional loud noises, frequent quieter noises, lots of night noise, or most of the noise between 6am and 7am when you hope to sleep in".¹⁴

¹⁴ Brent, R. *The Truth About Aircraft Noise*. 2013

Figure 12.10 – Practical Ultimate Capacity Australian Noise Exposure Forecast (2019 ANEF)



12.6.5 ACT PLANNING

The Territory Plan Map shows non-urban broadacre space to the north and south of the Airport. This zoning is commensurate with protecting the 24-hour operation of the Airport because noise sensitive developments will not be permitted within the future noise footprint of the Airport.

The ACT Government online portal ACTMapi includes the ANEF for Canberra Airport at app.actmapi.act.gov.au/actmapi/.

12.6.6 NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF) GUIDELINE A: MEASURES FOR MANAGING IMPACTS OF AIRCRAFT NOISE

NASF Guideline A sets out at paragraph 17 the proposal for “noise-sensitive development” as follows:

It is important that consideration be given to the application of the following approach to land use planning:

- i) No new designations or zoning changes that would provide for noise-sensitive developments within a 20 ANEF where that land was previously rural or for non urban purposes (in keeping with AS2021).
- ii) Zoning for noise-sensitive development be avoided where ultimate capacity or long range noise modelling for the airport indicates either:
 - 20 or more daily events greater than 790 dB(A);
 - 50 or more daily events of greater than 65 dB(A); or
 - 100 events or more daily events of greater than 60 dB(A).
- iii) Zoning for noise-sensitive development should take into account likely night time movements and their impact on residents’ sleeping patterns. For example, where there are more than 6 events predicted between the hours of 11pm and 6am which create a 60 dB(A) or greater noise impact, measures for aircraft noise amelioration and restriction on noise-sensitive development may be appropriate.

12.7 NOISE ABATEMENT

The Review of Canberra Airport Noise Abatement Procedures [2011] by Airservices Australia found that the communities around Canberra Airport are well served by a range of noise abatement procedure components that are effective and have high levels of compliance.

On the basis of the findings in this report, Airservices Australia does not see any need to change any of the existing NAPs within the short term (next five years), but can explore the use of RNP technology as it enables routes that have less environmental impact to be flown. This can be achieved at Canberra Airport through the development of multi-variant design RNP procedures, enabling suitably equipped aircraft to use RNP flight paths. Work on the feasibility of this option is underway.

Canberra Airport is committed to working with Airservices Australia, aircraft operators, and the community to ensure the ongoing investigation of further measures to provide noise relief to the community impacted under flight paths.

12.7.1 NOISE ABATEMENT AREAS (1995)

The noise abatement areas are the most important measure in keeping Canberra and Queanbeyan largely free from aircraft noise. The noise abatement areas implemented 24 years ago are shown in Figure 12.11. Aircraft now largely avoid residential areas for a distance of up to 15 kilometres north and south of the Airport.

Introduced in their current form in 1995, the noise abatement areas reduce the overflight of residential areas by arriving and departing aircraft. Within the noise abatement areas, jets may not fly below 5,000 feet [1,500 metres] above ground level, [7,000 feet above mean sea level] and large propeller aircraft may not fly below 3,000 feet [915m] [5,000 feet above mean sea level], except in special circumstances [such as aircraft emergencies, inclement weather, or when undertaking training/maintenance circuits]. The noise abatement areas are published procedures that are complied with by pilots and ATC when directing aircraft.

Canberra Airport supports the extension of the noise abatement areas to cover residential development in north and eastern Gungahlin and residential development at Googong New Town.

12.7.2 RUNWAY 17 DEPARTURE OFFSET

Following complaints from residents of Jerrabomberra about departing aircraft tracking directly overhead western Jerrabomberra [reciprocating, in reverse, the straight-in ILS arrival flight path], a 12-degree offset departure flight path was established in 1996, ensuring aircraft taking off to the south on Runway 17 fly away from and west of Jerrabomberra near Tralee and Hume.

12.7.3 RUNWAY 17 PREFERRED ARRIVAL AND RUNWAY 35 PREFERRED DEPARTURE AT NIGHT

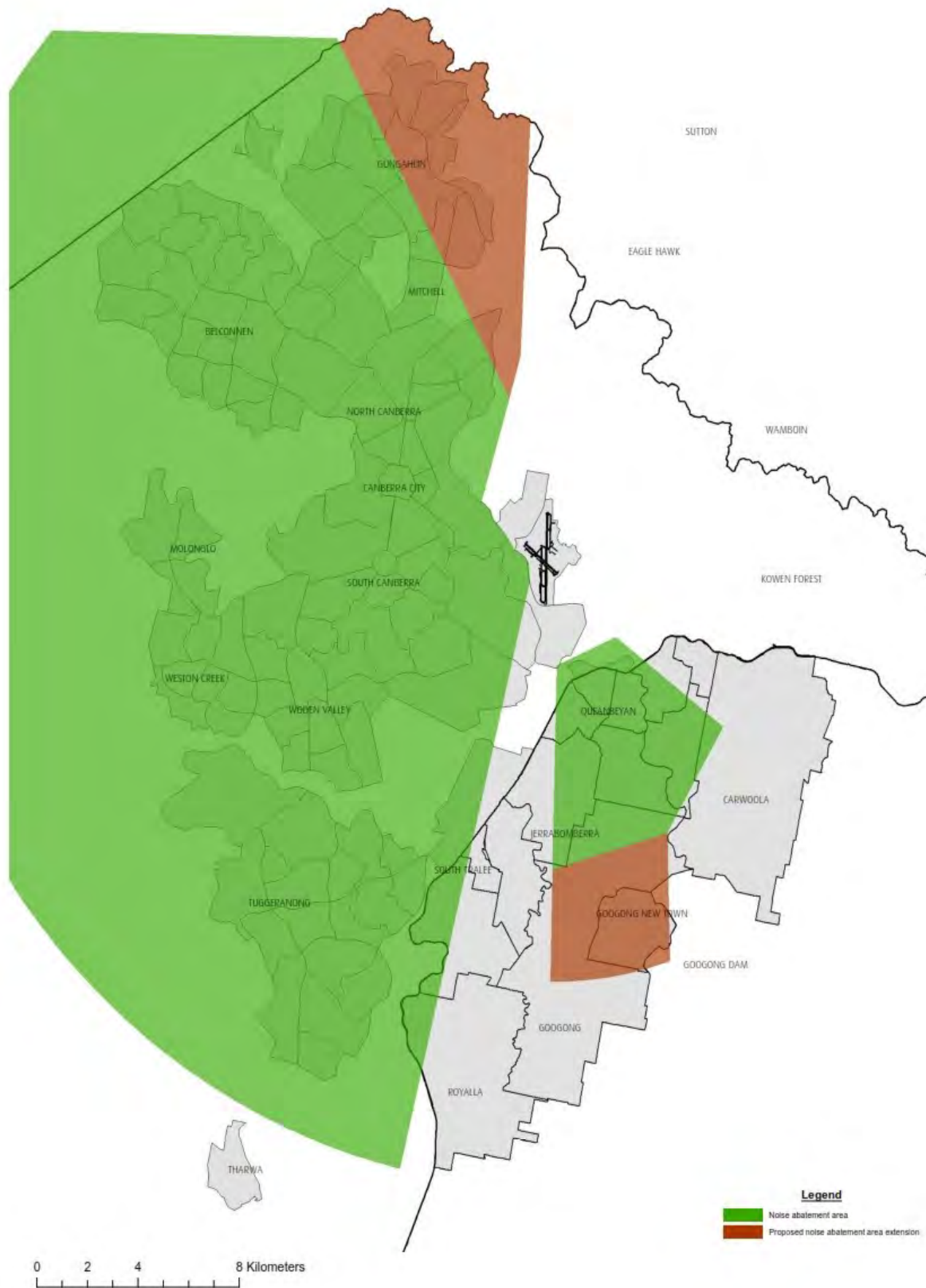
The predominant landing runway at Canberra Airport is Runway 35 from the south, which is serviced by an instrument landing system. However, in May 1998, following requests from the Jerrabomberra community, Runway 17 became the preferred runway for arrivals overnight between 8pm and 7am when weather permits. Similarly, departures are preferred on Runway 35.

In its 2011 review of abatement procedures at Canberra Airport, Airservices Australia determined:

The optimal runway modes to minimise overflight of residential areas are arrivals on Runway 17 and departures on Runway 35. This is reflected in the preferred runways at night, but not practical during the day as traffic levels are too high for opposite direction operations. However, the weather, traffic levels between 8pm and 11pm when there is an ATC service, and the absence of an ATC service between 11pm and 6am combine to result in a very low level of compliance with this mode.

It is useful for the community to know that as overnight aircraft traffic increases, Runway 17 arrivals will for practical reasons, depart on Runway 17.

Figure 12.11 - Noise abatement areas



12.7.4 RUNWAY 17/35 PREFERRED AT NIGHT

Agreements have been signed with the principal night freight operators at Canberra Airport to ensure night freight aircraft use the main runway [Runway 17/35], rather than the cross runway between 11pm and 6am, and fly clear of the Canberra and Queanbeyan Noise Abatement Areas except where operationally required. A similar agreement was reached with the Royal Flying Doctor Service/NSW Air Ambulance and another major Canberra General Aviation organisation. This ensures that residents of Canberra and Queanbeyan, and particularly residents of North Canberra, are subject to reduced overflight at night.

Canberra Airport is committed to ensuring similar agreements are signed with any future night freight operator that seeks to operate services to and from Canberra Airport, unless a broader restriction on the overflight of the noise abatement areas at night is achieved.

Canberra Airport continues to support Runway 17 as the preferred night-time arrival runway, subject to weather and technology.

12.7.5 RUNWAY 30 DEPARTURE PROCEDURES

Revised departure procedures for Runway 30 usually require light aircraft to track straight over Fairbairn Avenue to the War Memorial before turning off the original departure heading, thereby avoiding unnecessary noise disturbance to residents of North Canberra, in particular the suburbs of Campbell, Ainslie, and Reid.

12.7.6 RUNWAY 12 ARRIVAL PROCEDURES

Similar to the departure procedures for Runway 30 implemented in 2001, arriving aircraft on Runway 12 are requested to join their final inbound track no later than the Australian War Memorial to reduce noise over North Canberra.

12.7.7 RUNWAY 30 ARRIVAL PROCEDURES

Amended arrival procedures to Runway 30 from the east were put into place in 2002 to provide noise respite to the rural residential areas of Carwoola, Captains Flat Road, and the Ridgeway [all in NSW], involving directing aircraft over currently unpopulated western areas of Kowen Forest. When the ACT Government develops Kowen as a residential settlement, this measure may need to be further refined.

12.7.8 HIGHER OVERFLIGHT OF RURAL RESIDENTIAL AREAS

For light aircraft travelling to the training area near Bungendore, a noise respite procedure was implemented ensuring light aircraft, once on track, travel at an altitude 500 feet [150 metres] higher than was previously the norm. This reduces noise exposure for rural acreage residents living below this flight track, mainly in Wamboin [NSW].

12.7.9 CIRCUIT TRAFFIC

New circuit procedures on the cross runway [Runway 12/30] were implemented to ensure minimum possible aircraft noise impact to residents in Pialligo and North Canberra.

12.7.10 NEW DEPARTURE AND ARRIVAL PROCEDURES RUNWAY 17/35

In response to the noise abatement areas, Airservices Australia developed new Standard Instrument Departures [SIDs] in 2002, followed by new Standard Terminal Arrival Routes [STARs] in 2005 for Canberra Airport. These procedures have been varied since to achieve more noise abatement and are able to be entered into aircraft flight management systems and, taking into account wind conditions, allow for highly accurate tracking to and from Canberra Airport. This has ensured reduced high level aircraft overflight of residents in Tuggeranong and Gungahlin and moved the lower level arrival flight paths away from residents of the rapidly expanding Googong New Town.

12.7.11 SMART TRACKS

Notwithstanding the 1996 movement of the Runway 17 departure flight paths further to the west, Jerrabomberra residents have continued to complain about aircraft noise generated by arriving aircraft on the straight-in Runway 35 flight path.

In response to these ongoing complaints, in 2005 Qantas Boeing 737-800 aircraft commenced using the new GPS based technology known as Required Navigation Performance [RNP] to operate a curved noise abatement approach to Runway 35. Canberra was the first airport in Australia to be selected for this technology. This means that aircraft using this RNP approach can now safely bypass Jerrabomberra on arrival.

Airservices Australia data shows that the new RNP approach to Runway 35 delivers a highly significant 9-10dB[A] reduction at the Jerrabomberra noise monitoring terminal during a single noise event from a Boeing 737-800 arrival¹⁵. This equates to an almost halving of the perceived loudness of noise for residents adjacent the noise monitoring terminal compared to the instrument land system [ILS] arrival flight path. Further, the RNP approaches allow for more direct tracking, which in turn minimises the lateral spread of aircraft noise.

Other RNP arrival procedures to Runway 35 and departures have been implemented by ASA and together with a precision-like RNP approach to Runway 17 are also now utilised by appropriately equipped aircraft, providing very substantial noise, safety, and fuel savings.

Currently the technology is utilised wherever possible by Qantas, Virgin Australia and Defence Boeing 737 fleets.

¹⁵ July 2007 report on RNP procedures at Canberra Airport, available on the Canberra Airport Website

The existing RNP procedures have been incorporated into the Canberra Airport Practical Ultimate Capacity ANEF.

12.7.12 RUNWAY 35 WEST ARRIVAL

In February 2013 an offset RNP approach procedure from the south to the main runway was implemented. This directs aircraft arriving from the south or south-west further to the west, moving the flight paths further west and away from residences in Jerrabomberra and rural-residential areas of Fernleigh Park, Googong, and Little Burra.

12.8 FUTURE OPPORTUNITIES FOR NOISE ABATEMENT

In order to ascertain aircraft noise disturbance, and to best tailor future noise respite measures to reduce aircraft noise over residential communities, Canberra Airport conducts extensive and ongoing consultation with Airservices Australia, governments, industry, and the community. This consultation occurs in various forms; meetings, written communication, publications and information on the Airport's Website.

12.8.1 CANBERRA AND QUEANBEYAN NOISE ABATEMENT AREA EXPANSION

Since 1999/2000, Canberra Airport has acknowledged that planned future regional residential development outside the current noise abatement areas but away from low-level aircraft flight paths may lead to a future need to expand the current noise abatement areas.

Following formal requests in 2008 from the Gungahlin community and the ACT Chief Minister, Canberra Airport wrote to Airservices Australia requesting an investigation of the eastward expansion of the Canberra Noise Abatement Area to incorporate new Gungahlin suburbs. Canberra Airport supports the extension of these noise abatement areas [and has done so since 1999].

In support of a reduction in aircraft noise over new Gungahlin suburbs, Airservices Australia in late 2014, amended the Runway 35 Standard Instrument Departure so jet aircraft reach a waypoint north of Gungahlin before turning to destination, resulting in aircraft generally flying over non-residential land. Canberra Airport will again liaise with Airservices Australia to determine if an expansion in the relevant noise abatement area is feasible.

An opportunity also exists for the future expansion of the Queanbeyan Noise Abatement Area to the south to incorporate a new residential development at Googong New Town. Canberra Airport has supported this proposed extension of the Queanbeyan Noise Abatement Area since 2002 (Figure 12.11).

12.8.2 NOISE ABATEMENT AREAS AT NIGHT

Canberra Airport continues to work with Airservices Australia to review the rules applying to the noise abatement areas overnight [11pm-6am] to restrict aircraft operating to and from Canberra Airport at night from overflying the noise abatement areas at any height, except where operational requirements require it.

12.8.3 NIGHT PROCEDURES

As aircraft traffic increases the night procedure should specify preferred use of Runway 17 for departures between 8pm and 7am. Arrivals are quieter than departures for residents of North Canberra, whereas the reverse is true for those living near Jerrabomberra where the Runway 17 offset departure means departures generate less noise than arrivals.