FIGURE 6.1 - ROAD HIERARCHY PLAN

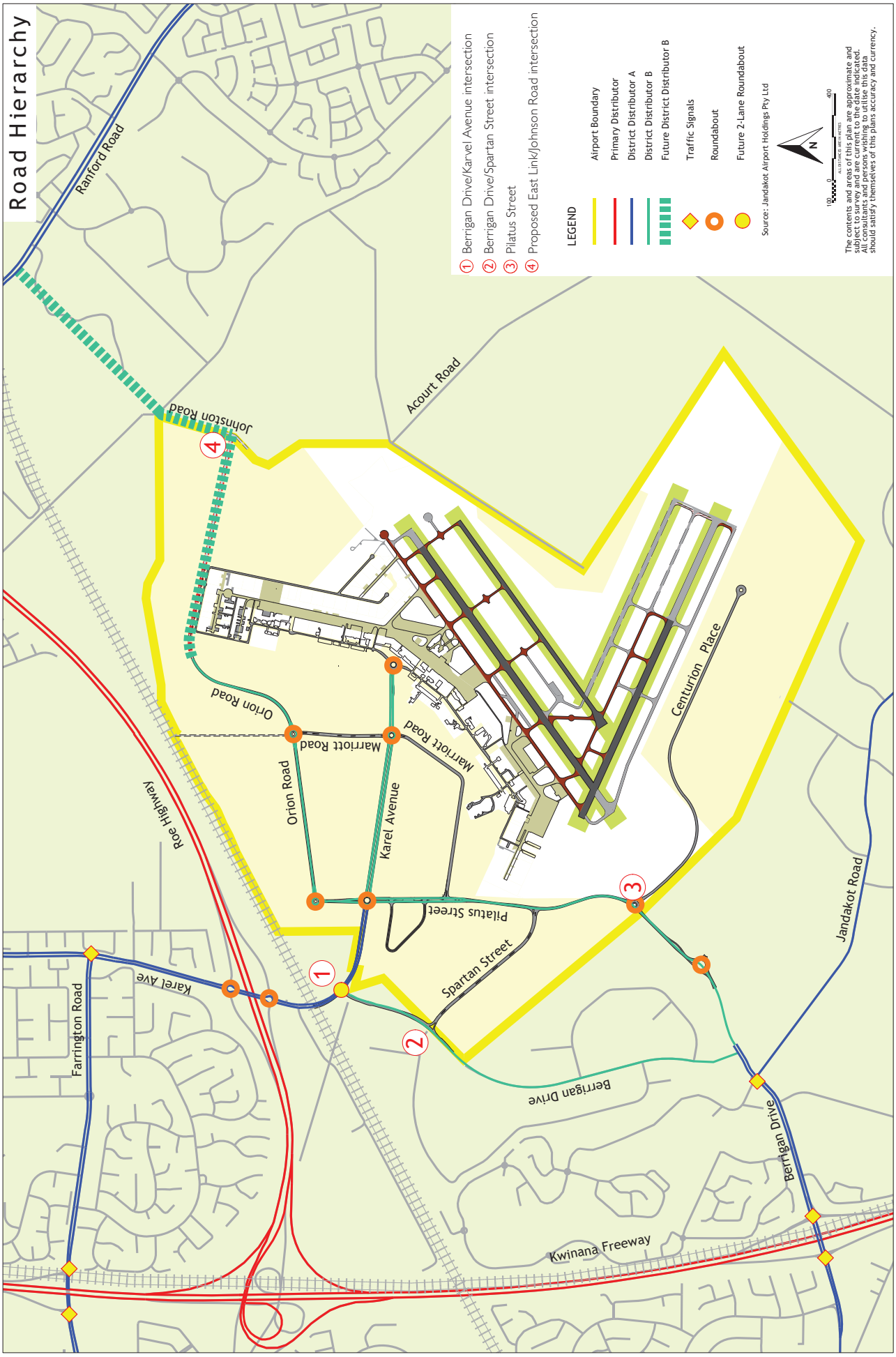
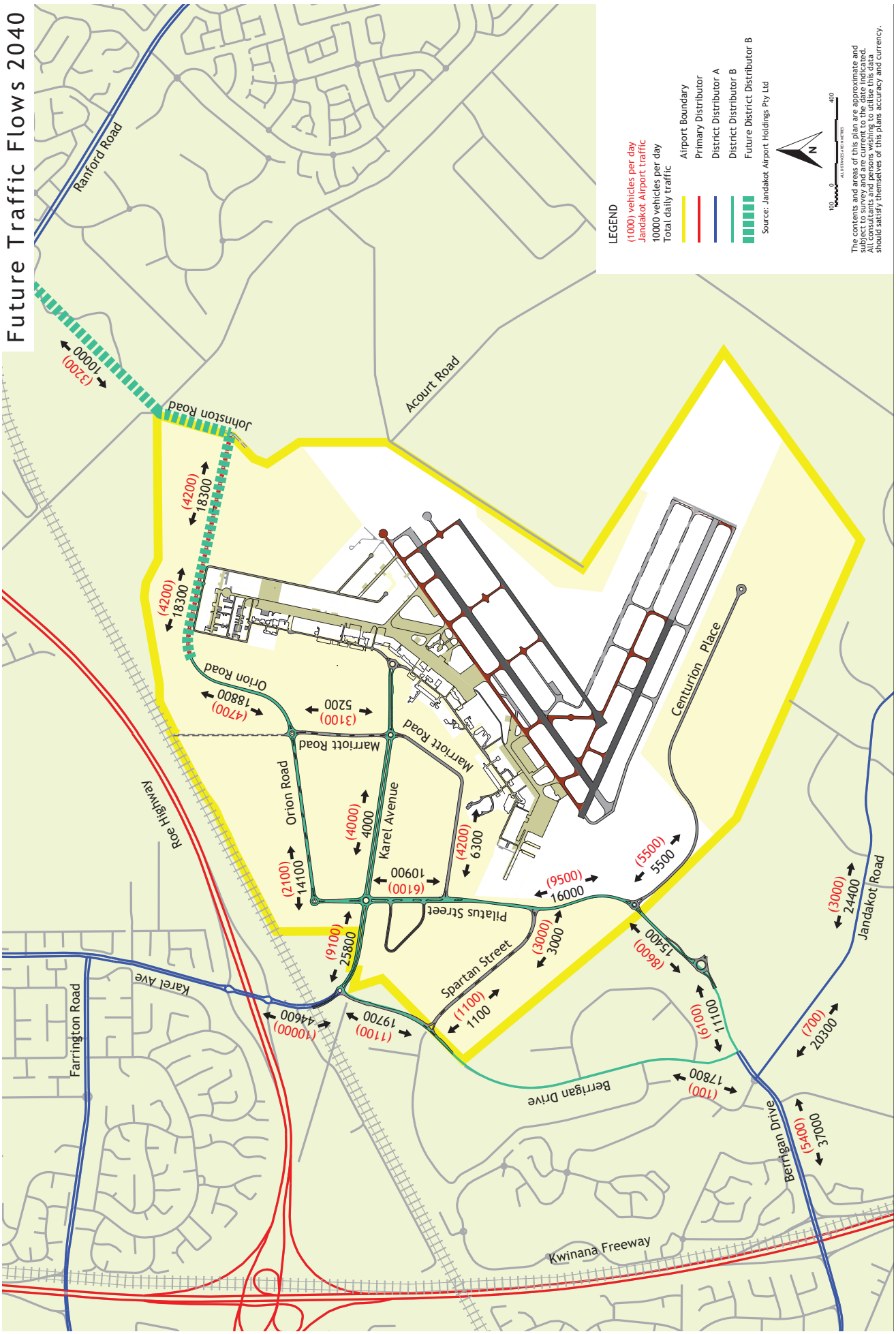


FIGURE 6.2 - FUTURE TRAFFIC FLOWS 2039



6.6.2 BERRIGAN DRIVE (NORTH) AND KAREL AVENUE INTERSECTION

It is proposed that ownership and responsibility for maintenance of this intersection will remain with the Local Government. Funding of the intersection upgrade has been agreed with the Local Government.

6.7 PUBLIC TRANSPORTATION

6.7.1 BUS SERVICE

Transperth commenced a public transport bus service into Jandakot Airport in February 2013 with regular weekday services linking the airport to Murdoch Station. As at June 2020 there were 8 daily services from Murdoch Station to the airport and 9 daily services from the airport to Murdoch Station (routes 515 & 516). Demand for the public bus services will be monitored by JAH in consultation with Transperth.

6.7.2 PASSENGER RAIL SERVICE

The State Government's METRONET policy includes the extension of the existing Thornlie passenger rail line to Cockburn Central as part of its Stage One projects a new station at Ranford Road near the northeast corner of the Jandakot Airport site. It is noted that this is now a committed project under construction.

6.7.3 PEDESTRIAN/ CYCLIST FACILITIES

The existing paths located at the perimeter of the site include the following:

- A principle shared path located on the north side of the Roe Highway reserve;
- A shared path located on the west side of Karel Avenue, along the bridge over the Roe Highway.
- North of the Roe Highway the path continues on the west side to up to Farrington Road. There is also a section of shared path on the east side of Karel Avenue south of the Dimond Court intersection; and
- A shared path located on the north side of Berrigan Drive (south of Jandakot Road).

Additional paths have been constructed as part of the ongoing development of Jandakot Airport which provide a significant and convenient network for pedestrians and cyclists including mid-block and intersection crossings. It is acknowledged that the Department of Transport has prepared the Long-Term Cycle Network, which identifies key routes that connect to and from Jandakot Airport.

6.8 CAR PARKING

The majority of existing building and hangar sites include car parking areas for staff and visitors. It is a JAH requirement that all developments provide adequate carpark facilities within the development site, based on car parking standards similar to City of Cockburn requirements. This practice has resulted in sufficient car parking being provided on the airport estate.

FIGURE 6.3 - FUTURE ROAD IMPROVEMENTS

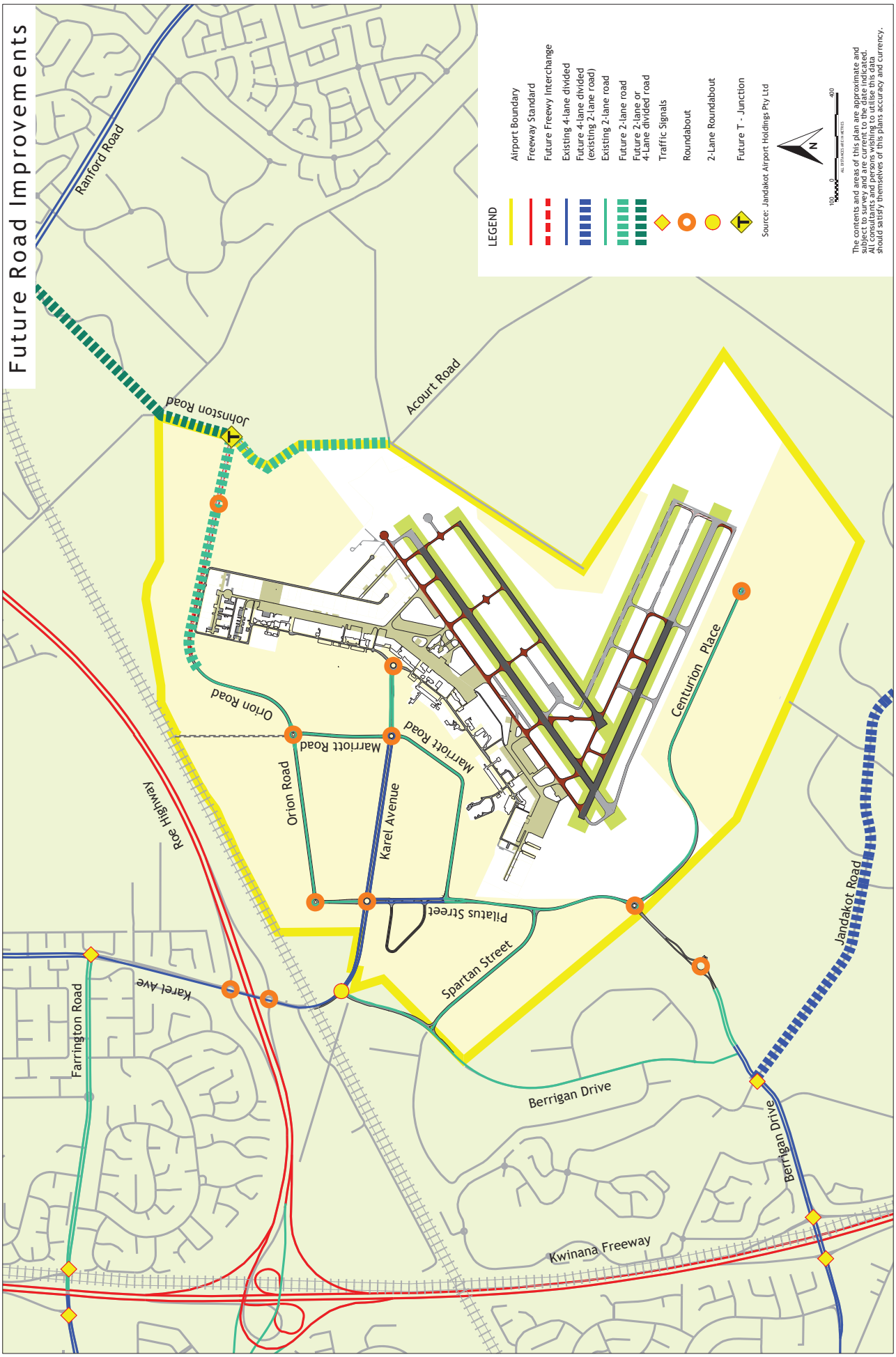
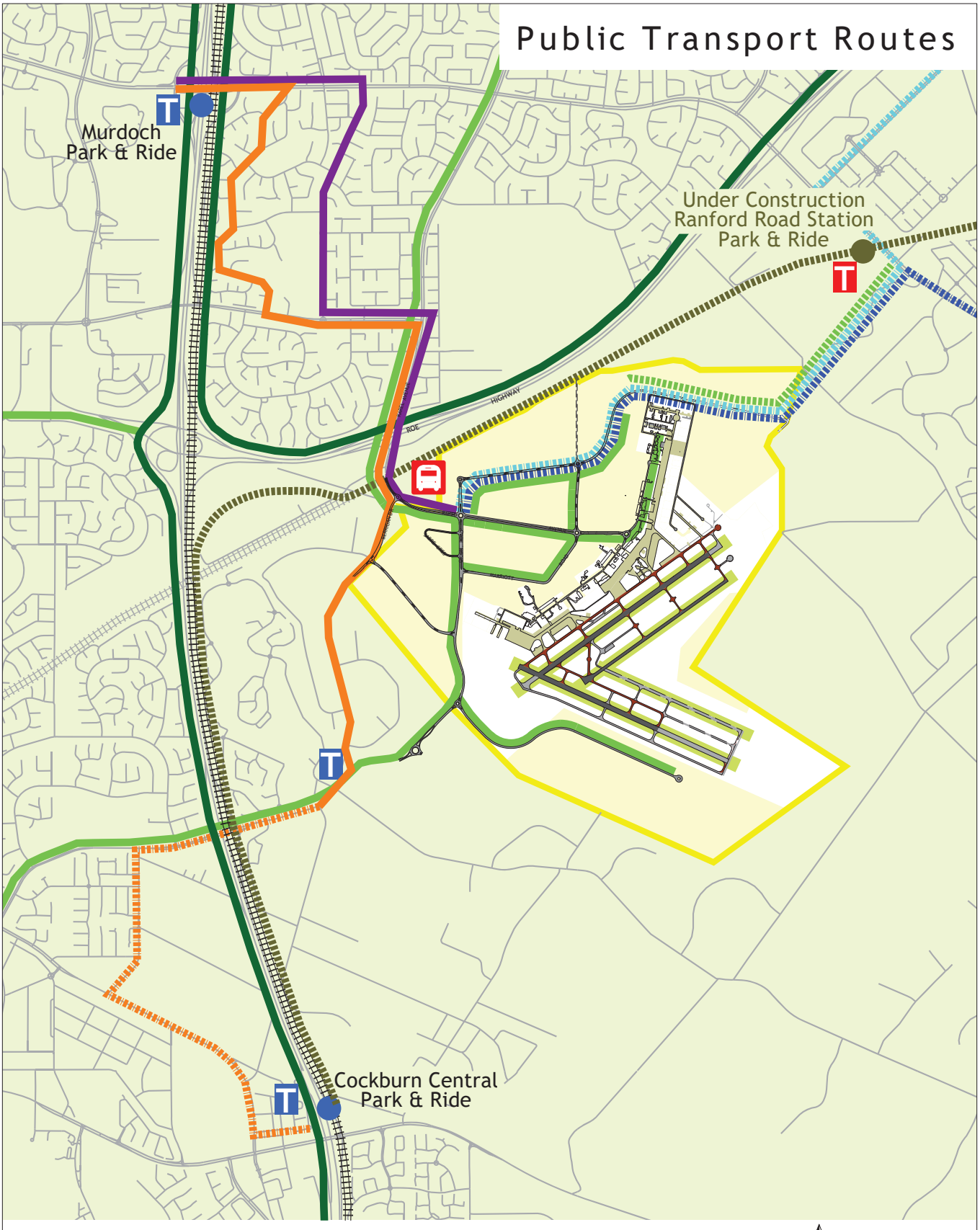


FIGURE 6.4 - PUBLIC TRANSPORT ROUTES



7. SERVICES INFRASTRUCTURE

JAH has invested significantly in the upgrading of services and infrastructure to meet the needs of aviation and non-aviation development at the airport. This investment totals approximately $50 million in road, water, power, sewer and communications upgrades since the approval of the Master Plan 2005.

7.1 WATER SUPPLY SYSTEM

Jandakot Airport is currently serviced by two 150mm metered connections provided by Water Corporation, at the northern and southern boundaries of the airport. Both metered connections are fed directly into storage tanks fitted with booster pumps which are subsequently connected back into the internal main line. The booster pumps have been installed to maintain and regulate the internal mains reticulation pressure during peak demand periods and fluctuating Water Corporation service pressures/flows.

Existing fire hydrant services are compliant with Australian Standard 2419.1-2005.

7.2 SEWERAGE SYSTEM

Through the adoption of a Local Water Management Strategy, JAH remains committed to controlling domestic wastewater discharges and protecting groundwater resources.

The existing sewered portion of the airport is serviced by a reticulated sewerage network connected to a Type 40 Wastewater Pumping Station located on Marriott Road. Existing un-sewered leasehold sites manage wastewater disposal via septic tanks and aerobic treatment units.

The continued development of the sewerage system will ensure the progressive redundancy of existing wastewater systems in favour of a reticulated wastewater network where possible.

The sewer network runs to two underground wastewater pumping stations that are maintained by the Water Corporation. All wastewater is discharged offsite, via an underground pressure main. This main discharges into the Bibra Lake main sewer in Farmhouse Drive, Bibra Lake, a distance of approximately 3.5 kilometres.

Precincts 6 and 6A are serviced with a local precinct gravity sewer network which discharges into a precinct sewer pump station, located in the middle of Precinct 6. This Precinct 6 pump station discharges via a pressure main into the existing gravity sewer on Pilatus Street which discharges into the existing Wastewater Pump Station.

7.3 DRAINAGE SYSTEM

A Local Water Management Strategy has been developed to ensure 'best practice' drainage principles are adopted and maintained across the airport.

As development increases so does the area of impermeable surfaces requiring drainage, infrastructure and management systems to cater for additional volumes of surface runoff.

Due to the high permeability of the underlying sandy soils, run-off is localised and short term as it generally infiltrates very quickly. Ponding rarely occurs and existing stormwater basins are only observed to hold water for short periods after sustained rainfall of high intensity, avoiding the creation of habitats that might otherwise attract water birds. As a result, 'at source' infiltration via soakwells and open drains/swales are the most efficient and sustainable means of drainage management.

Stormwater run-off from paved areas in existing older developed areas of the airport, including runways and taxiways is filtered through adjacent grassed areas. This is complemented by an underground pipe drainage network to prevent ponding over paved areas. The existing underground pipe network discharges to an open drain between the central and southern aprons, which directs flows to the basin at the north eastern end of the airport.

Drainage from wash bays is managed consistent with the Jandakot Airport Equipment and Washdown Policy, which requires appropriate treatment and disposal of water including the use of approved interceptors and/or separators. Similarly, stormwater drainage from fixed refuelling areas is captured and discharged via purpose built plate separators or interceptor pits.

Stormwater throughout the more recent developments (e.g. Precinct 5 and Precinct 6 outside of the JUWPCA) is managed via a combination of soakwells, open drains and swales complemented by an underground pipe drainage network. The soakwells, open drains and swales aim to maximise local groundwater recharge.

All lot developments maintain onsite attenuation of 1 in 20 year storm events without ponding through use of soakwells or small infiltration areas within their respective lots. Developments are also required to attenuate the 1:100 year/24hr average recurrence internal (ARI) storm event. Larger storm events discharge into road reserves and are directed to open drains/swales and/or drainage basins.

Management of stormwater in proposed developments will be consistent with the measures described above. The principle of 'at source' infiltration will further be promoted via all drainage pits having 'drops' and open bases. Stormwater discharge via the pipe network will be directed to nearby open drains/swales within road reserves, or nearby drainage basins (within 'trapped' drainage catchments).

For developments that overlay the JUWPCA, all stormwater collected from roof surfaces, with the exception of that which may be diverted to rainwater tanks, is discharged directly to soakwells within each lease boundary via downpipes in order to facilitate and maximise groundwater recharge. Stormwater from all roads, carparks and external hardstands within the JUWPCA will be discharged via piped drainage networks into drainage basins located outside of the JUWPCA boundary and sized to cater for the 1:100 year/24hr ARI storm event.

7.4 ELECTRICAL POWER SUPPLY

Electricity is supplied to the airport site through two feeders located on Karel Avenue. Since the approval of the Master Plan 2009, the power supply has been upgraded to 22KV high voltage supply.

The overall power demands for the future development of the airport will depend upon the land uses and intensity of development of these areas.

JAH provides and maintains a stand-by power supply by way of an emergency generator for essential services, including the Airservices Air Traffic Control Tower, runway and taxiway lighting, JAH administration and maintenance facilities, and the airside emergency access gate.

7.5 GAS SYSTEM

The airport includes a reticulated gas network along some road reserves. The main gas feed into the development is via the DN160PE pipeline along Karel Avenue, which in turn is connected into the Westnet Energy high pressure main running along the northern side of the railway line that forms a portion of the northern boundary of the airport. The gas is converted from the high pressure to the reticulation pressures at the connection to the high pressure main.

If required, Precincts 6 and 6A, will be provided with a reticulated gas network through the road reserves constructed to service the future development of the area.

7.6 COMMUNICATION SYSTEMS

Telstra remains the governing authority for landline telecommunication services throughout the airport.

7.7 NAVIGATION INFRASTRUCTURE

JAH will work cooperatively with Airservices Australia to establish cable corridors between infrastructure on the airport to prevent future access and cable location issues. Early consultation is undertaken with Airservices for all proposed ducting work to address future requirements to consolidate or relocate cabling. This is outlined further in Section 8.8.

8. AIRPORT SAFEGUARDING

8.1 SAFEGUARDING FRAMEWORK

The National Airports Safeguarding Framework provides guidance on planning requirements for development that affects aviation operations. The Framework has been developed by the National Airports Safeguarding Advisory Group, which includes representatives from Commonwealth Infrastructure and Defence departments, aviation agencies; state and territory planning and transport departments, and the Australian Local Government Association. The framework consists of:

- Principles for National Airports Safeguarding Framework;
- Guideline A: Measures for Managing Impacts of Aircraft Noise;
- Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports;
- Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports;
- Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation;
- Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports;
- Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports;
- Guideline G: Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS);
- Guideline H: Protecting Strategically Important Helicopter Landing Sites; and
- Guideline I: Managing the Risk in Public Safety Areas at the ends of Runways.

8.2 AIRCRAFT NOISE

One of the most obvious impacts of airport operations on the surrounding community is aircraft noise. While the Jandakot Airport site was originally farmland, the close proximity of Jandakot to the Perth CBD and the rapid population growth in Perth has resulted in residential communities becoming established around the airport.

The *Airports Act 1996* requires that a master plan include an Australian Noise Exposure Forecast (ANEF) chart and the airport's plans for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels.

8.2.1 AIRCRAFT NOISE MODELLING

There are four types of noise chart indicators used in Australia:

- Australian Noise Exposure Index (ANEI), which depicts the actual noise exposure over a previous period of time, usually a year;
- Australian Noise Exposure Concept (ANEC), which is a planning tool used to test possible changes to noise exposure resulting from possible changes to airport operations;
- Australian Noise Exposure Forecast (ANEF), which is endorsed for technical accuracy by Airservices Australia and is the official land use planning reference. There can only be one ANEF in force at a particular time. Under the Act, Jandakot Airport's ANEF is required to be updated at least every eight years, in conjunction with the Master Plan update; and
- Noise Above Contour (N60/65/70) charts, which calculate the average daily noise events above 60, 65 or 70 decibels (dbA). The Noise Above Contours represent the frequency of the expected aircraft noise impact and provide a more readily understood measure of noise exposure for the general public.

The noise chart indicators are prepared using the US Federal Aviation Administration Aviation Environmental Design Tool (AEDT). The AEDT is the latest noise modelling tool, replacing the previous Integrated Noise Model (INM) that had been used worldwide since 1978. The software is continuously upgraded by the US Federal Aviation Administration as new aircraft or other factors are added to improve the accuracy of the exposure forecast.

The AEDT is a scientific measure that takes into account:

- Meteorological conditions at the airport;
- Forecast aircraft movement volume and frequency;
- Allocation of these movements to flight paths and distribution over the day and night time periods; and

- The noise signature (intensity, duration and tonal content) and performance characteristics of the specific aircraft types.

The time of day is also factored into the noise computation to allow for people being more sensitive to aircraft operations at night.

The ANEF and ANEI charts presented in this Master Plan were produced with AEDT Version 3b and SQL Server 2012. The INM version used at the time of the preparation of the previous ANEF, as included in Master Plan 2009, had a limited ability to model helicopter operations.

The N60, N65 and N70 noise contours were produced using AEDT.

8.2.2 AUSTRALIAN NOISE EXPOSURE FORECAST

For land use planning purposes in Australia, noise impact is illustrated using the ANEF system. An ANEF chart displays the predicted noise exposure levels for aircraft movements 20 years into the future.

The ANEF chart illustrates noise contours plotted at 20, 25, 30, 35 and 40 ANEF units. The contour plot is the calculated total noise energy at that given point on the ground on an annual average day. The higher the ANEF value, the greater the expected exposure to aircraft noise in that area.

The ANEF is referenced in Australian Standard AS2021-2015 'Acoustics - Aircraft Noise Intrusion – Building Siting and Construction' that provides land use planning and building treatment guidance in the vicinity of airports. Table 8.1 displays the restrictions that AS2021-2015 places on the types of new developments which can be built within various ANEF contours.

Table 8.1 Building Type Acceptability in ANEF Contours

Building Type	Acceptable	Conditional	Unacceptable
House, home, unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

VALIDATION OF NOISE MODELLING

The *Airports Act 1996* requires the ANEF contours to be endorsed in a manner approved by the Minister for Infrastructure. Ministerial Direction M37/99, issued under the *Air Services Act 1995*, prescribes that Airservices Australia is responsible for the endorsement of ANEFs for all Australian airports. In deciding whether to endorse an ANEF, Airservices must be satisfied that:

- The appropriate selection of aircraft types for the airport has been used as input data;
- The runway usage and flight path data used as an input to the model are operationally suitable for the airport;
- The forecast numbers of aircraft movements, operating times and the aircraft types carrying out operations are not greater than the physical ultimate capacity of the existing or proposed runway/s using accepted and published methodologies;
- The contours have been modelled correctly; and
- The proponent has demonstrated it has paid due regard to all issues raised by State and Local Government authorities in relation to the ANEF.

ULTIMATE CAPACITY ANEF

An Ultimate Capacity ANEF has been prepared to represent an average day when the airport reaches its maximum aircraft operating capacity (described in Section 4.2). The Ultimate Capacity ANEF was endorsed by Airservices for technical accuracy on 12 March 2021 and is shown at Figure 8.1

Noise levels over particular periods vary due to prevailing winds, traffic demand and times of operation. The aircraft mix at Jandakot Airport includes a large range of aging aircraft types. It is realistic to assume that the older aircraft types will be replaced within the next 20 years, but it is impossible to know what aircraft types they will be replaced with. However, as newer aircraft types are generally much quieter than the older aircraft types, the ANEF calculation using the noise footprints of the current older fleet means that the ANEF presents a worse-case scenario.

Australian Standard 2021-2015 Appendix A states that the actual location of the 20 ANEF contour is difficult to define accurately because of variations in aircraft flight paths, pilot operating techniques and the effect of meteorological and terrain conditions on noise propagation. For that reason, the 20 ANEF contour is shown as a broken line on ANEF plans.

The NASF Alternative Aircraft Noise Metrics paper provided as Attachment 1 to the NASF Guideline A: Measures for Managing Impacts of Aircraft Noise, also acknowledges that while populations with the highest aircraft noise exposure often live within the 20 ANEF contour, the majority of noise complaints received are coming from residents living outside the 20 ANEF contour.

8.2.3 COMPARISON BETWEEN THE ANEF 2035 AND ULTIMATE CAPACITY ANEF

The Ultimate Capacity ANEF shows an overall noise footprint of 1601 hectares of land, which is a 7% increase from the ANEF 2034/35 prepared for Master Plan 2014, and is shown in Figure 8.2. The proportion of total land area outside of the airport boundary affected by the ANEF has increased slightly, from 62.8% in ANEF 2034/35 to 65% in the Ultimate ANEF.

The main changes from the 2034/35 ANEF are:

- The ultimate operational capacity of the airport has been reassessed. Due mainly to the impact of the Class D Airspace procedures introduced in 2010, which has reduced the number of aircraft permitted in the circuit area, the theoretical capacity of Jandakot Airport operations has been recalculated to be 460,000 fixed-wing movements and 66,000 helicopter movements per annum, as discussed in Section 4.3. This is a reduction of 54,650 fixed-wing and 10,000 rotary-wing movements per annum from the previous ANEF assessment;
- Inclusion of a new Standard Instrument Departure (SID) track to the southwest that was implemented by Airservices Australia in 2015; and
- There have been some changes made to the forecast aircraft types following feedback from the airport operators. However, the projected types of operations and allocation of runway use associated with the ultimate airfield layout have not changed from the ANEF 2029/30.

8.2.4 AREAS ABOVE SIGNIFICANT ANEF LEVELS

Section 71 of the *Airports Act 1996* requires JAH, as the airport-lessee company, to develop plans for managing aircraft noise intrusion in areas above significant ANEF levels (above 30 ANEF) in consultation with operators and local government bodies in vicinity of the airport. These noise management arrangements are detailed in Section 8.3.

There is a total of 287 hectares of land within the new Ultimate Capacity ANEF 30 Contour, with over 86% of this land area contained within the airport boundary. There is no material difference in the off-airport land areas within the 30 Contours of the Ultimate ANEF, 2029/30 ANEF and ANEI 2012/13. The two small areas where the Ultimate ANEF 30 Contour extends beyond the airport boundary are to the southwest and east as shown in Figure 8.1.

The area to the southwest (towards Jandakot Road) is within an area zoned 'Resource' under the City of Cockburn Town Planning Scheme No. 3 and 'Rural – Water Protection' under the Metropolitan Region Scheme. This area is currently being used to manufacture paving and landscaping products. The objective of the 'Resource' zone as stated in the City of Cockburn Town Planning Scheme No. 3 is *"to provide for the protection*

of the Perth Metropolitan underground water resource in accordance with the requirements of Statement of Planning Policy No. 6 published by the Western Australian Planning Commission on 12 June 1996".

The area to the east is within both the City of Cockburn (south of Acourt Road) and the City of Canning (north of Acourt Road). The affected area within the City of Canning boundary is reserved 'Parks and Recreation' under the Town Planning Scheme No. 40. It is also zoned 'Rural – Water Protection' and reserved 'Public Purposes: Special Use' under the Metropolitan Region Scheme. This area is/has been used for sand mining.The affected area within the City of Cockburn boundary is zoned 'Resource' under the City of Cockburn Town Planning Scheme No. 3 and 'Rural – Water Protection' under the Metropolitan Region Scheme. This area is a residential housing estate called Acourt Retreat that consists of 30 blocks, each approximately 2 hectares in size, approved for development in 2009. The ANEF incorporated in State Planning Policy 5.3 at the time of the Acourt Retreat development approval was ANEF 2025 (from Master Plan 2005), which showed the 30 ANEF contour running through the 11 westernmost blocks adjoining Johnston Road at the boundary of the airport. The Ultimate Capacity ANEF 30 Contour has moved slightly to the east compared to ANEF 2034/2035, resulting in six existing houses being affected by the new Ultimate Capacity ANEF 30 Contour.

8.2.5 AUSTRALIAN NOISE EXPOSURE INDEX

The Australian Noise Exposure Index (ANEI) contour map displays the estimated daily noise levels for actual movements over a 12 month period. The ANEI for Jandakot Airport is shown in Figure 8.3 and is based on the aircraft movements that occurred during the period 01 May 2012 to 30 April 2013.

Similar to the ANEF, the main changes between ANEI 2006 and ANEI 2012/2013 are largely as a result of the changes to the INM software modelling of helicopter operations. Financial year 2005/2006 was the busiest year on record for Jandakot Airport, resulting in the ANEI 2006 calculation representing daily noise exposure for a total of 406,147 annual aircraft movements. The ANEI 2012/2013 has a much lower movement volume of 252,106 annual aircraft movements, made up of 218,959 fixed-wing and 33,147 helicopter movements. Touch-and-go training circuits comprise 61% of the fixed-wing movements and 68% of the helicopter movements.

There are no major changes between the flight tracks used for ANEI 2012/13 and current NFPMS flight tracks that would cause any differences to the ANEI contours and therefore ANEI 2012/2013 is considered to be still relevant in illustrating current noise impacts.

8.2.6 NOISE ABOVE CONTOURS

The NASF 'Guideline A: Measures for Managing Impacts of Aircraft Noise' acknowledges that the ANEF 20 and ANEF 25 zones do not capture all high noise affected areas around an airport and that Australian Standard AS2021 recognises that the ANEF contours are not necessarily an indicator of the full spread of noise impacts, particularly for residents newly exposed to aircraft noise.

The NASF was developed through the National Airports Safeguarding Advisory Group, which has recommended a review of Australian Standard AS2021 to consider inclusion of daily noise event criteria when considering zoning for noise-sensitive developments.

This noise metric is a frequency based measure of aircraft noise to present the projected number of aircraft noise events on an average day that are above a specific noise level, shown as a N70, N65 or N60 Contour chart.

The N70 Contours display the calculated average daily aircraft noise events above 70 decibels (dbA). A 70 decibel outside noise corresponds to a 60 decibel noise event indoors, which is the noise level specified in Australian Standard AS2021 as the indoor design sound level for normal domestic areas in dwellings that may interfere with activities such as normal conversation and watching television.

The N60 Contours display the calculated average daily aircraft noise events above 60 decibels. A 60 decibel outside noise corresponds to a 50 decibel noise event indoors, which is specified in Australian Standard AS2021 as the sleep disturbance level.

NASF Guideline A recommends that zoning for noise-sensitive development be avoided where noise modelling for the airport indicates either :

- 20 or more daily events greater than 70 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).

In addition, Guideline A suggests that measures for aircraft noise amelioration and restriction on noise sensitive development would be appropriate where there are more than 6 events predicted between the hours of 11pm to 6am which create a 60 dB(A) or greater noise impact.

The N60, N65 and N70 contours charts shown in Figures 8.4, 8.5 and 8.6 have been calculated using the ANEF ultimate capacity data, which is when Jandakot Airport will be operating at the maximum number of aircraft movements. Contours are shown in intervals from 10 average daily events up through to 700+ average daily events.

It is important to note that the Noise Above charts show the average daily noise events, calculated by dividing the total annual events by 365. For comparison purposes, N60 contours have also been prepared for a Busy Day. The N60 Busy Day diagram, included as Figure 8.7, depicts the projected amount of noise events for a day where the airport will be operating at its peak daily movement level (i.e. extremely favourable weather conditions for flying training).

8.2.7 FLIGHT PATHS

The *Airports Act 1996* requires illustration of flight paths used to prepare the ANEF, ANEI and Noise Above Contours.

The flight paths used for the noise modelling present, as accurately as possible, the most frequently used flight tracks for current and future aircraft operations. The positioning and spread of these flight paths was determined through a comparison of the current published flight procedures and the highest density tracks identified in Airservices supplied Noise and Flight Path Monitoring System radar data, and then confirmed by local Air Traffic Control personnel as being representative of the current and expected future operations.

While illustration of set flight tracks is required for noise modelling, the actual flight tracks flown can vary substantially between aircraft. The majority of operations at Jandakot Airport are conducted under Visual Flight Rule conditions, whereby the pilots use visual landmarks to determine the flight path. The actual flight track flown is therefore affected by, but not limited to, factors such as the pilot's familiarity with the area, aircraft performance, air traffic management requirements, and meteorological conditions. Although the term 'flight path' is commonly used and the tracks are shown as thin straight lines on maps, in reality an aircraft's flight path occupies a three-dimensional region of space or set area and the resulting flight corridor can be a few kilometres wide.

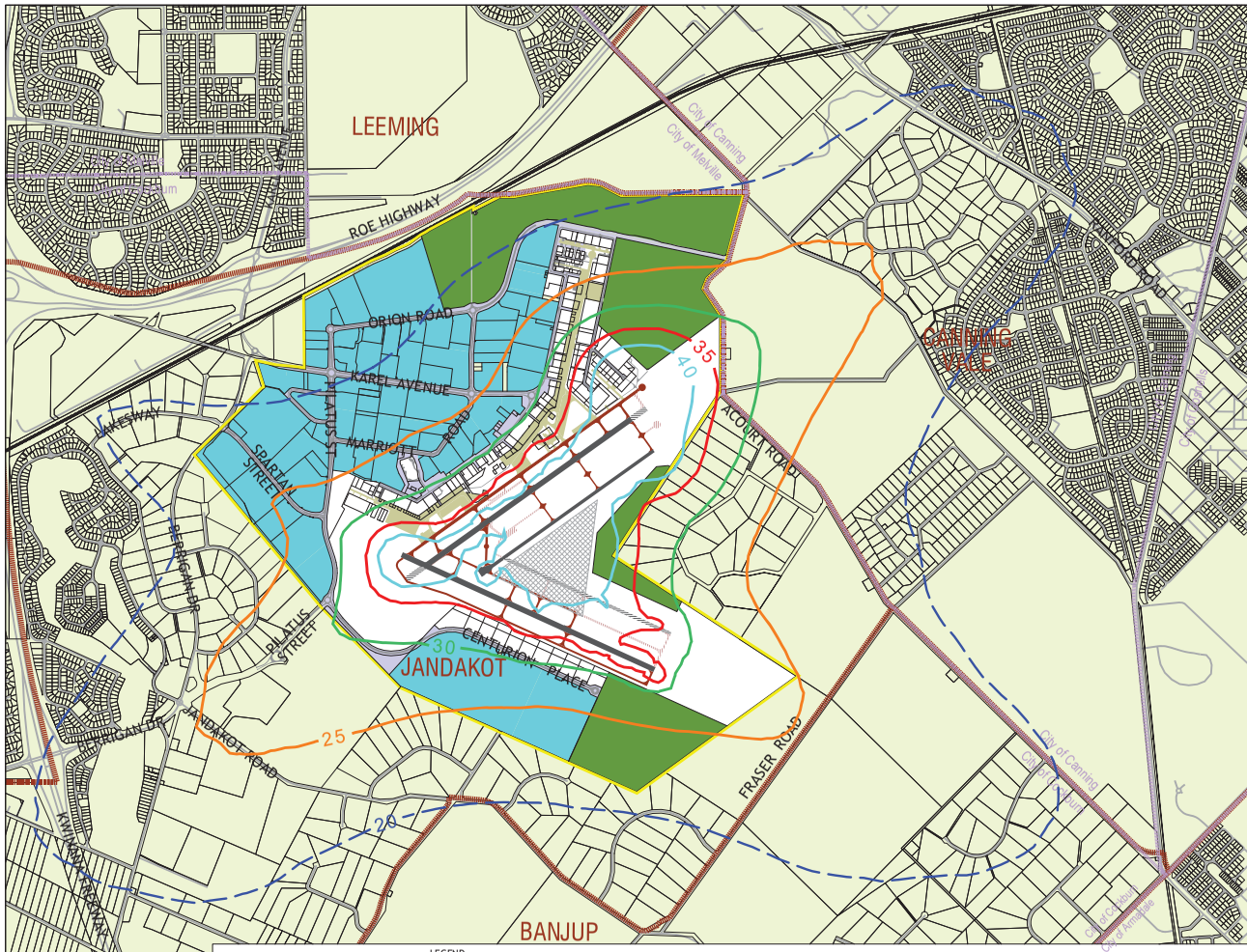
Class D Airspace procedures allow aircraft to enter and leave the Jandakot Control Zone from any direction. However, due to the large volume of traffic at Jandakot Airport, Jandakot ATC requires aircraft to track via specific entry and exit points so that aircraft segregation and clearances can be appropriately managed by the Air Traffic Controllers. The depicted flight tracks show only the path to and from the specific entry and exit points due to aircraft being able to approach and depart the specific entry/exit points in and from any direction.

Potential relocation of the NDB (see section 4.8.2) will require reassessment of the two instrument procedures designed for NDB equipment. The NDB-B path from the north is used the majority of the time. The NDB-A path from the south is not frequently utilised. A comparison of the approaches between the current NDB and proposed NBD location show a degree of change less than 5% as the aircraft approaches to join the nominated circuit track. Therefore, the existing NDB flight tracks have not been amended for ANEF modelling purposes. It is noted that new aircraft are being fitted with GPS equipment that cannot interrogate an NDB, and the use of the NDB has a limited life span.

There are no changes to the existing published Visual Flight Rules routes or visual waypoints expected as a result of the implementation of this Master Plan.

Figures 8.8 – 8.15 show the anticipated flight paths used to calculate the ANEF.

Currently circuits on runway 12/30 are conducted to the south of the runway in either direction. When the parallel fourth runway is built (runway 12L/30R), circuits will then be conducted to the north of the runway with arrivals and departures occurring on the original runway 12R/30L. The parallel configuration will allow an increase in the number of circuits to be conducted on runway 12L/30R.



LEGEND

- Airport Boundary
- Aviation Operations
- 20 ANEF
- 25 ANEF
- 30 ANEF
- 35 ANEF
- 40 ANEF

The contents and areas of this plan are approximate and subject to survey and are current to the date indicated. All consultants and persons wishing to utilise this data should satisfy themselves of this plans accuracy and currency.

DISTRIBUTION	
PREPARED	17-Q1-2021
PREPARED BY	M. RIDDLE — MAG
CHECKED BY	R. SUMSION — Airtrans
APPROVED BY	D. MANSELL — Airtrans
BASE MAP TRANSFER BY	M. RIDDLE — MAG
BASE MAP COORDINATE SYSTEM	PCG94
AMENDMENTS	DRAWING STATUS : Rev A

NOTE - BASE MAP COORDINATE SYSTEM IS THE PERTH COASTAL GRID 1994 (PCG94) WHICH IS BASED ON THE GEOCENTRIC DATUM OF AUSTRALIA 1994 (GDA94)

ANEF Notes

Qualifications:

Factors taken into account in the ANEF are the following:

- Aircraft flight tracks;
- Aircraft operating schedules, including number, times and aircraft types which would operate in future years;
- Noise levels of aircraft which would be produced by future operations;
- Stage length for departures (representing distance to destination); and
- Selection of operating modes including meteorological data and air traffic management rules.

Notes:

- Terrain was used in the modelling of this study.
- The Coordinate System used for modelling and runway / helipad configurations is WGS 84. Contours are produced in this coordinate system and then converted to the Perth Coastal Grid 1994 (PCG94) System for charting purposes.
- Numbers have been rounded and discrepancies may occur between totals and the sums of component items.
- Contours may be difficult to distinguish between especially between the parallel runways.
- Day is defined as 7am to 7pm (local) and night as 7pm to 7am (local).
- This ANEF has been prepared using the Aviation Environmental Design Tool (AEDT v3b).
- Circuits and Touch & Go operation quantities are half that of the actual movements. For each operation of Circuits or Touch & Go's, 2 aircraft movements occur.

Disclaimer:

This drawing has been prepared by Jandakot Airport (JAD) to represent the Australian Noise Exposure Forecast (ANEF) for Jandakot Airport. The drawing should be read in conjunction with the 2020 Master Plan, which provides further information about the development of the ANEF. JAD accepts no liability whatsoever to any person who in any way relies on this drawing (including making any decision about development or any other activity on or off Jandakot Airport).

Airport Runway End Coordinates			
LOCATION	LATITUDE	LONGITUDE	ELEVATION AHD (m)
Aerodrome Reference Point (ARP)	-32.097875	115.881223	19.9 (66ft)
Runway 06/24L	-32.102202	115.872820	20 (66.4ft)
Runway 06/24R	-32.093827	115.886838	20 (66.4ft)
Runway 06/24R	-32.102886	115.878919	20 (66.4ft)
Runway 06/24L	-32.094807	115.886811	20 (66.4ft)
Runway 06/12R	-32.099975	115.873867	20 (66.4ft)
Runway 06/30L	-32.105604	115.887011	20 (66.4ft)
Runway 06/12L	-32.102659	115.879763	20 (66.4ft)
Runway 06/30R	-32.110856	115.887957	20 (66.4ft)
Helipad H1A	-32.094963	115.882806	20 (65.6ft)
Helipad C5B	-32.093000	115.886160	20 (65.6ft)
Helipad H12R	-32.099998	115.873666	20 (66.4ft)
Helipad H24L	-32.094807	115.886811	20 (66.4ft)
Helipad H30W	-32.110801	115.879863	20 (66.4ft)
Helipad H06L	-32.102202	115.872909	20 (66.4ft)
Helipad H24R	-32.094807	115.886488	20 (66.4ft)

Coordinate System (WGS 84)

BUILDING SITE ACCEPTABILITY BASED ON ANEF ZONES

To be used in conjunction with (AS)20 21.2011) Table 3.3

Building type	ANEF zone of site		
	Acceptable	Conditionally Acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

NOTES

1) THE ACTUAL LOCATION OF THE 20 ANEF CONTOUR IS DIFFICULT TO DEFINE ACCURATELY, MAINLY BECAUSE OF VARIATIONS IN AIRCRAFT FLIGHT PATHS. BECAUSE OF THIS, THE PROCEDURE OF (AS)20 21.2011 MAY BE FOLLOWED FOR BUILDING SITES OUTSIDE BUT NEAR TO THE 20 ANEF CONTOUR.

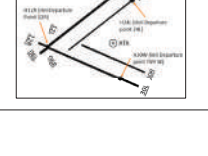
2) WITHIN 20 ANEF TO 25 ANEF, SOME PEOPLE MAY FIND THAT THE LAND IS NOT COMPATIBLE WITH RESIDENTIAL OR EDUCATIONAL USES. LAND USE AUTHORITIES MAY CONSIDER THAT THE INCORPORATION OF NOISE CONTROL FEATURES IN THE CONSTRUCTION OF RESIDENCES OR SCHOOLS IS APPROPRIATE (SEE ALSO (AS)20 21.2011) FIGURE A1 OF APPENDIX A).

3) THERE WILL BE CASES WHERE A BUILDING OF A PARTICULAR TYPE WILL CONTAIN SPACES USED FOR ACTIVITIES WHICH WOULD GENERALLY BE FOUND IN A DIFFERENT TYPE OF BUILDING (E.G. AN OFFICE IN AN INDUSTRIAL BUILDING). IN THESE CASES THE ABOVE TABLE SHOULD BE USED TO DETERMINE SITE ACCEPTABILITY, BUT INTERNAL DESIGN NOISE LEVELS WITHIN THE SPECIFIC SPACES SHOULD BE DETERMINED BY (AS)20 21.2011 TABLE 3.3.

4) THIS STANDARD DOES NOT RECOMMEND DEVELOPMENT IN UNACCEPTABLE AREAS. HOWEVER, WHERE THE RELEVANT PLANNING AUTHORITY DETERMINES THAT ANY DEVELOPMENT MAY BE NECESSARY WITHIN EXISTING BUILT-UP AREAS DESIGNATED AS UNACCEPTABLE, IT IS RECOMMENDED THAT SUCH DEVELOPMENT SHOULD ALSO MEET THE REQUIRED ANF DETERMINED ACCORDING TO (AS)20 21.2011 CLAUSE 3.2. FOR RESIDENCES, SCHOOLS, ETC. IN THESE AREAS, SPECIAL ATTENTION MUST NOW BE GIVEN TO OUTDOOR AREAS ASSOCIATED WITH THE BUILDINGS SHOULD BE CONSIDERED.

5) IN NO CASE SHOULD NEW DEVELOPMENT TAKE PLACE IN GREEN FIELD SITES DEEMED UNACCEPTABLE BECAUSE SUCH DEVELOPMENT MAY IMPACT AIRPORT OPERATIONS.

SOURCE : AS 2021-2015 TABLE 2.1



ENDORSEMENT FOR TECHNICAL ACCURACY
ULTIMATE PRACTICAL CAPACITY ANEF

airservices
Justin Parker
Digitally signed by Justin Parker
Date: 2021.03.10 10:08:13 +10'00'
Safety & Environmental Assessments Head

Ultimate Capacity Australian Noise Exposure Forecast

Jandakot Ultimate Capacity ANEF Runway Operations

		Arrivals			Departures			Circuits			Touch&Go			All
Runway	Aircraft	Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total	Total
06L	LEAR35	0.142	0.010	0.152	0.142	0.010	0.152	0.264	0.018	0.282	0.000	0.000	0.000	0.585
06L	CNA208	3.339	0.232	3.571	3.290	0.232	3.522	6.201	0.431	6.632	0.000	0.000	0.000	13.725
06L	CNA441	0.489	0.034	0.523	0.482	0.034	0.516	0.908	0.063	0.971	0.000	0.000	0.000	2.011
06L	CNA172	28.115	2.006	30.121	25.339	2.006	27.345	0.000	0.708	0.708	0.000	3.018	3.018	61.191
06L	GASEPF	16.441	1.173	17.614	14.818	1.173	15.991	0.000	0.414	0.414	0.000	1.765	1.765	35.784
06L	BEC58P	5.627	0.401	6.028	5.071	0.401	5.473	0.000	0.142	0.142	0.000	0.604	0.604	12.247
06L	GASEPV	3.065	0.219	3.283	2.762	0.219	2.981	0.000	0.077	0.077	0.000	0.329	0.329	6.670
06L	CNA206	0.845	0.060	0.905	0.761	0.060	0.822	0.000	0.021	0.021	0.000	0.091	0.091	1.839
	TOTAL	58.062	4.135	62.198	52.666	4.135	56.801	7.373	1.874	9.247	0.000	5.806	5.806	134.052
06R	LEAR35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
06R	CNA208	0.000	0.000	0.000	0.049	0.000	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.049
06R	CNA441	0.000	0.000	0.000	0.007	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.007
06R	CNA172	0.772	0.000	0.772	3.548	0.000	3.548	10.193	0.000	10.193	43.454	0.000	43.454	57.968
06R	GASEPF	0.452	0.000	0.452	2.075	0.000	2.075	5.961	0.000	5.961	25.412	0.000	25.412	33.899
06R	BEC58P	0.155	0.000	0.155	0.710	0.000	0.710	2.040	0.000	2.040	8.697	0.000	8.697	11.602
06R	GASEPV	0.084	0.000	0.084	0.387	0.000	0.387	1.111	0.000	1.111	4.737	0.000	4.737	6.319
06R	CNA206	0.023	0.000	0.023	0.107	0.000	0.107	0.306	0.000	0.306	1.306	0.000	1.306	1.742
	TOTAL	1.486	0.000	1.486	6.883	0.000	6.883	19.611	0.000	19.611	83.605	0.000	83.605	111.585
24R	LEAR35	0.213	0.030	0.242	0.213	0.030	0.242	0.395	0.055	0.450	0.000	0.000	0.000	0.935
24R	CNA208	5.009	0.696	5.704	4.936	0.696	5.631	9.302	1.292	10.594	0.000	0.000	0.000	21.930
24R	CNA441	0.734	0.102	0.836	0.723	0.102	0.825	1.363	0.189	1.552	0.000	0.000	0.000	3.212
24R	CNA172	42.172	6.018	48.190	38.008	6.018	44.026	0.000	2.124	2.124	0.000	9.053	9.053	103.393
24R	GASEPF	24.662	3.519	28.181	22.227	3.519	25.746	0.000	1.242	1.242	0.000	5.294	5.294	60.463
24R	BEC58P	8.440	1.204	9.645	7.607	1.204	8.811	0.000	0.425	0.425	0.000	1.812	1.812	20.693
24R	GASEPV	4.597	0.656	5.253	4.143	0.656	4.799	0.000	0.231	0.231	0.000	0.987	0.987	11.271
24R	CNA206	1.267	0.181	1.448	1.142	0.181	1.323	0.000	0.064	0.064	0.000	0.272	0.272	3.107
	TOTAL	17.094	12.406	99.500	78.999	12.406	91.405	11.060	5.622	16.682	0.000	17.418	17.418	225.004
24L	LEAR35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24L	CNA208	0.000	0.000	0.000	0.073	0.000	0.073	0.000	0.000	0.000	0.000	0.000	0.000	0.073
24L	CNA441	0.000	0.000	0.000	0.011	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.011
24L	CNA172	1.159	0.000	1.159	5.322	0.000	5.322	15.289	0.000	15.289	65.181	0.000	65.181	86.952
24L	GASEPF	0.677	0.000	0.677	3.112	0.000	3.112	8.941	0.000	8.941	38.117	0.000	38.117	50.849
24L	BEC58P	0.232	0.000	0.232	1.065	0.000	1.065	3.060	0.000	3.060	13.045	0.000	13.045	17.402
24L	GASEPV	0.126	0.000	0.126	0.580	0.000	0.580	1.667	0.000	1.667	7.105	0.000	7.105	9.479
24L	CNA206	0.035	0.000	0.035	0.160	0.000	0.160	0.459	0.000	0.459	1.959	0.000	1.959	2.613
	TOTAL	2.229	0.000	2.229	10.324	0.000	10.324	29.417	0.000	29.417	125.408	0.000	125.408	167.378
12R	LEAR35	0.083	0.010	0.093	0.083	0.010	0.093	0.154	0.018	0.172	0.000	0.000	0.000	0.357
12R	CNA208	1.948	0.232	2.180	1.829	0.232	2.061	3.617	0.431	4.048	0.000	0.000	0.000	8.288
12R	CNA441	0.285	0.034	0.319	0.268	0.034	0.302	0.530	0.063	0.593	0.000	0.000	0.000	1.214
12R	CNA172	16.046	2.006	18.052	11.761	2.006	13.767	0.000	0.708	0.708	0.000	3.018	3.018	35.544
12R	GASEPF	9.384	1.173	10.557	6.878	1.173	8.051	0.000	0.414	0.414	0.000	1.765	1.765	20.786
12R	BEC58P	3.211	0.401	3.613	2.354	0.401	2.755	0.000	0.142	0.142	0.000	0.604	0.604	7.114
12R	GASEPV	1.749	0.219	1.968	1.282	0.219	1.501	0.000	0.077	0.077	0.000	0.329	0.329	3.875
12R	CNA206	0.482	0.060	0.542	0.353	0.060	0.414	0.000	0.021	0.021	0.000	0.091	0.091	1.068
	TOTAL	33.188	4.135	37.324	24.807	4.135	28.942	4.301	1.874	6.175	0.000	5.806	5.806	78.247
12L	LEAR35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12L	CNA208	0.000	0.000	0.000	0.119	0.000	0.119	0.000	0.000	0.000	0.000	0.000	0.000	0.119
12L	CNA441	0.000	0.000	0.000	0.017	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.017
12L	CNA172	0.805	0.000	0.805	5.090	0.000	5.090	5.946	0.000	5.946	25.348	0.000	25.348	37.189
12L	GASEPF	0.471	0.000	0.471	2.977	0.000	2.977	3.477	0.000	3.477	14.823	0.000	14.823	21.748
12L	BEC58P	0.161	0.000	0.161	1.019	0.000	1.019	1.190	0.000	1.190	5.073	0.000	5.073	7.443
12L	GASEPV	0.088	0.000	0.088	0.555	0.000	0.555	0.648	0.000	0.648	2.763	0.000	2.763	4.054
12L	CNA206	0.024	0.000	0.024	0.153	0.000	0.153	0.179	0.000	0.179	0.762	0.000	0.762	1.117
	TOTAL	1.548	0.000	1.548	9.930	0.000	9.930	11.440	0.000	11.440	48.770	0.000	48.770	71.688
30L	LEAR35	0.035	0.003	0.039	0.035	0.003	0.039	0.066	0.006	0.072	0.000	0.000	0.000	0.150
30L	CNA208	0.835	0.077	0.912	0.784	0.077	0.861	1.550	0.144	1.694	0.000	0.000	0.000	3.467
30L	CNA441	0.122	0.011	0.134	0.115	0.011	0.126	0.227	0.021	0.248	0.000	0.000	0.000	0.508
30L	CNA172	6.877	0.669	7.546	5.040	0.669	5.709	0.000	0.236	0.236	0.000	1.006	1.006	14.496
30L	GASEPF	4.022	0.391	4.413	2.948	0.391	3.339	0.000	0.138	0.138	0.000	0.588	0.588	8.477
30L	BEC58P	1.376	0.134	1.510	1.009	0.134	1.143	0.000	0.047	0.047	0.000	0.201	0.201	2.901
30L	GASEPV	0.750	0.073	0.823	0.549	0.073	0.622	0.000	0.026	0.026	0.000	0.110	0.110	1.580
30L	CNA206	0.207	0.020	0.227	0.151	0.020	0.172	0.000	0.007	0.007	0.000	0.030	0.030	0.436
	TOTAL	14.224	1.378	15.602	10.632	1.378	12.010	1.843	0.625	2.468	0.000	1.935	1.935	32.015
30R	LEAR35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30R	CNA208	0.000	0.000	0.000	0.051	0.000	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.051
30R	CNA441	0.000	0.000	0.000	0.007	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.007
30R	CNA172	0.345	0.000	0.345	2.181	0.000	2.181	2.548	0.000	2.548	10.864	0.000	10.864	15.938
30R	GASEPF	0.202	0.000	0.202	1.276	0.000	1.276	1.490	0.000	1.490	6.353	0.000	6.353	9.320
30R	BEC58P	0.069	0.000	0.069	0.437	0.000	0.437	0.510	0.000	0.510	2.174	0.000	2.174	3.190
30R	GASEPV	0.038	0.000	0.038	0.238	0.000	0.238	0.278	0.000	0.278	1.184	0.000	1.184	1.737
30R	CNA206	0.010	0.000	0.010	0.066	0.000	0.066	0.077	0.000	0.077	0.326	0.000	0.326	0.479
	TOTAL	0.664	0.000	0.664	4.256	0.000	4.256	4.903	0.000	4.903	20.901	0.000	20.901	30.723
	ALL	198.495	22.055	220.550	198.495	22.055	220.550	89.948	9.994	99.943	278.685	30.965	309.650	850.692

		Arrivals			Departures			Circuits			All
Runway	Aircraft	Day	Night	Total	Day	Night	Total	Day	Night	Total	Total
H1A	R22	0.000	0.000	0.000	0.000	0.000	0.000	36.133	0.363	36.496	36.496
H1A	R44	0.000	0.000	0.000	0.000	0.000	0.000	26.935	0.271	27.205	27.205
H1A	B206B3	0.000	0.000	0.000	0.000	0.000	0.000	8.298	0.083	8.381	8.381
H1A	EC130	0.000	0.000	0.000	0.000	0.000	0.000	1.525	0.015	1.540	1.540
H1A	B430	0.000	0.000	0.000	0.000	0.000	0.000	17.945	0.180	18.126	18.126
	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	90.836	0.913	91.749	91.749
H06L	R22	0.000	0.000	0.000	0.000	0.000	0.000	0.035	0.035	0.035	0.035
H06L	R44	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.026	0.026	0.026
H06L	B206B3	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.008	0.008	0.008
H06L	EC130	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
H06L	B430	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.017	0.017	0.017
	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.088	0.088	0.088	0.088
H30W	R22	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.047	0.047	0.047
H30W	R44	0.000	0.000	0.000	0.000	0.000	0.000	0.035	0.035	0.035	0.035
H30W	B206B3	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011	0.011	0.011
H30W	EC130	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.002
H30W	B430	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.023	0.023	0.023
	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.118	0.118	0.118	0.118
H24R	R22	0.000	0.000	0.000	0.000	0.000	0.000	0.105	0.105	0.105	0.105
H24R	R44	0.000	0.000	0.000	0.000	0.000	0.000	0.078	0.078	0.078	0.078
H24R	B206B3	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.024	0.024	0.024
H24R	EC130	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.004	0.004
H24R	B430	0.000	0.000	0.000	0.000	0.000	0.000	0.052	0.052	0.052	0.052
	TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.265	0.265	0.265	0.265
C5B	R22	15.860	1.762	17.622	12.499	1.285	13.785	0.000	0.000	0.000	31.407
C5B	R44	11.823	1.314	13.136	9.317	0.958	10.275	0.000	0.000	0.000	23.411
C5B	B206B3	3.642	0.405	4.047	2.870	0.295	3.166	0.000	0.000	0.000	7.213
C5B	EC130	0.669	0.074	0.744	0.528	0.054	0.582	0.000	0.000	0.000	1.326
C5B	B430	7.877	0.875	8.752	6.208	0.638	6.846	0.000	0.000	0.000	15.598
	TOTAL	39.871	4.430	44.301	31.422	3.231	34.653	0.000	0.000	0.000	78.954
H12R	R22	0.000	0.000	0.000	1.680	0.200	1.881	0.000	0.000	0.000	1.881
H12R	R44	0.000	0.000	0.000	1.253	0.149	1.402	0.000	0.000	0.000	1.402
H12R	B206B3	0.000	0.000	0.000	0.386	0.046	0.432	0.000	0.000	0.000	0.432
H12R	EC130	0.000	0.000	0.000	0.071	0.008	0.079	0.000	0.000	0.000	0.079
H12R	B430	0.000	0.000	0.000	0.835	0.100	0.934	0.000	0.000	0.000	0.934
	TOTAL	0.000	0.000	0.000	4.224	0.504	4.728	0.000	0.000	0.000	4.728
H24L	R22	0.000	0.000	0.000	1.680	0.277	1.957	0.000	0.000	0.000	1.957
H24L	R44	0.000	0.000	0.000	1.253	0.206	1.459	0.000	0.000	0.000	1.459
H24L	B206B3	0.000	0.000	0.000	0.386	0.064	0.449	0.000	0.000	0.000	0.449
H24L	EC130	0.000	0.000	0.000	0.071	0.012	0.083	0.000	0.000	0.000	0.083
H24L	B430	0.000	0.000	0.000	0.835	0.137	0.972	0.000	0.000	0.000	0.972
	TOTAL	0.000	0.000	0.000	4.224	0.696	4.920	0.000	0.000	0.000	4.920
	ALL	39.871	4.430	44.301	39.871	4.430	44.301	90.836	1.383	92.219	180.822

FIGURE 8.1 - AUSTRALIAN NOISE EXPOSURE FORECAST

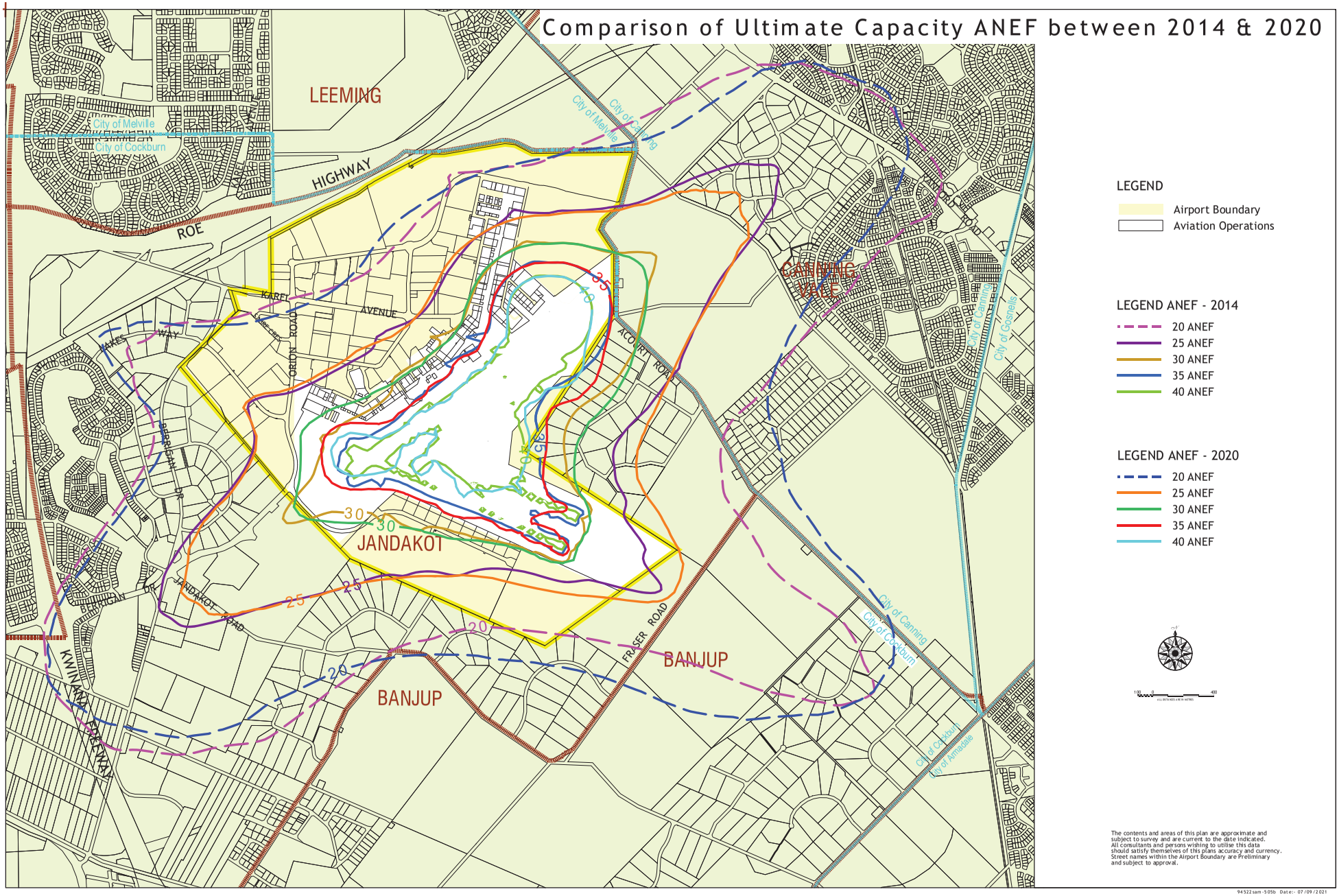


FIGURE 8.2 - COMPARISON OF ULTIMATE CAPACITY ANEF BETWEEN 2014 & 2019

8.3 AIRCRAFT NOISE MANAGEMENT

Aircraft noise management is the responsibility of the entire aviation industry.

COMMONWEALTH GOVERNMENT

The Australian Government is responsible for overall policy and legislation. The Department of Infrastructure, Transport, Regional Development and Communications advises the Government on the policy and framework for Australian airports and the aviation industry, manages the administration of the Government's interests in privatised airports under the *Airports Act 1996*, and provides policy advice to the Minister on the efficient management of Australian airspace and on aircraft noise and emissions.

STATE & LOCAL GOVERNMENTS

State and Local Governments are responsible for managing land-use planning around airports. State Planning Policy No. 5.3 - Jandakot Airport Vicinity and Draft SPP 5.3 (see Section 2.3.7) have been developed to protect Jandakot Airport from encroachment by incompatible land use and development, so as to provide for its ongoing, safe, and efficient operation, and to minimise the impact of airport operations on existing and future communities with particular reference to aircraft noise.

CIVIL AVIATION SAFETY AUTHORITY

The Civil Aviation Safety Authority is responsible for the safety regulation of civil air activities within Australia.

This includes airspace regulatory functions such as setting flight path heights and distances, monitoring standards for holders of Air Operators Certificates and licenses, and assessing and approving changes to Australian airspace architecture.

AIRSERVICES AUSTRALIA

Airservices Australia is a government-owned corporation that is responsible for airspace management, aviation communications, radio navigation aids, aviation rescue and firefighting services, and aeronautical information.

Airservices manages complaints and enquiries about aircraft noise and operations through its Noise Complaints and Information Service. This service is the Australian aviation industry's main interface for the community on aircraft noise and related issues. Complaints and enquiries help identify issues of community concern and opportunities for delivering better noise outcomes for communities. Analysis of complaints and enquiries is used to identify systemic problems, provide guidance for government departments in developing aviation policy and provide other aviation agencies (such as the Civil Aviation Safety Authority) and industry bodies (such as airports) with information on community concerns.

Airservices Australia and the Australian Airports Association have established an aircraft noise website, www.aircraftnoise.com.au, to provide information on the causes of aircraft noise, how the aviation industry is working together to manage aircraft noise, and what people can do to reduce its impact.

AIRCRAFT NOISE OMBUDSMAN

The Aircraft Noise Ombudsman conducts independent administrative reviews of Airservices Australia's management of aircraft noise-related activities, including the handling of complaints or enquiries made to Airservices about aircraft noise, community consultation processes related to aircraft noise, and the presentation and distribution of aircraft noise-related information.

JANDAKOT AIRPORT HOLDINGS

Jandakot Airport only has direct control over the management of ground-based aircraft noise. Aircraft engines need to be tested during and/or following engine maintenance so that engineers can verify that the engines are working properly. The majority of aircraft based at Jandakot Airport have piston-engines which are also required to be tested by pilots prior to every flight. These pre-flight run-ups are only permitted in the designated run-up bays or in locations where the wind or distance helps minimise the carriage of noise off airport.

AIRCRAFT OPERATORS

Regardless of size, purpose or ownership, all civil aircraft operating in Australia must comply with the *Air Navigation (Aircraft Noise) Regulations* 2018, Administered by the Department of Infrastructure, Transport, Regional Development and Communications. Aircraft operators are required to obtain an Aircraft Noise Certificate, which must be reassessed if the aircraft is modified in any way which may affect its noise characteristics. Aircraft operators are also responsible for ensuring that noise abatement principles are adhered to.

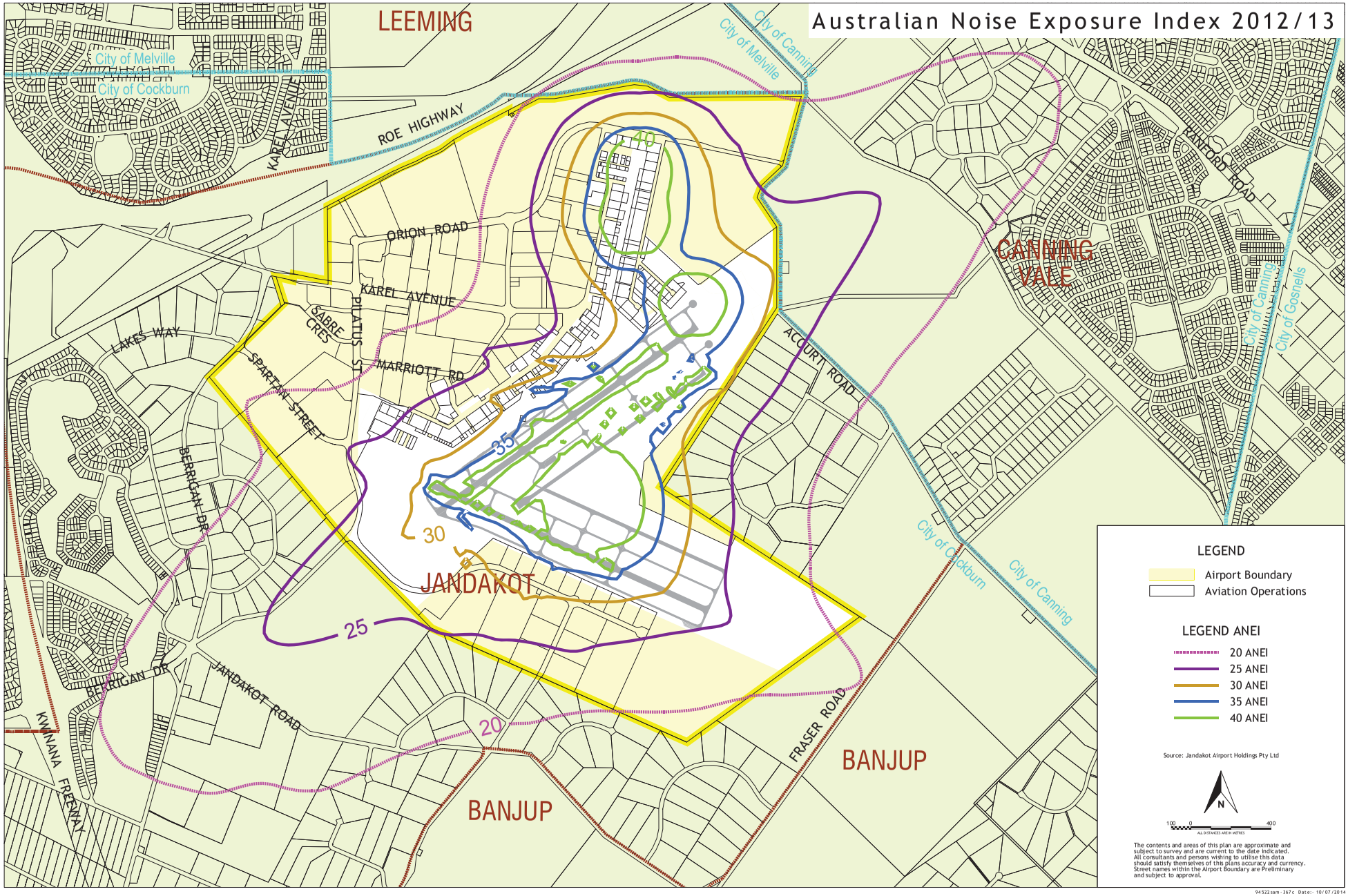


FIGURE 8.3 - AUSTRALIAN NOISE EXPOSURE INDEX

PUBLICATION AND GUIDES

Noise abatement procedures for Jandakot and other Australian airports are published in En-Route Supplement Australia. The aerodrome information depicted in this publication is compiled and provided by Airservices and the airport operator for use by pilots and operators intending to operate aircraft at or in the vicinity of the aerodrome.

The Civil Aviation Safety Authority produces the Jandakot Airport Visual Pilot Guide. This guide, which is available from the CASA website, provides information about flight paths, noise abatement and operating procedures for pilots flying in and out of Jandakot Airport.

FLY NEIGHBOURLY

Fly Neighbourly is a voluntary code of conduct for pilots that was introduced at Jandakot Airport in January 2000. While it is impossible to stop aircraft noise emanating from an airport, Fly Neighbourly recognises that there are opportunities to reduce the effect of aircraft noise on surrounding communities.

The Fly Neighbourly programme focuses on pilot education, targeted through the co-operation of major operators, the use of signage and the inclusion of the Fly Neighbourly principles in the En-Route Supplement Australia pilot guide and the Jandakot Airport Conditions of Access & Use. Pilots are expected to undertake operations in a manner which is considerate of local residents. However, safety is the primary concern of air navigation and operations, and implementation of the Fly Neighbourly principles is therefore subject to safety and operational considerations as air traffic procedures and instructions must be complied with at all times.

The Fly Neighbourly principles are amended from time to time in consultation with local operators. In 2010, the circuit training hours were further restricted for operations on a Saturday. Training procedures were changed in March 2013 following a review of simulated engine failure practices, and in December 2013 aerobatic operations were introduced into Fly Neighbourly following consultation with Airservices Australia and the Aircraft Noise Ombudsman's office. In early 2014 a workshop was held with local operators and representatives from Airservices, JAH and the Aircraft Noise Ombudsman's office to review the Fly Neighbourly principles and provide more detailed information to local communities about what is being done to minimise the impact of aircraft noise.

The revised Fly Neighbourly principles are detailed below. Information about Fly Neighbourly, including additional descriptions of the Fly Neighbourly statements, is available on the Jandakot Airport website.

Operators at Jandakot Airport will:

1. Comply with noise abatement procedures included in the Air Navigation Regulations, Departure Approach Procedures (DAP) and En-Route Supplement Australia (ERSA) guide, irrespective of Air Traffic Control Tower hours of operation.
2. Ensure that environmental awareness and noise management is included in pilot familiarisation and training.

Subject to Air Traffic Control and safety requirements, pilots will endeavour to:

GROUND OPERATIONS

3. Avoid lengthy engine run-ups and conduct non-pre-flight engine run-ups in designated areas or in locations where the wind or distance helps minimise the carriage of noise off airport.
4. Where practicable, small jet aircraft should be towed for start-up to a location that avoids causing jet-blast damage.

DEPARTURE

5. Use sufficient runway length and best rates of climb to maximise height over populated areas. High performance and twin-engine aircraft are to conduct full length take-offs where possible.
6. Minimise noise after take-off by reducing engine revs as much as possible.

IN FLIGHT

7. Maintain the published or Air Traffic Control cleared tracks after take-off. Where practicable, all instrument flight rule aircraft are to depart via the appropriate standard instrument departure.
8. Maintain required altitudes, particularly over residential housing. As much as possible, avoid flying over residential areas, hospitals and schools and maximise the use of flight paths over less densely populated areas such as water, forest and highways.

FIGURE 8.4 - N60 CONTOURS

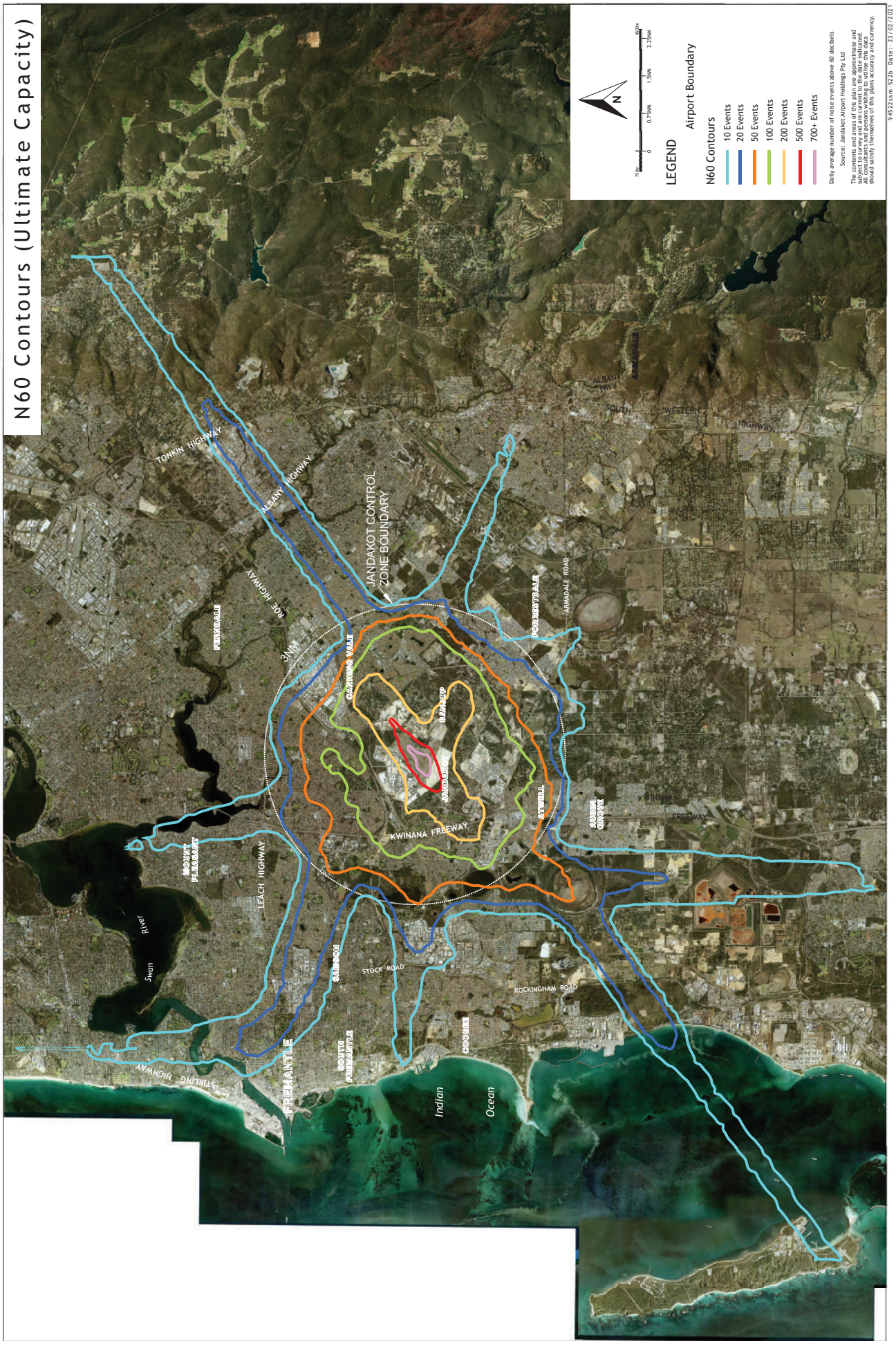


FIGURE 8.5 - N65 CONTOURS