Committee Secretary
Senate Rural and Regional Affairs and Transport Reference Committee
PO BOX 6100
Parliament House
CANBERRA ACT 2600

Submission to the inquiry into Airservices Australia's Management of Aircraft Noise

Submission from:

Graham Ellis

Enclosed Documents:

Submission to the Inquiry

Final report Flight paths and Procedures Review Ross Jones 2004

2029 / 30 Australian Noise Exposure Forecast Jandakot Airport

2029 / 30 Australian Noise Exposure Forcast –Zoomed out

Airservices Australia information sheet Airport-Related Developments

Safeguards for airports and the communities around them – Discussion Paper Extract from Aviation Green Paper

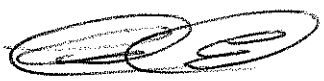
Standard Instrument Departures (SID) Jandakot - Airservices Australia

Public Comment submission on Preliminary Draft master Plan 2009 Jandakot Airport Proposed development

Movements at Australian Airports – Financial YTD as at Nov 2009 – Airservices Australia.

Movements at Australian Airports – Cal YTD as at Nov 2009 – Airservices Australia

Airservices Australia Environmental Principles and Procedures For Minimising The Impact of Aircraft Noise (revised 21 Nov 2002).



Graham Ellis

Jandakot 6164

Committee Secretary
Senate Rural and Regional Affairs and Transport References Committee
PO Box 6100
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CANBERRA ACT 2600 26/01/2010

Submission to the Inquiry into Airservices Australia's Management of Aircraft Noise.

HISTORICAL PERSPECTIVE

This submission is made on a personal basis based on the level of experience gained since 1990 in attempting to achieve noise amerilation for the community impacted by general aviation aircraft noise as a committee member on the Jandakot Airport Consultative Committee through the Jandakot Residents and Ratepayers Assoc surrounding Jandakot Airport, located in the southern suburbs of Perth, Western Australia.

A Previously published report "Aircraft Operations and the Australian Community" House of Representatives select Committee on Aircraft Noise September 1985, Parliamentary Paper No 375/1985 is a valid reference, however it appears to be focused primarily on Heavy Aircraft noise and appears to avoid general aviation Light Aircraft noise.

Jandakot Airport is a General Aviation Airport (GA) that operates under General Aviation Aerodrome Procedures (GAAP) until the recently announced changes by the Civil Aviation Safety Authority (CASA) to introduce Class D control Zones bringing its own unforseen consequences on noise impact.

The emphasis at Jandakot significantly escalated by the Federal Airports Corporation (FAC) from 1990 was too dramatically ramp up circuit training to an extent that the noise was so horrendous and the outcry so large the FAC created the Jandakot Airport Consultative Committee (JACC) bringing in community groups to discuss noise amelioration in conjunction with airport stake holders, this approach was completely unsuccessful with no positive outcomes for the community.

As a consequence of the poor level of co-operation at the FAC controlled JACC the WA Dept of Planning and Infrastructure (DPI) of the day initiated the Flight Path and Procedures Review (FPPR) Chaired and conducted by Eminent Aviation people and involved all stake holders including Air Services Australia (ASA).

The final report and recommendations were released in June1999 named Jandakot "Towards The Fly Friendly Airport "the recommendations contained therein were to be actioned through the Jandakot Airport Consultative Committee process, the failure to achieve results by this process resulted in the final Ross Jones Critique report of March 2004 damming the unachievable outcome of the whole process at the hands of ASA, (copy attached).

To this day the final recommendations and proposals of the FPPR have not been resolved and remain so, and are fitting testament to the Aviation industries inability to deal with General Aviation Noise and the Federal and State governments unwillingness to recognise and respect the amenity of hard working Australians who through no fault of their own have been and continue to be impacted by general aviation noise through proposed runway expansion and circuit training at Jandakot Airport.

Their is a complete lack of faith in ASA achieving any reform on noise mitigation for GA given the time frame since 1990, they appear to be blindsided and introverted focusing only on the aviation industry their primary source of income at the expense of others.

JANDAKOT PRELIMINARY DRAFT MASTER PLAN 2009 ANEF CONTOURS (PDMP) endorsed by Air Services

ASA endorses the Australian Noise Exposure Forecast (ANEF) generated as part of the requirement under the Airport Master Plan process currently for Jandakot the PDMP 2009, and is presented in the master plan submission, however, the fine print on the ASA endorsed ANEF forecast states
:
Quote "The aircraft noise contours on this chart have been calculated using an appropriate modelling process. Air Services Australia has in accordance with the approved manner of endorsement, considered the physical ultimate capacity of the existing or proposed runways in its endorsement process. The data input and assumptions made in that process are derived in part from external sources, Air Services Australia makes no warranty in respect of that information and excludes all liability for any loss arising from reliance on that information" unquote, see ANEF Chart and ASA published information sheet on airport-related developments (copy attached).

It is clear that the ASA endorsed ANEF has too many significant variables to be considered with any confidence as accurate and cannot be relied on, this was also the case with the DCA Master plan of 1986, yet remarkably the relevant Town Planning Authorities continue to make forward planning decisions and approvals based on master plan submissions such as this using unreliable lines on a map created using aircraft type modelling that is misleading with the consequences of poor planning being borne by property owners.

It is apparent that the ANEF system created by the National Acoustic laboratory using the FAA Integrated Noise Model (INM) was never intended to be used at GAAP airports like Jandakot conducting high intensity circuit training hour after hour.

Property owners rightly expect to have a degree of legitimate trust in the approval process, only to find out sooner or later that the process is flawed at their expense; this also applies to property owners who have been residing around Jandakot based on town planning approvals since the mid/late 1970's. The noise exposure of the ANEI is unmeasured by any accurate ground noise

monitoring equipment at Jandakot and is only as accurate as the ANEF which is flawed.

Basic errors exist in the omission of certain aircraft types from the submitted ANEF contours in the PDMP 2009 such as the "warbirds" category of aircraft and adventure flight operators which has previously included ex military Jets, ASA appear to have placed "special" approvals on the use of these aircraft irrespective of noise output and impact on the community.

Warbirds are military training or combat Aircraft developed prior to during or post WW2 with no regard for noise control from engines or propellers.

Helicopter flights and helicopter flight training results in adhoc flight track movements not realistically represented in the ANEF noise contours of the PDMP, helicopters have a noise signature from the main and tail rotor that is more intrusive than helicopter engine noise.

ANEF contours are viewed by many in the town planning policy field as being accurate in absolute terms, this subject matter is raised in "Safeguards for Airports and the Communities around them, discussion paper" current Australian standard AS2021 (copy attached) it all goes horribly wrong because of apparently poor quality data input that is accepted, apparently without rigorous analysis beyond the ASA endorsement, further compounded by the production of the ANEI based on the flawed ANEF the argument prevails poor modelling input equals flawed output.

The contours of the Jandakot ANEF are based on a straight line heading projection from runway centre line to the standard 500ft turn heading, presumably based on a standard instrument departure (copy attached) at Jandakot this could not be further from the truth, by example, aircraft have since the creation of the 2nd runway in 1992 been 30 deg to 40 deg to the right or left of runway centre line on departure even before leaving the airport boundary when using runway 24L/R climbing to 500ft (using engine climb power settings) and fly over houses at altitudes well below the required minimum, ASA at Jandakot are fully aware of this and appear to endorse it to minimise runway centreline incursions from the two runways 24L/24R with minimum separation and is not projected in the ANEF.
And yet with full knowledge of this, an ANEF noise contour map is produced and presented and endorsed by ASA that denies the deviations resulting in ASA failing in its duty of care on noise obligations to the community.

Jandakot Airport is historically the busiest GA airport in Australia ASA data (copy attached) and it would appear that in order to meet aircraft departure and arrival clearance rates **little attention is given to matters other than collision avoidance** and irrespective of the number of movements at any given time apparently once the criteria of flight is achieved i.e. Daylight under the wheels, Air Traffic Control (ATC) obligation and responsibility is handed over to **Pilot in command regulations** and ATC focus on the next aircraft presenting itself for departure or arrival and at this point the validity of the ANEF becomes exposed in all its flaws and ASA fails in its duty of care on

noise obligations impacting on the general community through lack of direction.

Previously it was a requirement that departing aircraft had to maintain runway heading to within 3 deg of runway centreline and over time with the many changes introduced to shift the apparent legal responsibility from ASA/ATC to **Pilot in Command** once flight is achieved, these criteria and many similar of the bygone era have been lost in favour to the GA industry at the expense of property owners that live around GA airports, somewhere along the process of change the mantra appears to have become : "If you live within the 3 Nautical mile (3nm) ATC control zone of a GA airport be prepared to accept noise impact overriding your right to natural enjoyment and amenity in your own home in the interests of General Aviation and the collision avoidance system employed" as their appears to be complete lack of active interest in managing noise impact near GA airports by any responsible authority.

The ASA supported Web Track Lockhard aircraft track monitoring system does little to identify the aircraft departing and arriving at Jandakot, it should be a requirement that GA aircraft conform to environmental noise sensitive departure and arrival criteria issued as directives by air traffic control within the 3nm control zone if infringements are noted the flight tracking system be used for verification prior to any consequences for non compliance, the argument will prevail that flying is not like driving a car, however, within the 3nm control zone under ASA/ATC direction, results are achievable, not the apparent poor control that currently prevails at Australia's busiest GA airport.

It could be argued that ASA/ATC do not currently have the resources available to administer this type of noise mitigation approach, therefore, it may be necessary to increase the resources available to ATC at Jandakot as the majority of ASA revenue comes from industry to allow them to achieve beyond border noise environment outcomes, or reduce the level of circuit training activity to the level that is manageable at the current level of ATC staffing. (see AMBIDJI report to Office of Airspace regulation 2009).

Without resolution to the issues presented here and those raised in my public comment submission to the Preliminary Draft Master Plan 2009 PDMP (copy attached) the results are that through poor ANEF projections and expansion property owners are experiencing **Inverse Condemnation** seriously diminishing property owner's right to natural enjoyment.

The ANEF contours at Jandakot need drastic revision to accurately represent the real ANEF events, property owners seriously affected as a result should be bought out and the remainder offered noise amelioration measures equal to those offered for Sydney and Adelaide noise impacted residents.

Graham Ellis
23 Glendale Cres
Jandakot 6164

FINAL REPORT

Jandakot Terminal Airspace

"Flight Paths and Procedures Review"

Jandakot Airport Consultative Sub-Committee

This report applies to:

Jandakot Airport Holdings Pty Ltd
Jandakot Airport Consultative Committee
Department for Planning and Infrastructure
City of Canning, City of Cockburn, City of Gosnells, City of Melville

March 2004

Ross Jones
PO Box 969
Kalamunda WA 6926

FOREWORD

Context of this Report

The purpose of this report is to conduct an independent technical review of specific items identified in the December 1999 Jandakot "Flight Paths and Circuit Procedures Review" (Keil and others).

The matters addressed in this report are three key areas of the Keil review recommendations that have not been addressed to the expectations of the members of the Jandakot Airport Consultative Committee by Airservices Australia or the Civil Aviation Safety Authority:

1. Necessity for the airspace restrictions imposed at Jandakot.
2. Relaxation of restrictions on VFR clearances between Jandakot and Perth.
3. Possibility of raising the upper operating levels for aircraft departing Jandakot.

The proponents of this report believe that if there were a genuine intent to address and ameliorate the three key issues of the Keil review, all or many of the independent recommendations could or should have been initiated and implemented by Airservices Australia many years ago. Airservices Australia's failure to do so clearly indicates their present and future intent on the subject matters.

To assist members of Committee to fully understand the implications of airspace and procedural changes that would facilitate the introduction of acceptable noise abatement at Jandakot the following additional data is included:

- Details of the procedural tolerance areas that apply to the Perth Runway 03 ILS/DME approach and the lateral impact on the Jandakot Control Zone.
- Details of the route structure proposed by the Airservices Australia environmental assessment of the ILS Runway 03 Perth Airport (yet to be implemented).
- Suggested alternative, simplified, operating procedures that could safely achieve optimum noise abatement at Jandakot.

Author

Ross Jones holds current ATPL (Australia), CPL (United States), with command instrument rating, type endorsed for A320 and BAe146 high capacity airline aircraft.

Previously:
Air Traffic Controller
Tower Controller ratings (Perth, Jandakot, Port Hedland);
Approach Control (RADAR and procedural) rating (Perth);
Senior Air Traffic Controller (Perth);
Regional Supervisor Airspace and Procedures Western Australia.
Regional Airways Surveyor (CASA) Western Australia.

- ICAO Pans Ops Procedure design, Operational standards compliance auditing, Flight testing navigation facilities and procedures, Aerodrome safety inspections.

CONTENTS

SYNOPSIS

Background

The Jandakot Airport Consultative Committee have undertaken five years of discussion and research in an attempt to obtain a detailed explanation as to how Airservices Australia reached the conclusions related to the specific points outlined in the Critique of Documents (Ross Jones 26 April 2003).

Recent email correspondence to the Chairperson of the Jandakot Airport Consultative Committee from Airservices Australia (13 November 2003) contained the following statement "...our preliminary review of the flight paths review recommendations doesn't support any changes". This statement could be seen as a further indication of Airservices Australia's present and future intent on the subject matters.

Airservices Australia's refusal to provide a copy of their safety case for Jandakot Airport does not reflect the policy promulgated by the Airservices administration in Canberra to foster transparency, accountability and consultation in dealing with public issues.

Object of Report

- To cause Airservices Australia to revise the Jandakot airspace and operating procedures to conform with the Civil Aviation Safety Authority standards.
- Establish transparent public consultation in relation to noise abatement issues affecting the residents of communities in the vicinity of Jandakot Airport and to make Airservices Australia accountable for operational decisions that adversely impact on the Jandakot environment.
- Determine the division of responsibilities between Airservices Australia and Civil Aviation Safety Authority.
- Provide an independent technical evaluation of the subject matters.

FACTUAL DATA

ICAO Airspace Design Considerations

Risk Assessment

The individual environment level of risk must first be determined.
There is a need to be able to defend any risk assessment that is made. This requires transparency in any public consultative processes.
The need to ameliorate the concerns of all airspace users does not exist. It must be demonstrated that their concerns have been addressed and factored into the decision making.

Airspace Procedures

First determine a uniform set of airspace procedures that will "fit" the risk profiles, with the minimum feasible number of rule sets. Experience has shown that pilots and service provider staff like to keep things simple. Safety thrives on simplicity.

Risk Evaluation

Test and evaluate the risk mitigations offered by the procedures:

- will applying clearances to VFR flights mitigate the risk?
- will excluding VFR flights mitigate the risk?
- will it be an unnecessary impost to restrict VFR operations?

Cost Consideration

If there is no cost impact and no demonstrable negative impact on safety created by a VFR flight then nothing in the "rule book" indicates that VFR aircraft should be excluded.
European Air Traffic Control has established a target of unifying airspace in a framework of better efficiency and better access and equity. A major consideration in their deliberations is the removal of restrictive practices. Safety is the prime consideration and any money that is spent on airspace management should be correctly applied to ensure safety, without unnecessarily restricting the amenity of any user.

Jandakot Problem

The "Island Concept" philosophy implemented at Jandakot by Airservices Australia is driven in the main by cost cutting initiatives which flow on from "Policy" directives issued at a federal level.

In pursuit of the philosophy, Airservices Australia has progressively implemented restrictive practices and procedures that directly impact on Jandakot noise abatement standards.

If savings are being achieved at Perth and Jandakot by the implementation of the ideals, it should be borne in mind that the aircraft operators and noise affected residents at Jandakot are paying a disproportionately high price for such cost savings.

Airservices Australia operates Jandakot GAAP in accordance with dated procedures that were designed in the early 1980's. Further it appears that Airservices Australia is currently acting autonomously in determining airspace design and operational standards. The definitive guidance documentation that is required to be produced by the Civil Aviation Safety Authority under the Air Services Act 1995 has never been produced. Airservices Australia may deny knowledge of the standards set by CASA in the *Manual of Operational Standards Part 1* (MOS).

Airservices Australia will not consider alternative procedures that would provide significant environmental and operational benefits at Jandakot, despite the existence of other Australian aerodromes where such procedures have been proven in operation (Moorabbin and Essendon for example).

Division of responsibilities between Airservices Australia and Civil Aviation Safety Authority.

The legislative framework for the management of Australian airspace is contained in the *Civil Aviation Act 1988* and the *Air Services Act 1995.*
Under the *Air Services Act 1995,* Airservices Australia (Airservices) is responsible for airspace design, designation of airspace, design of airspace procedures and the provision of air traffic services within Australian airspace, in accordance with standards set by CASA. In order to provide air traffic services, Airservices has a number of specific powers, loosely described as 'airspace management' which are set out in part 2 of the Air Services Regulations.

Those powers relate to:

- designating air routes and airways in Australian administered airspace, and determining conditions of use;
- giving directions, relating to the safety of aircraft, in connection with the use or operation of a designated air route or airway, or air route or airway facilities;
- making controlled aerodrome and various airspace determinations;
- particulars of air traffic services;
- providing notice of non-availability of air traffic services;
- declaring prohibited, restricted or danger areas; and
- designating flying training areas.

CASA is responsible for setting airspace design and operating safety standards. In accordance with the *Civil Aviation Act 1988,* regulations can be made in respect of 'standards relating to the establishment and use of airspace' (section 98(3)(r)); however, no Civil Aviation Regulations setting standards for airspace have been made. Although CASA has no specific legislative basis to give directions to Airservices regarding airspace, regulations could be made under the *Civil Aviation Act 1988* to enable the Authority to give such directions.

While CASA has not set formal standards, criteria for the establishment of airspace are contained in the *Manual of Operational Standards,* which is a CASA internal document. Proposals for changes to the Minimum Airspace Safety Criteria are published in accordance with the Notice of Proposed Rule Making process.

CASA is also responsible for the safety regulation of the airspace management activities of Airservices Australia. A memorandum of understanding (MOU) developed in 1995 between CASA and Airservices broadly outlined the arrangements for the safety regulation of Airservices' operations by CASA. The MOU included a timeframe for the establishment of appropriate regulatory oversight arrangements for Airservices' activities, including airspace management. It also covered the regulatory interface arrangements between the two organisations, including airspace and procedure design. More detailed arrangements for CASA's safety oversight of Airservices were stated in the document, *Final Draft Regulatory Arrangements and Standards for the Safety Regulation of Airservices Australia and Aerodrome Rescue and Fire Fighting Service Providers* (April 1996).

Both Airservices and CASA are required by their respective Acts to consult with government, commercial, industrial, consumer and other relevant bodies and organisations in the performance of their functions and the exercise of their powers.

A significant coordinating and consulting infrastructure for processing airspace changes exists, and includes the Air Coordinating Committee, which is jointly chaired by Airservices and the Deputy Chief of Air Force. The Air Coordinating Committee has subcommittees on airspace and procedures, documentation, systems, training, and regional subcommittees on airspace. Industry consultative forums include the Regional Airspace Users Advisory Council and the National Airspace Users Advisory Council.

Jandakot Consultative Issues

The proponents of this report believe that Airservices Australia is not managing Perth and Jandakot airspace in accordance with the guidelines prescribed by the Civil Aviation Safety Authority. The Critique of Documents (Ross Jones 26 April 2003) offered Airservices Australia the opportunity to re-address and respond to some of the recommendations of the December 1999 Jandakot "Flight Paths and Circuit Procedures Review" (Keil and others) to provide justification for not implementing the specific changes sought by the Keil team.

The regulatory guidelines appear to be in a state of flux with the likelihood of Class D airspace standards akin to the United States FAA requirements being adopted for Australian GAAP (i.e. Jandakot) aerodromes. Consequently it is difficult to determine the existence of a level playing field in relation to individual responsibility (Airservices or CASA) or operational guidelines.

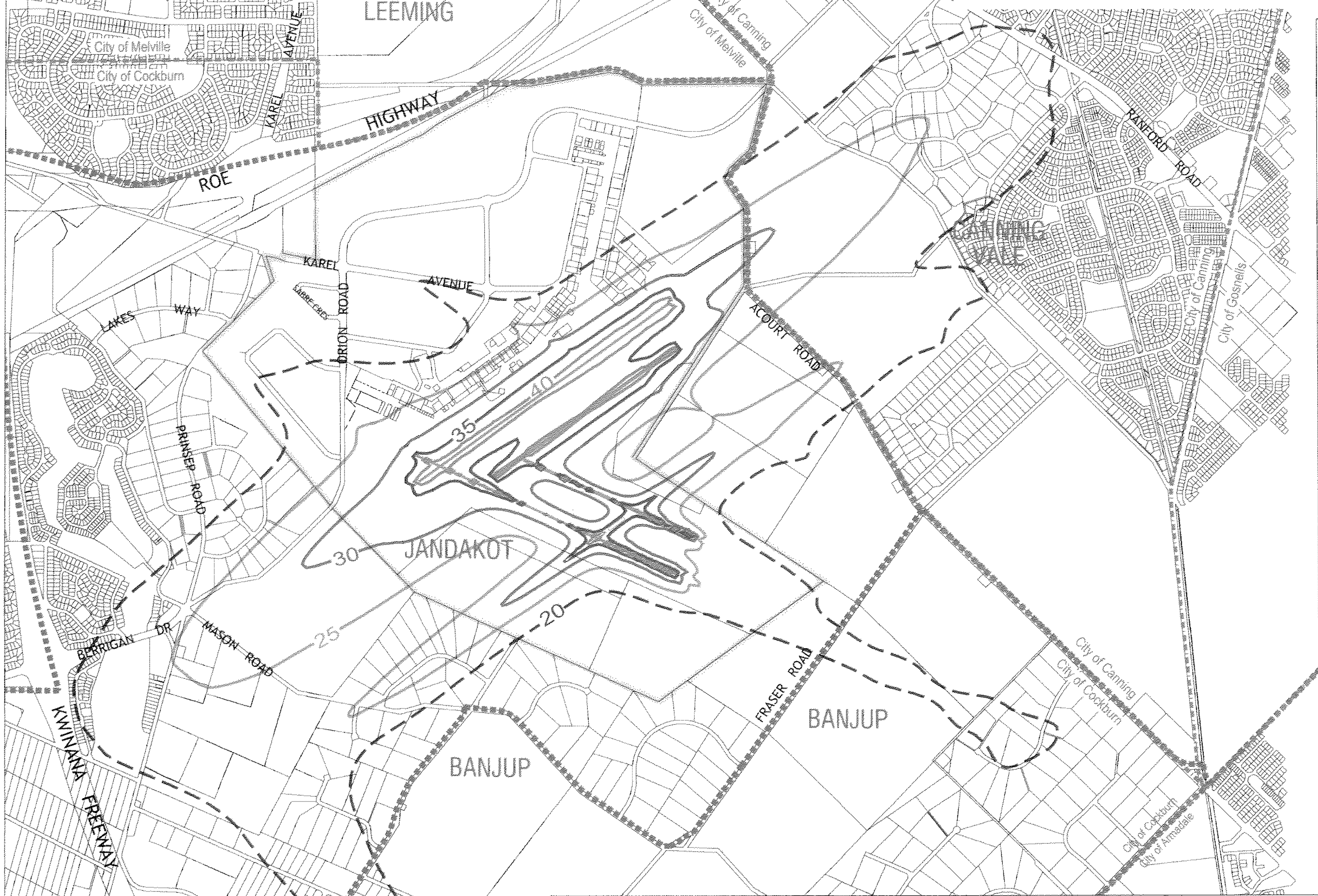
Airservices Australia appears reluctant to state the regulatory guidelines that are being applied to the management of air traffic and airspace at Jandakot or Perth.

Recent consultative processes between the Committee and Airservices Australia have not achieved a satisfactory exchange of information. The Airservices Australia (Robert McMahon 18 December 2003) response to the Critique of Documents (Ross Jones 26 April 2003) did not address the subject matter or provide any worthwhile technical input for the Committee to consider. It did however contain a montage of previous Airservices Australia correspondence and selective partial quotations of regulatory guidelines.

Conclusion

The correspondence related to the AVISE Critique of Documents (Ross Jones 26 April 2003) (refer Appendix A) clearly indicates that further consultation with Airservices on technical grounds would be futile.
If the foregoing conclusions are found to be substantially correct, then it is concluded that only lobbying and pressure on Airservices Australia and the Civil Aviation Safety Authority at the highest Federal political levels will achieve the results being sought by the Committee.

2029/30 Australian Noise Exposure Forecast



Jandakot - 2029/30 ANEF Runway Utilisation Table

Daily Flight Operations

	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Circuits Day	Circuits Night	Totals Day	Totals Night
Rwy 06L								
GASEPF	46.8666	0.3871	42.6569	0.9137	7.2336	5.1818	96.7571	6.4935
GASEPV	6.0556	0.0883	4.6164	0.3395	0.1879	0.0362	10.8601	0.4640
BEC58P	7.8663	0.9862	8.5650	0.4527	6.2380	1.1882	22.6683	2.6372
DHC6	2.0276	1.6060	2.4818	1.4526	0.0776	0.0000	4.5872	3.3592
CNA510	0.5165	0.4856	0.8321	0.3700	1.5405	0.0000	2.8891	0.8556
MU3001	0.4706	0.0803	0.5609	0.0000	0.0000	0.0000	1.0215	0.0803
R22	7.7861	0.0531	7.8667	0.0658	0.0000	0.2932	15.6818	0.4121
B206L	0.3483	0.0129	0.3173	0.0437	0.0000	0.1034	0.6656	0.1600
AS355F	0.9989	0.7521	1.0758	0.6497	0.0000	0.0299	2.0394	1.4317
Totals	73.0146	4.7725	66.7560	4.2877	15.3776	6.8325	157.1501	15.8927
Rwy 06R								
GASEPF	0.5741	0.0000	4.2671	0.0000	137.3484	0.0000	142.1896	0.0000
GASEPV	0.0734	0.0000	1.2615	0.0000	3.5866	0.0000	4.9215	0.0000
BEC58P	0.0560	0.0000	0.0000	0.0000	6.3366	0.0000	6.3926	0.0000
DHC6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CNA510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MU3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R22	0.0640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0640	0.0000
B206L	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Totals	0.7674	0.0000	5.5286	0.0000	147.2716	0.0000	153.5676	0.0000
Rwy 06H								
R22	0.0000	0.0000	0.0000	0.0000	23.5384	0.0000	23.5384	0.0000
B206L	0.0000	0.0000	0.0000	0.0000	0.0116	0.0000	0.0116	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	1.1162	0.0000	1.1162	0.0000
Totals	0.0000	0.0000	0.0000	0.0000	24.6662	0.0000	24.6662	0.0000
Rwy 12L								
GASEPF	1.1881	0.0000	1.3466	0.0000	13.4784	0.0000	16.0130	0.0000
GASEPV	0.1029	0.0000	0.1278	0.0000	0.3630	0.0000	0.5937	0.0000
BEC58P	0.0944	0.0000	0.0678	0.0000	0.5577	0.0000	0.7199	0.0000
DHC6	0.0000	0.0000	0.0242	0.0000	0.0000	0.0000	0.0242	0.0000
CNA510	0.0000	0.0000	0.0062	0.0000	0.0000	0.0000	0.0062	0.0000
MU3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R22	0.2328	0.0000	0.3429	0.0000	0.0000	0.0000	0.5757	0.0000
B206L	0.0406	0.0000	0.0160	0.0000	0.0000	0.0000	0.0567	0.0000
AS355F	0.0058	0.0000	0.0603	0.0000	0.0000	0.0000	0.0661	0.0000
Totals	1.6656	0.0000	1.9909	0.0000	14.3991	0.0000	18.0556	0.0000
Rwy 12R								
GASEPF	3.7460	0.1271	4.0080	0.2907	1.3871	1.9279	9.1631	2.3457
GASEPV	0.5771	0.0173	0.5213	0.0460	0.0362	0.0281	1.1346	0.0934
BEC58P	0.7829	0.1236	0.8784	0.0640	0.5579	0.4285	2.2192	0.6276
DHC6	0.2617	0.1795	0.2463	0.1707	0.0087	0.0000	0.5167	0.3502
CNA510	0.0667	0.0457	0.0627	0.0435	0.1727	0.0000	0.3021	0.0892
MU3001	0.0568	0.0048	0.0618	0.0000	0.0000	0.0000	0.1186	0.0048
R22	0.5515	0.0052	0.5356	0.0100	0.0000	0.0000	1.0871	0.0152
B206L	0.0000	0.0000	0.0243	0.0000	0.0000	0.0000	0.0243	0.0000
AS355F	0.0759	0.1111	0.0542	0.0764	0.0000	0.0184	0.1301	0.2059
Totals	6.2306	0.6147	6.4136	0.7062	2.1626	2.4132	14.8068	3.7341
Rwy 12H								
R22	0.0000	0.0000	0.0000	0.0000	2.6723	0.0000	2.6723	0.0000
B206L	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	0.1101	0.0000	0.1101	0.0000
Totals	0.0000	0.0000	0.0000	0.0000	2.7824	0.0000	2.7824	0.0000
Rwy 24L								
GASEPF	0.8760	0.0000	6.3200	0.0000	197.1489	0.0000	204.3449	0.0000
GASEPV	0.0608	0.0000	1.9130	0.0000	5.4659	0.0000	7.4397	0.0000
BEC58P	0.0000	0.0000	0.0000	0.0000	8.8154	0.0000	8.8154	0.0000
DHC6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CNA510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MU3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R22	12.6471	0.3067	12.9140	0.0414	0.0000	0.7200	25.5611	1.0681
B206L	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Totals	13.5839	0.3067	21.1470	0.0414	211.4302	0.7200	246.1601	1.0681
Rwy 24R								
GASEPF	75.2308	2.0160	89.6607	2.1426	10.3696	37.0628	175.2613	41.2066
GASEPV	9.7116	0.3807	7.7692	0.4731	0.2968	0.4661	17.7776	1.3199
BEC58P	12.2154	2.5106	13.1756	1.5507	8.8176	5.0053	34.2086	9.0666
DHC6	4.0057	2.3392	3.5533	2.7718	0.0656	0.0411	7.6246	5.1521
CNA510	1.6406	0.6968	0.9325	0.7060	1.0986	0.8158	3.6717	2.2186
MU3001	0.6763	0.2234	0.8827	0.0169	0.0000	0.0000	1.5590	0.2403
R22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B206L	0.5867	0.0000	0.5242	0.0655	0.0000	0.0000	1.1109	0.0655
AS355F	1.4942	1.3156	2.5080	0.3019	0.0000	0.2466	4.0022	1.8641
Totals	105.9443	9.3809	99.1042	8.0263	21.2598	43.6274	226.3083	61.0346
Rwy 24H								
R22	0.0000	0.0000	0.0000	0.0000	38.1961	0.0000	38.1961	0.0000
B206L	0.0000	0.0000	0.0000	0.0000	0.1609	0.0000	0.1609	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	1.6252	0.0000	1.6252	0.0000
Totals	0.0000	0.0000	0.0000	0.0000	39.9822	0.0000	39.9822	0.0000
Rwy 30L								
GASEPF	8.4723	0.0434	7.8467	0.1481	2.8006	1.3323	19.1196	1.5238
GASEPV	1.1532	0.0102	0.9074	0.0118	0.0776	0.0000	2.1382	0.0220
BEC58P	1.6445	0.1511	1.8943	0.1016	1.3839	0.2994	4.9227	0.5521
DHC6	0.6363	0.2253	0.6544	0.2957	0.0172	0.0000	1.3079	0.4410
CNA510	0.1618	0.0599	0.1669	0.0524	0.3409	0.0000	0.6696	0.1123
MU3001	0.1032	0.0166	0.1219	0.0020	0.0000	0.0000	0.2251	0.0186
R22	1.7556	0.0000	1.7554	0.0000	0.0000	0.0000	3.5110	0.0000
B206L	0.0798	0.0270	0.0000	0.0000	0.0000	0.0000	0.0798	0.0270
AS355F	0.2769	0.1038	0.0362	0.1269	0.0000	0.0000	0.3131	0.2307
Totals	14.4826	0.6228	13.1843	0.6447	4.6202	1.6317	32.2871	2.8992
Rwy 30R								
GASEPF	2.0707	0.0000	2.6937	0.0000	29.0097	0.0000	33.7741	0.0000
GASEPV	0.2128	0.0000	0.4567	0.0000	0.7657	0.0000	1.4352	0.0000
BEC58P	0.0000	0.0000	0.1996	0.0000	1.3845	0.0000	1.5841	0.0000
DHC6	0.0000	0.0000	0.0096	0.0000	0.0000	0.0000	0.0096	0.0000
CNA510	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0024	0.0000
MU3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
B206L	0.0000	0.0000	0.0799	0.0000	0.0000	0.0000	0.0799	0.0000
AS355F	0.0000	0.0000	0.2176	0.0000	0.0000	0.0000	0.2176	0.0000
Totals	2.2835	0.0000	3.6595	0.0000	31.1599	0.0000	37.1029	0.0000
Rwy 30H								
R22	0.0000	0.0000	0.0000	0.0000	5.2738	0.0000	5.2738	0.0000
B206L	0.0000	0.0000	0.0000	0.0000	0.0229	0.0000	0.0229	0.0000
AS355F	0.0000	0.0000	0.0000	0.0000	0.2536	0.0000	0.2536	0.0000
Totals	0.0000	0.0000	0.0000	0.0000	5.5504	0.0000	5.5504	0.0000
Grand totals	217.3912	15.6863	219.2840	13.7563	526.6762	55.2248	957.4514	84.6274
					Total Average Day Flight Operations			1,042.0788
					Total Yearly Flight Operations			380,359

The data in this table are shown as Flight Operations and therefore the figures under the 'Circuits' heading needs to be multiplied by 2 to calculate the total number of runway movements, i.e. take-offs and landings.
Circuit operations includes both CIR and TGO operations
A complete list of Flight Operations per individual flight track available in accompanying Report
There are some rounding errors as yearly Flight Operations are divided by 365 to give daily Flight Operations.

CHART INFORMATION	
PREPARED	19-06-2009
PREPARED BY	I SPEED, R NEAL AAPC
CHECKED BY	D LLOYD AAPC
APPROVED BY	G MILNER AAPC
BASE MAP TRANSFER BY	M BIDDLE MCMULLEN NOLAN
BASE MAP COORDINATE SYSTEM	PCG94
AMENDMENTS	DRAWING STATUS : FINAL

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

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.

AIRSERVICES AUSTRALIA

ENDORSED FOR TECHNICAL ACCURACY
STANDARD ANEF
Date: 24.7.09

General Manager Safety and Environment
Airservices Australia, Canberra

The aircraft noise contours on this chart have been calculated using an appropriate modelling process. Airservices Australia has, in accordance with the approved manner of endorsement, considered the physical ultimate capacity of the existing or proposed runways in its endorsement process. The data input and assumptions made in that process are derived in part from external sources. Airservices Australia makes no warranty in respect of that information and excludes all liability for any loss arising from reliance on that information.

AS2021 - TABLE OF BUILDING SITE ACCEPTABILITY BASED ON ANEF ZONES

BUILDING TYPE	ANEF ZONE OF SITE		
	ACCEPTABLE	CONDITIONAL	UNACCEPTABLE
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1 of AS2021)	20 to 25 ANEF (Note 2 of AS2021)	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 of AS2021)	20 to 25 ANEF (Note 2 of AS2021)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1 of AS2021)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1 of AS2021)	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 VARIATION IN AIRCRAFT FLIGHT PATHS. BECAUSE OF THIS, THE PROCEDURE OF CLAUSE 2.3.2 OF THE STANDARD 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 FIGURE A1 OF APPENDIX A OF AS2021).

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 TABLE 2.1 OF THE STANDARD SHOULD BE USED TO DETERMINE SITE ACCEPTABILITY, BUT INTERNAL DESIGN NOISE LEVELS WITHIN THE SPECIFIC SPACES SHOULD BE DETERMINED BY TABLE 3.3 OF THE STANDARD.

4) THE 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 ACHIEVE THE REQUIRED ANR DETERMINED ACCORDING TO CLAUSE 3.2 OF THE STANDARD. FOR RESIDENCES, SCHOOLS, ETC., THE EFFECT OF AIRCRAFT NOISE ON OUTDOOR AREAS ASSOCIATED WITH THE BUILDINGS SHOULD BE CONSIDERED.

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

FIGURE 28 – 2029/30 AUSTRALIAN NOISE EXPOSURE FORECAST (ANEF)

AIRSERVICES AUSTRALIA

INFORMATION SHEET

Airport-Related Developments

The Airports Relations Branch of Airservices Australia provides you with a central point to facilitate development approvals, and perhaps more importantly be the point of contact to promote key issues of mutual interest to both our organisations, which means both Airports and Airservices can be sure of consistent messages being transmitted from each other.

Regarding airport-related development proposals, the Airport Relations Branch provides you with whole-of-Airservices advice. To undertake necessary assessments and ensure proposed developments related to your:

- Master Plan (MP);
- Major Development Plan (MDP);
- Controlled Activity (CA); or
- Crane Operation (CO),

do not penetrate airspace surfaces, or hinder the safe operation of any Airservices Australia infrastructure (control tower, aviation rescue and fire fighting service, navigational aids), Airservices Australia requires specific details to be provided with your proposal. In **ELECTRONIC FORMAT ie: email or disk,** we require:

- Site plans with the exact location of the proposed activity;
- Drawings of Tower Line of Sight to movement areas with apron boundary clearly defined;
- Detailed drawings including:
  - exact dimensions;
  - maximum heights in AHD and the above ground height for all structures including crane operations;
- The exact location of your development including coordinates and datum for each structure or crane operation:
  - Coordinates in - latitude / longitude or easting / northing
  - Datum - WGS84 or equivalent (not the airport reference point datum);
- A description of each structure to be built, including details of proposed external cladding materials, and the structure's proposed use;
- Where possible, MicroStation.dgn files (or AutoCAD) that include 3D wireframes of buildings; and
- Tower line of sight.

✈

To assist in giving you the most timely assessment, your assistance to provide the Airport Relations Branch with the above information as soon as possible would be greatly appreciated.

Contacting us in the process of preparing your MP, and advising us of your MDP or MP going out for public comment gives us the largest block of time (at least 60 business days) to technically assess your development. By giving us as much notice as possible you will ensure Airservices Australia has ample time to assess your proposals.

ENDORSEMENT OF AUSTRALIAN NOISE EXPOSURE FORECASTS

In deciding whether to endorse an Australian Noise Exposure Forecast (ANEF), Airservices Australia ("the endorser") must be satisfied with the following elements of the ANEF:

(a) that the appropriate selection of aircraft types for the airport have been used as input data;

(b) that the runway usage and flight path data used as an input to the model are operationally suitable for the airport;

(c) that 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;

(d) that the contours have been modelled correctly;

(e) that the proponent has demonstrated it has paid due regard to all issues raised by State and Local Government authorities in relation to the ANEF; and

(f) any other matter the endorser considers relevant in deciding whether to endorse the ANEF.

Please allow 6-8 weeks for the endorsement process.

✈

Airport Relations is established to be your conduit into Airservices Australia, and a convenient resource for you to discuss, with us, relevant business and policy issues.

All correspondence on proposed airport related developments and any other airport matters you wish to discuss may be addressed to:

Loretta Petroff
Manager, Airport Relations
loretta.petroff@airservicesaustralia.com
GPO Box 367
CANBERRA ACT 2601
Ph: 02 6268 4060

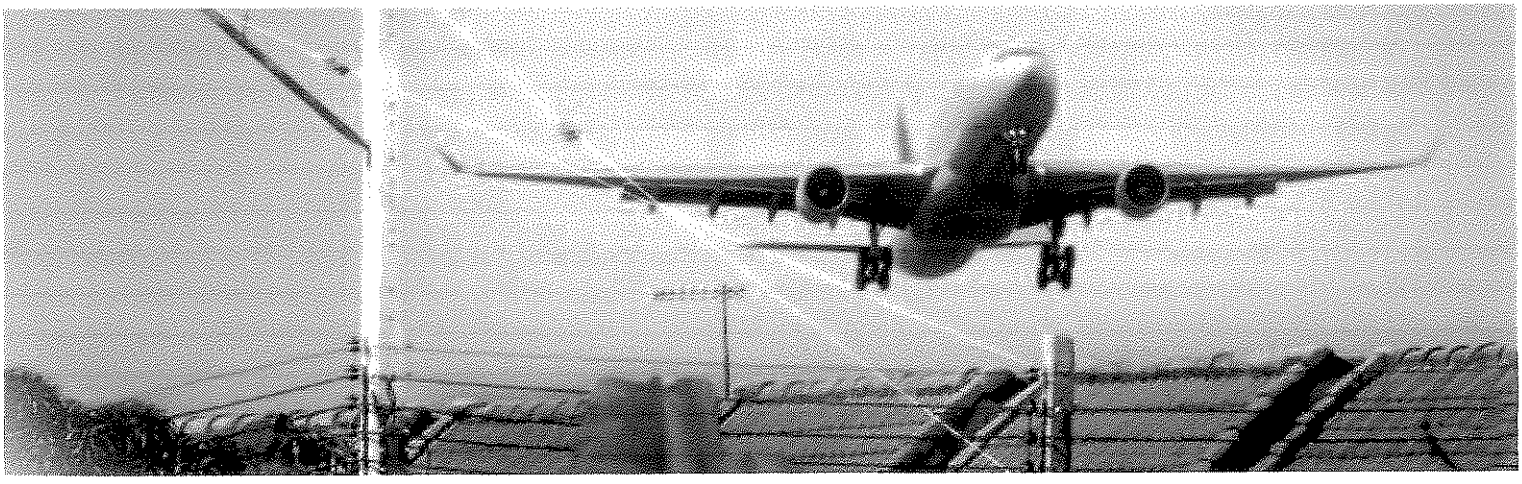
From the team at Airport Relations
Loretta Petroff
Joseph Doherty
Mitchell Sloan
Kent Quigley
Carly Rogers

Australian Government

Department of Infrastructure, Transport, Regional Development and Local Government

Safeguards for airports and the communities around them

Discussion Paper



June 2009

Contents

PART A: Safeguards for operations at airports

The National Aviation Policy Green Paper, *Flight Path to the Future*, released on 2 December 2008 by the Minister for Infrastructure, Transport, Regional Development and Local Government, the Hon Anthony Albanese MP, identified the need for a more effective planning regime both on and off airport sites that supports the effective use of airports and the safety of aviation activity at the airport.

The Green Paper stated at page 169 that:

> A unified risk-based framework could be developed to enable all levels of government to take responsibility for safeguarding airports from off-airport development that is incompatible with the future safe and effective operations of an airport. This framework would also need to consider whether safeguarding provisions should apply to both new and existing development or, if it is to apply to existing development, which criteria should be applied. The Government will initiate this approach through the public release of a more detailed discussion paper on a national airport safeguarding framework.

The Government is committed to working with the state and territory governments to develop a framework including initiatives such as:

- national airspace protection legislation that protects approaches to major airports to prevent intrusion into airspace by buildings approved at state and local government level;
- developing a clear policy on the definition of public safety zones around airports which can be taken into account in local planning with a view to ensuring that the community is not exposed to any undue level of risk from aircraft operations; and
- developing strategies and plans to address other airport related issues such as aircraft noise, traffic linkages, and best practice community consultation models.

The need for a coordinated approach

Airport sites are valuable transport, tourism, employment and business assets for the local and national economy. All governments have an interest in maintaining their operational capability and potential for growth. The development of airports needs to be considered in the broader context of the local economy, local community and the environment in which they operate.

Developments around airports and under flight-paths can constrain operations, either directly where they conflict with safety or operational requirements, or indirectly where they lead to public pressure to change flight paths, impose restrictions on operations, or close and move the airport.

Australia has an excellent safety record and the likelihood of an accident is very low. However, there is an inherent risk associated with flying and the operation of aircraft at or around airports.

A clear and coordinated regulatory environment for land use planning and development controls on and off airports would serve both aviation operators and the public.

A range of interrelated factors need to be considered:

- protection of community safety by ensuring commercial or residential developments do not occur in areas close to runway ends where there is a higher risk of damage from aircraft;
- protection of the safety of aircraft operations by preventing developments which could present a physical obstacle to aircraft, interfere with communications or navigation equipment, or produce significant hazards in the form of smoke or turbulence;
- preserving the reasonable amenity of areas surrounding airports and under flight-paths;
- providing for the effective use of the airport, recognising that airport sites are scarce and that aviation activity has a high economic value;
- the need for clarity in planning for land uses around airports to balance these factors.

The Government is keen to work cooperatively with State Governments and other planning authorities to ensure an appropriate balance is maintained between the social, economic and environmental needs of the community and the effective use of airport sites.

Airports can be affected by developments off the airport site. Buildings, other structures or plumes from chimney stacks can interfere with the safety of operations around the airport, reducing safety margins and restricting operational options. Developments under flight-paths, even some distance from the runway, often lead to complaints about aircraft noise and calls to restrict airport operations.

Equally, flights present safety risks for residences or businesses near the ends of runways. Increased operations at airports or changes in patterns of operation can also impact on the amenity of areas affected by aircraft noise.

A comprehensive and balanced approach to safeguards would incorporate actions designed to protect safety, support the effective use of airport sites into the future and protect amenity for communities near airports. It would also bring together an informed approach to managing risks on and off airports and ensure planning for the airport's future and planning for the surrounding areas are integrated.

A large number of complex factors impact on aviation safety. Responsibility for safe operations to and from airports is shared by airport operators, air navigation service providers, regulatory agencies and the airlines.

Some risks to aviation operations around airports, such as limiting the height of buildings and controlling bird and bat activity in the vicinity of airports, are well understood. Other concerns, such as how new development can have an impact on air flow across runways or the operation of navigational aids and radar, are not always as apparent.

There are also risks for those people living and working near airports. The risk to public safety from an air crash is quantifiable, with areas in the vicinity of a runway end considered to be at the greatest risk.

Examples of safeguard approaches

Public Safety Zones The specification of public safety zones (PSZs), that identify a quantifiable risk contour off the ends of runways based on runway use statistics correlated against international crash data, provides an objective basis for precautionary planning decisions in those areas of highest risk.

PSZs, as developed and applied in various forms internationally over some years, are used as the basis to limit new development activity that would increase the risk beyond acceptable levels. The PSZ approach takes account of the increased number of people who would live, work or otherwise congregate within such areas as a result of the development.

It needs to be acknowledged, however, that the identification of PSZs, even if only to manage any proposed future development, is likely to be a contentious issue with landowners, residents and occupants who currently live or work in these areas. Their interests are important and any decision to delineate areas of high risk around airports needs careful examination and community consultation.

Safety Management Systems Each airport has an ongoing responsibility as part of its Safety Management System (SMS) requirements under the Civil Aviation Safety Regulations 1998 (CASR) Part 139 to demonstrate how it has assessed all safety risks and the mitigation approaches it proposes to take, including to on-airport development. The effectiveness of this requirement is limited to the aerodrome property and has limited, if any, influence off-airport.

State and Overseas models The approach to safeguarding risks under the Queensland State Planning Policy 1/02 *Development in the Vicinity of Certain Airports and Aviation Facilities* (SPP 1/02) and its associated Guideline has more comprehensive application on and off airports. SPP 1/02 is based on the United Kingdom (UK) safeguarding model.

The UK safeguarding arrangements involve a framework to manage activities and consultations in relation to off-airport activities in order to minimise operational risks given the proximity of the activity to an aerodrome. The UK approach requires planning authorities to consult with 'officially safeguarded' civil and

military aerodromes and advises consultation with other aerodromes on local development activity in order to ensure that their operation is not inhibited by: tall buildings, structures or works which might infringe protected airspace, lighting that might confuse runway approaches or distract pilots, installations that might impair the technical performance of telecommunications, radar, radio and navigational aids, and development activity that might increase the risk to aircraft of birdstrike.

Wind turbine guidelines are in place as part of the UK framework to resolve issues prior to formal planning and ensure civil and military aviation needs are protected and PSZs are specified for ends of runways at the busiest airports.

In defining areas of greater risk, the UK approach is to establish guidelines, which assist local planning authorities in considering planning applications relating to land use in the vicinity of airports.

The Netherlands authorities also apply a risk management approach to a range of off-airport aviation hazards while Ireland applies a hybrid version of the UK and Dutch models.

Queensland's SPP 1/02 identifies airspace protection, bird hazards and also noise as matters affecting development in the vicinity of civil and military airports that require coordination and also provides for a generic PSZ model that should be applied to less busy airports.

The issues raised in this discussion paper potentially apply to all aerodromes in Australia, but the risks and complexity are much greater for the high volume airports in densely populated urban areas. Any further development of a possible national approach to safeguards will need to examine how the framework can apply across the variety of operational environments of our aerodromes.

An initial indication of the safeguarding elements, their key requirements and issues, the specific related regulations and guidelines available and potential options are summarised in Table 1.

Comment sought

Submissions are welcomed on any aspect covered in this discussion paper and also on matters not raised but which the submitter considers are relevant to the issue of safeguarding and its sub-elements.

Submissions (preferably in electronic formats Microsoft Word or Adobe Acrobat pdf) and enquiries in relation to the discussion paper should be directed to:

Nicholas Dowie
Planning Policy and Environment Section
Airports Branch
Department of Infrastructure, Transport, Regional Development and Local Government
GPO Box 594 Canberra ACT 2601

Email: safeguarding@infrastructure.gov.au
Telephone: 02 6274 7172

Submissions should be made by **Friday 31 July 2009.**

Summary of possible elements of a safeguarding framework Table 1

The table below identifies key elements to be considered in a safeguarding framework including issues and potential options. Further discussion of these elements is included in Part B of this paper.

Safeguard Element	Key Requirement / Issue	Available Regulation and Guidelines	Potential Option(s)
Planning for Compatible Development	• To support flexible land use planning which takes account of hazards/risks and threats to future operations arising in relation to new development activity.	• Australian Standard AS 2021 and associated state planning instruments.	• Enhanced national framework for planning and development controls near airports and under flight paths to be agreed between governments. • Review of AS 2021 • Supplementation of ANEF with other tools for describing aircraft noise.
Protection of Operational Airspace	• The availability of a uniform take-off, landing and manoeuvring airspace guideline for planners: to protect aviation infrastructure, as defined by notional surfaces up to 15km around airports is adequately protected from the potential impact of new tall structures and vegetation on and off airports.	• All civil: Civil Aviation Safety Regulations 1988, Civil Aviation (Buildings Control) Regulations 1988, CASA Manual of Standards pt.139. • Federal airports: The *Airports Act 1996* and Airports (Protection of Airspace) Regulations 1996. • Defence: Defence (Areas Control) Regulations 1989. • State and local government references to the above.	• Revision and Extension of Airports (Protection of Airspace) Regulations for all CASA-Certified and Registered aerodromes. • Onus on developer to prove no detrimental impact on safety, efficiency and regularity of aviation operations.
Turbulence and Wind Shear	• The availability of adequate guidance material to airports and developers to identify, assess and mitigate the potential impacts of turbulence and wind shear potentially arising from new development in close proximity to runways.	• No guidelines available. Airports would need to satisfy CASA safety concerns if raised in terms of consistency with airport SMS.	• Development of guidelines for case-by-case assessment.
Wildlife Hazards	• Coordinated national guidelines and regulation for the effective management of the potential risks of bird strike in relation to land use planning within 15km of airports.	• ATSB monitoring and guidance. • ICAO recommended practices.	• Formalised planning guidelines and standards to complement airport activity.
Wind Turbines	• To reach agreement on criteria to be applied in the assessment of the potential impact of wind turbines (to 152m) on aviation infrastructure and effective notification procedures.	• Limited guidance from industry (CASA Advisory Circular currently under revision).	• National guidelines and regulations.

Safeguard Element	Key Requirement / Issue	Available Regulation and Guidelines	Potential Option(s)
Technical Facilities	• The effectiveness of state and territory powers and of planning notification procedures regarding the potential impact on aviation facilities from new developments.	• ACMA electromagnetic compatibility emissions standards.	• Identification of issue in state and local planning safeguarding information.
Lighting and Pilot Distractions	• The adequacy of legislation at all levels of government to restrict the use of lasers, high intensity lighting and other potential pilot distractions within 5km of airports.	• Civil Aviation Regulations 1988 and Manual of Standards pt.139.	• Formal requirement in state and local planning safeguarding information.
Public Safety Zones	• To work with planning authorities on land use guidelines for areas adjacent to the end of a runway considered to be at the highest risk of on-the-ground fatalities from aircraft accidents, within which development of land should be restricted if it would be likely to increase significantly the numbers of persons residing, working or gathering there.	• No national guidelines available. Overseas models, notably UK framework, may be suitable. • State Planning Policy SPP 1/02 applied in Queensland.	• Requirement for all passenger airports to have customised PSZs. • Generic PSZs approach for other CASA-Certified and Registered aerodromes.

Part B: Issues and Options for Safeguards

Planning for compatible development

ISSUE: The need for a nation-wide cooperative land use planning approach that protects both the operations to and from the airport and the interests of surrounding communities

Airports are essential elements of regional and national transport networks and are valuable infrastructure investments. It is essential that airports are protected from off-airport development that could undermine their safety or operational efficiency. According to the International Civil Aviation Organization (ICAO), aircraft noise is the most significant cause of adverse community reaction to the operation and expansion of airports. Until recent years aircraft noise management and assessment focussed on areas 'close in' to an airport. It is now internationally recognised that the issue of community exposure and reaction to aircraft noise is not confined to areas inside conventional noise contours.

The nature of aircraft noise patterns around airports and subsequent public expectations have changed in recent years with increased community pressure to impose operational constraints on airports or oppose airport growth. The issues of concern are the level of noise generated by individual aircraft, increasing numbers of flights and decreasing periods of respite as airports get busier. Particular concerns include increased movements during the sensitive night time period and reduced respite periods on weekends.

Some state planning schemes provide guidance, or direction, on the acceptability of development in areas affected by aircraft noise, based largely on Australian Standard AS2021. AS2021 sets out a graduated series of recommendations for development as noise exposure increases. This is shown in Table 2 below.

Table 2 - Current Australian Standard AS2021

BUILDING TYPE	ACCEPTABLE	CONDITIONALLY ACCEPTABLE	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		

The Australian Noise Exposure Forecast (ANEF) system was established in the early 1980s to provide a system for land use planning around airports based on average daily community noise exposure levels calculated by reference to the anticipated volume and pattern of movements at a particular airport.

Computation of the ANEF takes into account the amount of noise generated by each aircraft type; the forecast frequency of aircraft types and movements on the various flight paths; and the time of day of each aircraft operation.

ANEF charts are provided for most aerodromes throughout Australia. The charts are plans of the aerodrome and the surrounding localities on which noise exposure contours of 20, 25, 30, 35 and 40

ANEF units have been drawn. These contours indicate land areas around an aerodrome which are exposed to average aircraft noise of certain exposure levels. The higher the ANEF value the greater the average daily noise exposure.

The ANEF system and the planning controls which are derived from the system, have a number of limitations:

- The system is a 'one size fits all' approach which does not take into account local circumstances - large airports are treated the same as small airports; greenfield airports are treated the same as built out airports;
- Experience has shown that ANEF contours do not provide a complete picture of the areas where residents are likely to have an adverse reaction to aircraft noise;
- The contours do not easily correlate to a publicly understandable 'decibel' noise level;
- ANEFs do not capture areas under very busy flight paths used by light aircraft, such as training circuits, which can be more annoying to some individuals than a small number of loud noise events; and
- Aircraft noise does not stop at a contour line on a map.

Notwithstanding the use of the ANEF system, complaints about aircraft noise around airports continue to lead to pressure to restrict aircraft operations and constrain airport operations. While some level of tension may be inevitable, there is scope to act to minimise community exposure, protect the airport activity and the economic benefits it provides and increase available information to increase the community's understanding of an airport's operations.

In response to community concerns, additional tools have been developed to assist individuals gain a clear understanding of aircraft noise exposure patterns - in particular the generation of information showing the location of flight paths and how often and at what times they are used. Noise information is provided in the form of descriptors based on single event contours (eg the N70 which shows how many noise events louder than 70dB(A) there are at a particular location).

The Government considers that it would be beneficial to develop and implement additional strategies for assessing and managing aircraft noise at much greater distances from airports than has conventionally been the case. Options for enhancement to the current arrangements include:

- Reviewing the ANEF system and clarifying whether it is solely a tool for land use planning or whether it has a role in describing noise exposure patterns around airports;
- A full review of AS2021 as a planning guide for state and local governments;
- In addition to the ANEF, provision of comprehensible noise information, such as flight path location and activity diagrams and N70s, enabling individuals to gain a clearer understanding of aircraft noise exposure patterns around airports which enables them, for example, to factor this information into decisions about house purchase;
- Ensuring that supporting the current and future operations of airports is one of the objectives of planning, and establishing arrangements for that objective to be balanced with others in planning and development decisions;
- Developing stronger arrangements for protection of corridors under flight paths, particularly avoiding residential and other noise-sensitive development in such corridors;
- Considering more conservative criteria for noise-sensitive developments under flight-paths, particularly in relation to development of greenfield sites or where other options are available; and
- Considering special arrangements for state and local government consultation with the Commonwealth government on proposed developments around federal airports so that the impacts on airport operations can be fully assessed and taken into consideration in decision-making.

1. **Does the ANEF system provide an effective basis for planning in noise affected areas?**
2. **How effective is the ANEF system as a land use planning standard for greenfield developments around airports?**
3. **Are the acceptable levels of aircraft noise for particular develops identified in AS2021 consistent with current community expectations?**
4. **How can the current planning arrangement to address developments in noise-affected areas around airports and under flight paths be improved to take account of community expectations, while also providing for the reasonable growth of aviation activity at airports?**
5. **For developments around the major capital city and freight airports, should state governments have to refer residential development within a defined buffer zone to the Commonwealth Transport Minister or Secretary for approval?**

Protection of operational airspace

ISSUE: Development of a uniform policy guideline for planning authorities to regulate the potential impact on aviation from new tall structures and vegetation (i.e. trees) on and off airports.

Commonwealth legislation – the Airports (Protection of Airspace) Regulations 1996 (Airspace Protection Regulations), CASR, the Civil Aviation (Buildings Control) Regulations 1988 and CASA's Manual of Standards Part 139 – identifies the need for consistency with internationally agreed criteria for protecting the low level airspace up to 15km radius around all civil aerodromes from tall buildings and other structures, smoke (or other particulate matter) and plumes.

> 'Airports require airspace in their vicinity to allow for aircraft landing, take-off or manoeuvring operations to be undertaken safely and efficiently. This airspace is described as operational airspace. During these operations, pilot workload is greatest and the aircraft is least manoeuvrable. Different airspace requirements are defined for visual and non-visual flight conditions. This depends on whether or not a pilot has the scope to operate below cloud with sufficient visibility to see and avoid other aircraft and/or obstacles while completing landing or take-off manoeuvres.'[1]

The approach, departure and manoeuvring paths form the protected notional surfaces of:

- the Obstacle Limitation Surface (OLS, see diagram below) for visual flight procedures; and
- the Procedures for Air Navigation Systems Operations (PANS-OPS) which relate to instrument procedures and are generally located above the OLS.

These surfaces are ascertained in accordance with International Civil Aviation Organization (ICAO) Annex 14 and ICAO document 8168.

Defence aerodromes are protected under the Defence (Areas Control) Regulations 1989. The Defence Obstacle Clearance Surfaces (OCS) are very similar to the OLS. The OCS are detailed in ADFP 602 - Joint Works and Administration Aerodrome Design Criteria.[2]

The Airspace Protection Regulations for the leased federal airports provide a well-established model for protecting operational airspace from tall structures and developments. Proposed activities that would infringe airspace require approval by DITRDLG, subject to the advice of CASA, Airservices and the

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1 SPP 1/02 Guideline 3.1 p.3

2 And also Joint Obstruction Clearance Surfaces or JOCS – a combination of the military OCSs, height restriction zones and the civilian OLS and PANS-OPS as depicted in the *Defence (Areas Control) Regulations 1989*

STANDARD INSTRUMENT DEPARTURES (SID)
JANDAKOT TWO DEP (RADAR) - RWY 12/30, 06L/24R

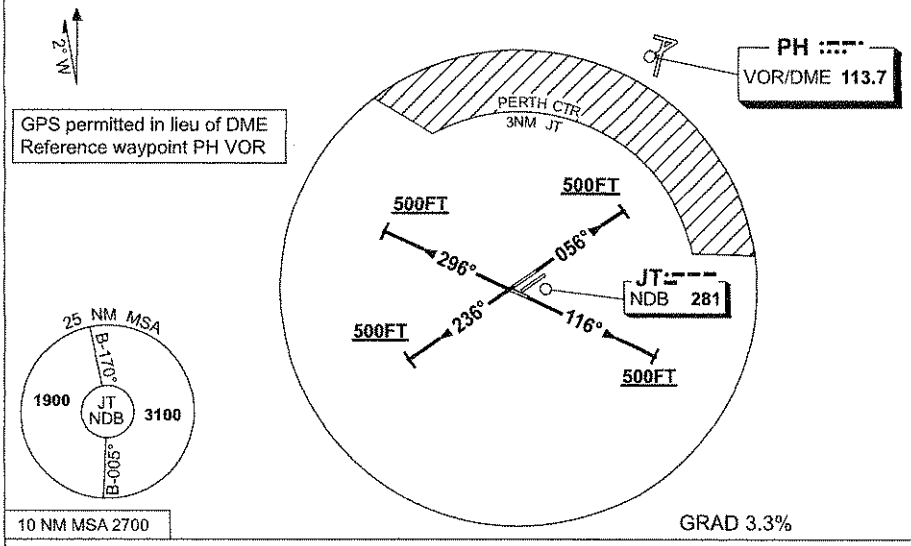
12 MAR 2009

PERTH/JANDAKOT, WA (YPJT)

ATIS (AWIS AH)	ACD	SMC	TWR (CTAF (R) AH)	APP (PH)	DEP (PH)	Bearings are Magnetic Elevations in FEET AMSL
120.9 281	132.95	124.3	118.1	123.6	118.7	

WARNING: The initial sections of these procedures are conducted under general aviation airport procedures during TWR HR. Pilots in command are responsible for their own traffic separation in Jandakot CTR in VMC.

NOT TO SCALE



JANDAKOT TWO DEPARTURE (RADAR)

PROC NOT AVBL FROM RWY 06R/24L

RWY 06L
- Track 056°
- At or ABV 500FT and clear of advised traffic turn to advised heading
- Contact PH ATC as directed by JT TWR for further instructions

NOTE - DEPARTURES RUNWAY 06L:
During unrestricted VFR operations by day, pilots are required to visually navigate clear of the PERTH CTR, or if IMC remain outside 8 DME PERTH until established on the assigned heading, except when assigned a departure heading directly into the PERTH CTR. Pilots unable to comply with this requirement must advise ATC prior to departure.

RWY 24R
- Track 236°
- At or ABV 500FT and clear of advised traffic turn to advised heading
- Contact PH ATC as directed by JT TWR for further instructions

RWY 12
- Track 116°
- At or ABV 500FT and clear of advised traffic turn to advised heading
- Contact PH ATC as directed by JT TWR for further instructions

RWY 30
- Track 296°
- At or ABV 500FT and clear of advised traffic turn to assigned heading
- Contact PH ATC as directed by JT TWR for further instructions

COMMUNICATIONS FAILURE PROCEDURE

On recognition of communications failure
- Squawk 7600
- Maintain last assigned vector for two minutes, and
- CLIMB IF NECESSARY TO MINIMUM SAFE ALTITUDE, to maintain terrain clearance, then
- Proceed in accordance with the latest ATC route clearance acknowledged.

Changes: REVISED PROC.

PJTDP01-118

AIRSERVICES AUSTRALIA

To: Jandakot Airport Holdings
Eagle Drive Jandakot Airport-Delivered by Hand 30/10/2009

Public Comment Submission on Preliminary Draft Master Plan 2009
Jandakot Airport proposed Development

Copy to: The Hon Melissa Parke Federal Member for Fremantle

The Federal Airports Corporation was created 14th February 1986 to manage transition to leasehold, essentially charged with turning loss-making airports into profitable ones to improve the attractiveness to the prospective tender Lease when the Federal Govt of the day embraced OECD economics

This FAC process at Jandakot resulted in significant changes to flight training operations through the offshore marketing of the facility for expansion with the arrival of Singapore Flying College and China Southern, two major flight-training arms of major offshore airlines.

The resultant noise impact of this intensive circuit training on the residents of the cities of Cockburn Canning and Melville was so horrendous and the outcry so large the FAC created the Jandakot Airport Consultative Committee (JACC) bringing in community groups to discuss the noise impact combined with airport stakeholders.

The State Govt DPI Aviation policy section then initiated the Flights Paths and Circuit Training Procedures review, culminating in the Fly Neighbourly Approach, this was also a failure through Air Services Aust rejecting nearly all the recommendations put forward to JACC and remains so today.

Of all the recommendations, the two major recommendations were that Perth needs a second General Aviation Airport and a circuit-training aerodrome within 30 nm of Jandakot to relieve the pressure from Jandakot and the noise impact on surrounding suburbs.

To this day the final recommendations and proposals have not been resolved and remain so, and are a fitting testament to the Aviation industries inability to deal with General Aviation noise, and Federal and State governments unwillingness to respect the amenity of hard working Australians who through no fault of their own have been, and continue to be impacted by General Aviation noise through continued expansion and circuit training at Jandakot.

All of the above is a very brief historical snapshot; it appears that noise impact is set to continue and expand unabated without a major initiative by Federal, State

Table of Contents

<u>Supportive Documentation Attached:</u>

Summary of submission issues

It is clear that Jandakot Airport will continue to expand in capacity and noise impact unless some constraints are put in place, and it is evident that residents are being subject to **inverse condemnation** through airport expansion.

It is clear that a noise impact reduction program must be initiated to bring social justice, health, safety, security and restored amenity to residents impacted beyond reason by noise and bring some perspective and recognition to the known and unforseen consequences of the expansion plans of PDMDP 2009

An appropriate ongoing flight path monitoring system be installed to ensure that aircraft and the proposed Southern Road Link operations are monitored in order that noise levels at any residential premises in occupation by an occupier who has not in writing indicated that higher noise levels are acceptable not exceed an average of 60db(A) Ldn with a maximum level of 65db(A)

Properties off the end of runways 24R/L that are seriously affected and those that will be seriously affected with the inclusion of the 4th runway and all its ramifications that are currently and will be in the 30+ ANEF contour be bought out and owners compensated as the Western Australian Planning Commission has deemed these properties were suitable for residential Purposes in the initial stages 30 years ago.

Residential properties must be acoustically treated that are in the 25 to 30 ANEF noise contour to restore natural amenity and enjoyment to the lives of hard working Australians who through no fault of their own have become unjust victims of rampant expansion

Western Australian Planning Commission Statement of policy 5.3 Jandakot Airport Vicinity March 2006, blatantly avoids the current noise impact on prior land release, the policy was cobbled together in 2006 when it was realised no formal policy existed, and avoids aircraft noise impact issues that were documented historical facts prior to its release.

Flight tracks and circuit training procedures be revisited and revised in full recognition of the noise impact and the validity of GAAP procedures on an airport that engages in high intensity circuit training.

Proposed Parallel Runway 12/30 (4th Runway) Impacts

The current parallel runway 06L/24R – 06R/24L were created under the FAC these runways are set at a minimum spacing of 210 metres.

The logic behind the dual runways was to create left hand circuit training from 06R/24L using primarily single engine aircraft and Right hand circuit training using twin engine aircraft from 06L/24R an imitative of the FAC to increase the volume of traffic and revenue.

Simultaneously the flight track for departures from 24R was shifted from tracking to Bibra Lake **to** tracking to Murdoch open space this change was introduced due to the minimum runway separation of 210 metres being employed to avoid the potential for runway centerline incursions. This flight track creates noise impacts and needs to be corrected

The consequence of this tracking change is to cause departing aircraft to Track Some 30 to 40 degrees off runway centerline (even before they leave the airport boundary) once airborne with the result being that properties on Glendale cres / Flora crt are subject to aircraft over their roofs at some 200/300 ft as they climb out using climb engine power settings on their way to Murdoch open space at 500ft QNH, which is 400ft in the case of Jandakot as it is approx 90ft above sea level.

This places the properties in Glendale Cres / Flora crt squarely under the 30 + ANEI/ANEF and has done so since 1993, and this impact hides squarely behind the safety clause inserted in ERSA and nothing is done to correct this even though the impact on residents is severe and no one is held accountable, pilot in command without consequences.

Air services appear to take little interest in correcting this as monitoring of radio traffic reveals ASA are ready to identify aircraft using 24L and advise pilots to correct their heading as they are drifting right into 24R traffic this drift suits ASA margin of safety, to bad for residents attitude.

With the planned implementation of the 4th Runway the same logic will prevail, aircraft using 12/30 will splay out to the the left and turn earlier to avoid runway centerline incursions the consequence of this will be the Residents of Glendale cres / Flora crt will receive a double dose of high Intensity noise well in the 30 + ANEI/ANEF

There are clear health, safety and duty of care implications here that require current urgent attention even prior to the proposed 4th Runway

Noise and N60 Contours

The N60 contours poorly represent the potential noise impact that will be imposed on residents how many events will be greater than N60? this is simply not good enough

What will the maximum N?? event be and how many flights at that level on a dally basis including night flights

Their appears to be an ever escalating level of noise presented in the ANEF and N60 formulae, there appears to be no tangible recognition of the severity of the current noise impact on residents and certainly no apparent attempt in the PDMDP 2009 to engage in any noise reduction.

What will be the maximum size of the aircraft beyond the current proposed 5 years of the PDMDP will residents be exposed to jet and passenger aircraft of up 30 seat capacity beyond the time frame of the PDMDP 2009 certainly the MTOW of 06L/24R indicates this

Does the N60 contour represent a change from airport 2B to 3B a shift into freight forwarding or Regular passenger Transport (RPT) this appears to be an approach that could be promoted in the next 5 year 2015 PDMDP

The noise impact appears to be escalating out of rational reason; there is a large residential community around Jandakot that has been here for 30 years and expect their amenity to be preserved, this is a complete turnaround from an airport that had an initial design criterion of an MTOW of 5700 kg. and was not envisaged from the onset to go beyond MTOW of approx 7500 KG

RUNWAY 06L/24R 22,000 maximum take off weight (MTOW)

The Department of Aviation (DOA) Jandakot Master plan dated April 1986 Commonwealth of Australia ISBN 0 644 04931 under 4.2 runways defines Jandakot Airport as being intended primarily for aircraft with an **MTOW below 5700kg with concessions to MTOW of 77711kg.**

Under FAC management the runway 06L/24R was upgraded to an MTOW of 22000kg in May 1997, this dramatic change was not supported as required through the generation of an Environmental Impact Statement (EIS) under Environment Protection(Impact Of Proposal)ACT 1974

This increase in rating dramatically changes the current and intended use of the airport and current and future noise impact through concessional use, not withstanding apron loadings.

The DOA master plan identifies 06L/24R at a length of 1127m with an extension required to 1250m at least, this extension to 1392m occurred in May 1997 it would appear at the same time of the MTOW upgrade

Declaration that this runway had been upgraded first appeared in the preliminary draft master plan and environment and strategy Feb 1999 Volume 1 prepared by Sinclair Knight Merz for JAH section 3-1 existing facilities: Runways

It would appear that the FAC may have exceeded its mandate through non disclosure of the potential impact of this significant change.

It is therefore imperative that an EIS on 06L/24R be undertaken as part of this master plan as the rating for the airport can increase by stealth from a 2B rating to 3B considering this 2009 preliminary draft master plan is proposing a further extension of 06L/24R to 1600m the same logic applies to runway 12/30

A runway length of 1600m x 30m and 22000kg MTOW can take this airport into the medium 3B aircraft category used in Regular Passenger Transport (RPT) and freight forwarding and changes entirely
the noise impact on local communities that is not projected in the proposed current 5 year preliminary draft master plan, and without doubt will be proposed in the next 5 year master plan

Aircraft noise current Australian Standard AS2021

It is generally recognised that the age of the General Aviation aircraft Fleet is 30 to 40 years old and the noise impact from the engine design and the complete lack of exhaust after treatment combined with propeller design from that era contribute greatly to the GA noise problem and non more so than at Jandakot, there are very few "Quiet" GA aircraft flown.

Continuous circuit training at Jandakot creates an industrial type noise Environment that would not be tolerated in the workplace by any measure during the peak flying season.

This is added to with night circuit training using runway 24R undertaking left hand circuits, aircraft are again some 30deg to 40deg to the right of runway centreline and drift out to a point where they turn back over the centreline of runway 24R they just departed from.

A pilot accumulates some 120hrs flying experience to perform solo night circuits, as the unlit parallel 24L runway is not in use, their are no potential incursion from 24L, this practice displays a complete disregard and indifference to the noise impact on the residents around the airport.

There is a significant number of ex- military type aircraft "warbirds" that use Jandakot as a base, these aircraft were designed in the 1930's and represent a significant noise impact that was clearly identified by the Manufacturer at the time, by example: Harvard/Texan, Tiger moth's Chipmunk, DC 3 and military Caribou aircraft to name some

Residents have been exposed to ex military Jet aircraft noise that clearly is not represented in any ANEI/ANEF previously and there is nothing in place to restrict the future use of this type of aircraft at Jandakot. Their will be know doubt that some enterprising people will want to conduct so called "adventure flights" using ex military dual seat aircraft.

An appropriate permanent Flight Path noise Monitoring system must be installed at Jandakot to ensure that aircraft operations are managed in order that noise levels at any residential premises in occupation by an occupier who has not in writing indicated that higher noise levels are acceptable does not exceed an average of 60 db(A) Ldn with maximum value of 65 db(A) with a 10 db(A) penalty at night, Royal Flying Doctor excluded.

Jandakot Airport ANEI/ANEF contours DPMDP 2009

It is suffice to say that after reading the Air services Australia signed off ANEF document in the PDMDP 2009 and the ASA disclaimer towards its accuracy, their is reliance on too many variables to be viewed with any confidence as accurate for the PDMDP 2009

Quote "The aircraft noise contours on this chart have been calculated using an appropriate modelling process. Air Services Australia has in accordance with the approved manner of endorsement, considered the physical ultimate capacity of the existing or proposed runways in its endorsement process. The data input and assumptions made in that process are derived in part from external sources. Air Services Australia makes no warranty in respect of that information and excludes all liability for any loss arising from reliance on that information" unquote.

It is apparent that the ANEF system created by the National Acoustics laboratory using the FAA Integrated Noise Model (INM) was never intended to be used at GAAP airports like Jandakot conducting high intensity circuit training, hour after hour.

The great misconception is that the ANEF contours are viewed by many in the planning policy field as being accurate in absolute terms, this subject matter is raised in "Safeguards for Airports and the Communities around them Discussion paper "current Australian standard AS2021

The ANEI/ANEF noise contours produced for the PDMDP 2009 promote a straight line projection from runway centreline to develop the ANEF contour foot print; this is completely erroneous and misleading and could not be further removed from day to day reality.

The greater majority of aircraft departing from runway 24R by example are some 30deg to 40deg off runway centreline and continually fly over residences in Glendale cres/Flora crt at altitudes well below 500ft QNH squarely placing these houses in the 30 + ANEI/ANEF if it was applied correctly, yet, with full knowledge of this, a contour map is produced and presented and signed off that denies the clear and apparent flight track deviation that exists and ASA at Jandakot are aware that this takes place.

Fly Neighbourly Approach and Outcomes

The Fly Neighbourly approach was promoted through the recommendations of the "Flight Paths and Procedures Review " (FPPR) initiated by the the Aviation policy manager of the day from the Dept Of Planning and Infrastructure WA, in an attempt to resolve the community uproar over the circuit training and flying practices, with the Final Report issued in December 1999.

The recommendations contained in the final report were to be actioned by all stakeholders of the Jandakot Airport Consultative Committee (JACC) and implemented in order to provide respite to the residents in all suburbs impacted by aircraft noise.

This review the FPPR held so much promise of reform into the management of aircraft movements and noise through the JACC and can only be viewed by enlarge as a **FAILURE** as recommendation after recommendation was abandoned by Air Services Australia (ASA) resulting in the final damming report on the FPPR outcomes contained in Ross Jones report march 2004 (copy attached).

Their is a complete lack of faith in ASA achieving any reform, they appear to be blindsided and introverted focusing on the aviation industry only as their funding is essentially derived from that source.

To this day the current WA Dept of Transport Aviation policy division website as of June 2009 still promotes that this review (FPPR) is being actioned through the Jandakot Airport Consultative Committee, (copy attached) this Govt dept is in denial and 5 years behind the times, this a major Govt Dept that is completely out of touch with community issues this much is obvious as a representative rarely attends JACC meetings.

The Preliminary Draft Master development Plan 2008 promotes the Quote: " Ongoing education and promotion of the fly Neighbourly Campaign" unquote, a campaign that was effectively grounded by ASA in 2004.The Fly Neighbourly sign that was at the entrance to the airport was removed permanently during Sept/Oct 2007 road realignment.

Fly neighbourly is nothing more than a myth, a game of smoke and mirrors that has little credibility at all and is still being promoted as the corner stone of community support, as well Fly, Neighbourly appears to be compromised by the GAAP procedures of a predominately circuit training airport.

Jandakot Airport Consultative Committee

Unfortunately the objective of the Jandakot Airport Consultative Committee since its inception under the FAC has never met its prime objective which is to "consult" with all stake holders on issues that affect each stake holder prior to implementation of airport management issues that have significant beyond border consequences for the community

The problem is that the style of consultation is one of after the fact IE: "this is what we are doing"/ "we have made changes" etc

The prime purpose of the JACC was noise "management/mitigation" and the main issue at the JACC meetings are noise impact discussions, the meetings are poorly attended by the relevant aviation industry representatives, there are no tangible outcomes, it is an exercise in the defense of an undefendable position.

Their was a formal JACC meeting held in January 2008, the next was what could be called an overview meeting in August 2008 where aspects of the proposed forthcoming master plan were presented then a formal JACC meeting in August* 2009, therefore, in effect some 19 months had passed between the formal meetings which theoretically should meet a minimum of 4 times a year.

The JACC is an illusion, a front, giving the appearance of dialogue between the noise impacted community and the aviation industry that provides no substantial outcome, a game of smoke and mirrors.

Prior to the FPPR review, discussions took place from the community to implement a continuous flight path noise Monitoring system at Jandakot to place limits on noise exposure, this approach was rejected, the preferred approach was to "manage" noise impact through the JACC and the impending FPPR outcomes this clearly has not worked.

Both the JACC and the FPPR are ineffective, the continuous flight path noise monitoring system approach needs to be reinstated to protect the communities amenity certainly the aviation industry will not initiate a resolution.

It is implausible to gain revenue from air traffic movements and not take responsibility for the noise impact generated and be regarded as property managers only.

AIRSERVICES AUSTRALIA

Movements at Australian Airports - Financial YTD

Data sourced from the Operational Data Warehouse

2010 Financial Year Totals

As at NOV 2009 5 MONTHS

Arrival Port Name	Arrival Port Code	Over 136 tonnes	Between 7 tonnes and 136 tonnes	Under 7 tonnes	Helicopter	Unknown Weight	Military	*Total*
ADELAIDE	YPAD	1,310	30,444	8,476	1,228		54	**41,512**
ALBURY	YMAY		3,676	7,038	498		72	**11,284**
ALICE SPRINGS	YBAS		3,442	5,894	350		58	**9,744**
ARCHERFIELD	YBAF		24	60,252	4,208		32	**64,516**
AVALON	YMAV	58	2,522	380	32		2	**2,994**
BANKSTOWN	YSBK		768	125,234	13,718		36	**139,756**
BRISBANE	YBBN	9,490	58,790	6,892	326		166	**75,664**
CAIRNS	YBCS	1,274	16,794	15,246	3,442		68	**36,824**
CAMBRIDGE	YCBG			4,494	490			**4,984**
CAMDEN	YSCN			15,022	488			**15,510**
CANBERRA	YSCB	140	18,516	13,696	476		938	**33,766**
COFFS HARBOUR	YCFS		3,376	5,418	2,026		92	**10,912**
DARWIN	YPDN	610	14,324	19,546	2,474		556	**37,510**
ESSENDON	YMEN		1,612	14,256	6,324		10	**22,202**
GOLD COAST	YBCG	970	13,828	29,328	10,736		72	**54,934**
HAMILTON ISLAND	YBHM		1,970	1,108	2,516		10	**5,604**
HOBART	YMHB		6,022	4,542	874		72	**11,510**
JANDAKOT	YPJT		64	127,250	12,302		18	**139,634**
LAUNCESTON	YMLT		4,328	3,202	126		36	**7,692**
MACKAY	YBMK		6,120	14,136	3,210	2	84	**23,552**
MAROOCHYDORE/SUNSHINE COAST	YBMC		3,312	10,134	21,300	2	96	**34,844**
MELBOURNE	YMML	17,048	63,428	206	4		168	**80,854**
MOORABBIN	YMMB		20	109,382	22,822		8	**132,232**
PARAFIELD	YPPF		116	91,054	9,564			**100,734**
PERTH	YPPH	8,188	37,882	2,876	502		58	**49,506**
ROCKHAMPTON	YBRK	52	8,088	9,124	1,094		518	**18,876**
SYDNEY	YSSY	30,568	86,816	3,116	2,056		216	**122,772**
TAMWORTH	YSTW		1,714	34,206	332		204	**36,456**
TOWNSVILLE	YBTL	20	10,926	10,464	552		946	**22,908**
Report Total		**69,728**	**398,922**	**751,972**	**124,070**	**4**	**4,590**	**1,349,286**

Report Notes:

1. Movements are the sum of Arrivals and Circuits multiplied by 2 ie (A + C) x 2
2. Arrival data is only recorded during hours of tower operation, therefore actual movements at non H24 locations may be higher than published.
3. Movements at each Port reflect movements at times local to that Port, ie. a conversion from UTC time has taken place on production of the report.
4. Data Source: Eurocat air traffic control system, Tower flight strips and Tower running sheets
5. Data is correct as at "Report run date". Changes to data after this time may occur as a series of checks and validations occur.
6. Airservices Australia takes no responsibility for the accuracy of the information contained in this Report and excludes all liability arising from any reliance placed upon it. All data is provided for informational purposes only and independent expert advice should be obtained before relying on such data.
7. Services for Hobart and Cambridge airports are provided by the one Air Traffic Services facility therefore when considering statistics for ATS purposes movements for both airports should be considered.

AIRSERVICES AUSTRALIA

Movements at Australian Airports - Cal YTD

Data sourced from the Operational Data Warehouse

2009 Calendar Year Totals

As at NOV 2009

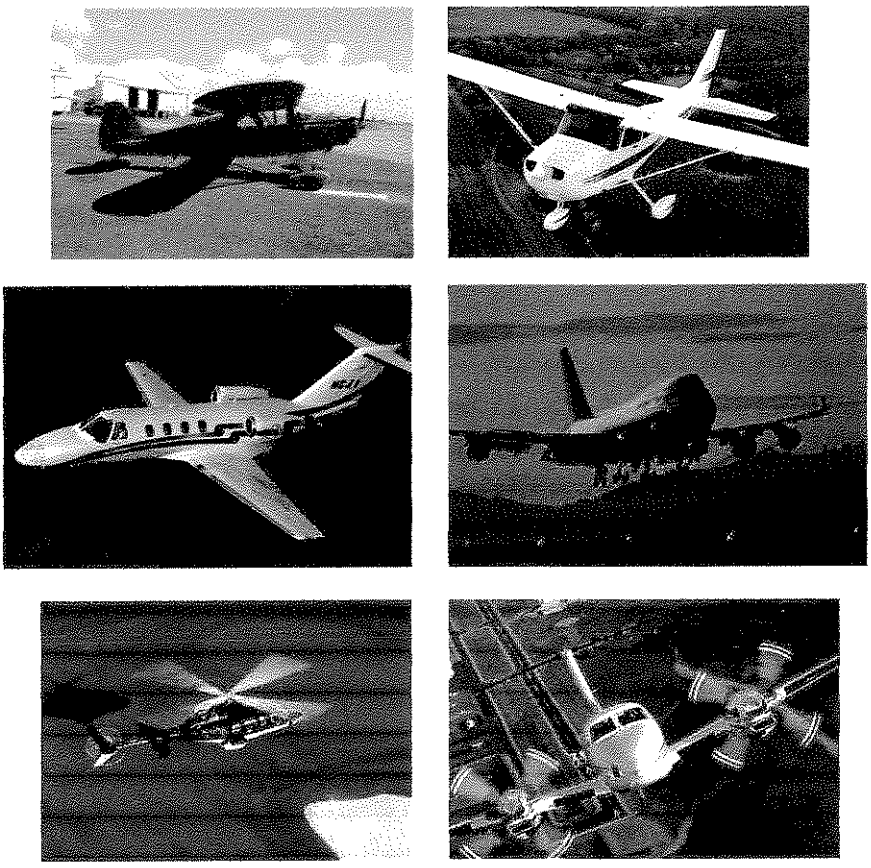
Arrival Port Name	Arrival Port Code	Over 136 tonnes	Between 7 tonnes and 136 tonnes	Under 7 tonnes	Helicopter	Unknown Weight	Military	*Total*
ADELAIDE	YPAD	2,808	66,656	19,322	2,842		170	**91,798**
ALBURY	YMAY		8,070	15,636	1,832		178	**25,716**
ALICE SPRINGS	YBAS		7,552	12,508	750		108	**20,918**
ARCHERFIELD	YBAF		44	116,422	6,090		98	**122,654**
AVALON	YMAV	140	5,560	1,082	62		74	**6,918**
BANKSTOWN	YSBK		1,820	294,520	29,840		68	**326,248**
BRISBANE	YBBN	20,392	127,930	15,070	780		356	**164,528**
CAIRNS	YBCS	2,470	36,638	31,868	7,494		194	**78,664**
CAMBRIDGE	YCBG			11,370	1,058			**12,428**
CAMDEN	YSCN		6	32,680	1,336		2	**34,024**
CANBERRA	YSCB	288	40,052	31,166	1,252	4	2,148	**74,910**
COFFS HARBOUR	YCFS		7,180	14,950	4,592		254	**26,976**
DARWIN	YPDN	1,232	30,144	41,064	6,134	80	1,364	**80,018**
ESSENDON	YMEN		3,536	32,964	13,128	0	128	**49,756**
GOLD COAST	YBCG	2,072	29,356	67,360	25,980		150	**124,918**
HAMILTON ISLAND	YBHM		3,902	1,732	4,040		18	**9,692**
HOBART	YMHB	4	13,400	10,498	2,514		162	**26,578**
JANDAKOT	YPJT		556	304,818	26,884	4	56	**332,318**
LAUNCESTON	YMLT		9,710	7,360	254	2	132	**17,458**
MACKAY	YBMK		13,094	27,880	6,470	2	144	**47,590**
MAROOCHYDORE/SUNSHINE COAST	YBMC		7,150	20,966	46,016	2	188	**74,322**
MELBOURNE	YMML	36,370	138,180	490	16		394	**175,450**
MOORABBIN	YMMB		66	247,504	45,120		14	**292,704**
PARAFIELD	YPPF		292	203,232	16,396			**219,920**
PERTH	YPPH	17,642	82,140	7,014	1,618		174	**108,588**
ROCKHAMPTON	YBRK	52	16,820	19,046	2,118		710	**38,746**
SYDNEY	YSSY	66,508	183,592	7,098	4,848		520	**262,566**
TAMWORTH	YSTW		3,758	76,520	922		494	**81,694**
TOWNSVILLE	YBTL	24	22,836	21,412	1,202		2,430	**47,904**
Report Total		**150,002**	**860,040**	**1,693,552**	**261,588**	**94**	**10,728**	**2,976,004**

Report Notes:

1. *Movements are the sum of Arrivals and Circuits multiplied by 2 ie (A + C) x 2*
2. Arrival data is only recorded during hours of tower operation, therefore actual movements at non H24 locations may be higher than published.
3. Movements at each Port reflect movements at times local to that Port, ie. a conversion from UTC time has taken place on production of the report.
4. Data Source: Eurocat air traffic control system, Tower flight strips and Tower running sheets
5. Data is correct as at "Report run date". Changes to data after this time may occur as a series of checks and validations occur.
6. Airservices Australia takes no responsibility for the accuracy of the information contained in this Report and excludes all liability arising from any reliance placed upon it. All data is provided for informational purposes only and independent expert advice should be obtained before relying on such data.
7. Services for Hobart and Cambridge airports are provided by the one Air Traffic Services facility therefore when considering statistics for ATS purposes movements for both airports should be considered.

AIRSERVICES AUSTRALIA

ENVIRONMENTAL PRINCIPLES AND PROCEDURES FOR MINIMISING THE IMPACT OF AIRCRAFT NOISE



Environment Branch
19 August 1997
(Revised 21 November 2002)

ENVIRONMENTAL PRINCIPLES AND PROCEDURES FOR MINIMISING THE IMPACT OF AIRCRAFT NOISE

PART A

FUNDAMENTAL PRINCIPLES

The following fundamental principles are to be used in environmental assessments (of proposals for new air routes and for changes to existing arrangements) and as the basis for selecting preferred noise abatement procedures.

Total Noise Dose

Principle 1: Noise abatement procedures should be optimized to achieve the lowest possible overall impact on the community.

Spatial Distribution of the Noise Dose

Principle 2: Noise should be concentrated as much as possible over non-residential areas.

Principle 3: Noise exposure should be fairly shared whenever possible.

Principle 4: No suburb, group or individual can demand or expect to be exempt from aircraft noise exposure.

Upper and Lower Limits of Noise Exposure

Principle 5: Noise is not considered significant when selecting noise preferred options if exposure amounts to less than 40 Leq $_{24}$ and there are less than 50 overflights per day.

Principle 6: No residential area should receive more than 60 Leq $_{24}$, i.e., no residential area should receive more noise exposure than that which is considered "unacceptable" for residential housing under Australian Standard AS2021.

Principle 7: There should be a current agreed aircraft noise exposure level above which no person should be exposed, and agreement that this level should be progressively reduced. The goal should be 95 dB(A).

Timing / Historical issues

Principle 8: When comparing options, operations that are conducted at night or on weekends should be treated as being more sensitive than those which occur during the daytime or on weekdays.

Principle 9: Both short-term and long-term noise exposure should be taken into account in deciding between options.

Principle 10: Options which allow for a gradual change from the current to planned procedures should be given preference.

Principle 11: In deciding between mutually exclusive, but otherwise equivalent options, involving

(i) the overflight of an area which has previously been exposed to aircraft noise for a considerable period of time (and which a large proportion of residents would therefore have been aware of the noise before moving in); or

(ii) a newly exposed area,

option (i) should be chosen.

Reciprocal Flightpaths

Principle 12: To the extent practicable, residential areas overflown by aircraft arriving on a particular runway should not also be overflown by aircraft departing from the runway in the reciprocal direction.

PART B

STRATEGY FOR WORKING THROUGH A HIERARCHICAL SET OF ENVIRONMENTAL STANDARDS

The following strategy for working through a hierarchical set of environmental standards shall be followed so that the highest order standard is met 'as far as is practicable'.

To the extent that higher order principles have been satisfied and there remains a need to decide on operational arrangements, the following operational standards and procedures are to be considered. These are presented as a hierarchical set, the most preferred environmental condition being presented first. **In all cases, aviation safety, including system safety through simplified operating arrangements, will be given priority over noise abatement considerations.** However, assuming safety conditions have been satisfied, the sole test for moving to a lower level standard is that the higher standard is "not operationally practicable". If lower rather than higher standards are chosen, then well documented reasons for the decision are required. The noise standard chosen should be achievable for at least 90% of movements.

Assessment Process

Standards have been developed for five operational categories:

A. Jet aircraft operations
B. Propeller aircraft entering/departing terminal area
C. Helicopter operations
D. Flights within terminal area
E. Airwork activities

For each category, the highest practicable standard is to be selected.

A. JET AIRCRAFT

1. No overflight of residential areas

Standard departure and arrival procedures should be designed so that jet aircraft do not overfly residential areas. Radar headings and procedural tracks (in any form) should be assigned to ensure jets do not overfly residential areas.

If this cannot be achieved, then;

2. *No overflight of residential areas below 5,000 ft AGL.*

A height of 5,000 ft AGL is considered to be the minimum acceptable altitude for the avoidance of significant noise impact on residential populations by jet aircraft. (For reference, the noise at ground level from a climbing B747 at 5,000 ft is about 75 dB(A)s maximum).

In all instances standard departure and arrival procedures should be designed to ensure that jet aircraft do not overfly residential areas at altitudes below 5,000 ft AGL. Radar headings and procedural tracks (in any form) that are assigned to jet aircraft should whenever possible ensure the aircraft do not overfly residential areas at altitudes below 5,000 ft AGL.

If this cannot be achieved, then;

3. *Minimisation of incidence of jet aircraft flying below 5,000 ft AGL.*

Where jet aircraft flight below 5,000 ft AGL is unavoidable, procedures are to be designed with due consideration for the preferences of the affected community, as determined through a process of consultation with community representatives, in determining which areas will receive greater noise exposure where there are mutually exclusive options for the flight tracks.

The occurrences where departing or arriving aircraft are required to maintain level flight, when below 5,000 ft AGL, are to be kept to a minimum.

If this cannot be achieved, then;

4. *Minimisation of noise impact on residential areas by Jet Aircraft below 5,000 ft AGL.*

In choosing climb and descent procedures into and out of airports, options that produce the minimum impact on the community which is overflown are to be selected (within the operational capabilities of the aircraft in terms of performance and safety).

B. NON-JET AIRCRAFT ENTERING/DEPARTING TERMINAL AREA

1. *No overflight of residential areas*

Standard departure and arrival procedures should be designed so that these aircraft do not overfly residential areas. Radar headings and procedural tracks (in any form) should be assigned to ensure they do not overfly residential areas.

If this cannot be achieved, then;

2. *No overflight of residential areas below 3,000 ft AGL.*

A height of 3,000 ft AGL is considered to be the minimum acceptable altitude for the avoidance of significant noise impact on residential populations by non-jet aircraft with a maximum take-off weight greater than 5700kg. (For reference, the noise at ground level from a climbing SAAB-340 at 3,000 ft AGL is about 70 dB(A)s maximum). In the case of multi-engine piston aircraft with a maximum take-off weight equal to or less than 5700kg a height of 1,500 ft AGL is to be considered the minimum acceptable altitude.

In all instances, standard departure and arrival procedures should be designed to ensure that non-jet aircraft do not overfly residential areas at altitudes below 3,000 ft AGL (or 1,500 ft AGL for multi-engine piston aircraft equal to or less than 5700kg). Radar headings and procedural tracks (in any form) that are assigned to non-jet aircraft should whenever possible ensure the aircraft do not overfly built up areas at altitudes below 3,000 ft AGL (or 1,500 ft AGL for multi-engine piston aircraft equal to or less than 5700kg).

If this cannot be achieved, then;

3. *Minimisation of Incidence of Non-jet Aircraft flying below 3,000ft AGL.*

Where aircraft flight below 3,000 ft AGL (or 1,500 ft AGL for multi-engine piston aircraft equal to or less than 5700kg) is unavoidable, procedures are to be designed with due consideration for the preferences of the affected community, as determined through a process of consultation with community representatives, in determining which areas will receive greater noise exposure where there are mutually exclusive options for the flight tracks.

The occurrences where departing or arriving aircraft are required to maintain level flight, when below 3,000 ft AGL (or 1,500 ft AGL for multi-engine piston aircraft equal to or less than 5700kg), are to be kept to a minimum.

If this cannot be achieved, then;

4. *Minimisation of Noise Impact on residential areas by Non-jet Aircraft below 3,000 ft AGL.*

In choosing climb and descent procedures into and out of airports, those options that produce the minimal impact on the community which is overflown are to be selected (within the operational capabilities of the aircraft in terms of performance and safety).

C. HELICOPTER OPERATIONS

1. No overflight of residential areas

Standard departure and arrival procedures should be designed so that helicopters do not overfly residential areas. Radar headings and procedural tracks should be assigned to ensure helicopters do not overfly residential areas.

If this cannot be achieved, then;

2. No overflight of residential areas below 1,500 ft AGL.

A height of 1,500 ft AGL is considered to be the minimum acceptable altitude for the avoidance of significant noise impact on residential populations by twin-engine helicopters (For reference the noise at ground level from an overflying Bell 412 at 1,500 ft is about 70 dB(A) maximum). In the case of a single-engine helicopter a height of 1,000 ft is to be considered the minimum acceptable altitude. (For reference the noise at ground level from an overflying Bell 206L at 1,000 ft is about 70 dB(A) maximum).

In all instances, standard departure and arrival procedures should be designed to ensure that helicopters do not overfly residential areas at altitudes below 1,500 ft for twin-engine helicopters (or 1,000 ft AGL for single-engine helicopter). Radar headings and procedural tracks that are assigned to helicopters should whenever possible ensure that the aircraft do not overfly built up areas at altitudes below 1,500 ft AGL for twin-engine helicopters (or 1,000 ft AGL for single-engine helicopters).

If this cannot be achieved, then;

3. Minimisation of Incidence of Helicopters flying below 1,500ft AGL

Where twin-engine helicopter flight below 1,500 ft AGL (or 1,000 ft for single-engine helicopters) is unavoidable, procedures are to be designed with due consideration for the preferences of the affected community, as determined through a process of consultation with community representatives, in determining which areas will receive noise exposure where there are mutually exclusive options for the flight tracks.

The occurrences where departing or arriving helicopters are required to maintain level flight, when below 1,500 ft AGL for twin-engine helicopters or below 1,000 ft for single-engine helicopters, are to be kept to a minimum.

4. *Minimisation of Noise Impact on residential areas by Helicopters below 1,500 ft AGL*

In choosing climb and descent procedures into and out of airports, those options that produce the minimal impact on the community which is overflown are to be selected (within the operational capabilities of the aircraft in terms of performance and safety).

In order to reduce the noise impact on residential areas climb and descent procedures should be developed such that twin-engine helicopters maintain a Closest Point of Approach (CPA) distance of at least 1,000 ft (305 m) on take-off and at least 2,500 ft (760 m) on approach from residential or other noise sensitive locations. In the case of single-engine helicopters the recommended CPA is 1,000 ft (305 m) for both take-off and approach.

Where helicopters are flying at a designated altitude within a helicopter access lane then CPA distance to residential areas should be 1,500 ft (460 m) for twin-engine helicopters. In the case of single-engine helicopters the recommended CPA is 1,000 ft (305 m).

The speed at which a helicopter is flown should be such that these CPA distances can be maintained (within the operational capabilities of the aircraft in terms of performance and safety). It is recommended that speed be kept to 100 knots or less.

Where overflight of residential areas cannot be avoided, and the overflight altitudes and CPA distances are less than that considered to be the minimum required to minimise the noise impact on the residential areas, consideration should be given to constraining helicopter operations (with the exception of emergency operations) to between 7am and 10pm on weekdays and between 8am and 10pm on weekends and public holidays.

5. *Minimisation of Noise Impact on residential areas by Hovering/Circling Helicopters*

Residential and other noise sensitive areas should be avoided by helicopters involved in hovering or circling operations. A minimum CPA of 2,000 ft (610m) to the nearest residential or noise sensitive area should be maintained

Where overflight of these areas cannot be avoided, a minimum altitude of 2,000 ft AGL should be maintained. Helicopter hover/circling operations in these locations should have for maximum duration of 1 minute. ***(As a guide, a helicopter hovering with a LAmax noise level of 70dB(A) would exceed the 40 Leq_{24} principle after approximately 80 seconds!).***

The noise exposure is generally higher on the tail rotor side of the helicopter, therefore the tail rotor side should be kept away from the residential and other noise sensitive areas during hover/circling. Hovering turns should be made with the tail of the helicopter away from the noise sensitive area if practical.

The hover/circling operation should be conducted downwind of any residential or noise sensitive areas if practical.

6. Implement Fly Neighbourly Procedures.

It is recommended that helicopter operators adopt "Fly Neighbourly" piloting techniques such as those set out in the Helicopter Association International (HAI) "Fly Neighborly Guide". In the Australian context these techniques would include:

- Avoid noise sensitive areas
  - Follow high ambient noise routes (Highways, etc)
  - Follow unpopulated routes (Waterways, etc)
- Near Noise sensitive areas:
  - Maintain a flyover altitude of 1,500ft for twin engine helicopters (1,000ft for single engine helicopters) where possible.
  - Maintain a hover/circling altitude of 2,000ft where possible
  - Reduce speed
  - Observe low noise speed/descent settings
  - Avoid sharp manoeuvres
  - Vary your route - Repetition is annoying
  - Use high take-off/descent profiles.

D. FLIGHTS WITHIN TERMINAL AREA

Circuit Training

1. Minimum height for level flight over residential areas.

A minimum circuit height of 1,000ft AGL is to apply for fixed wing aircraft involved in circuit training. In the case of circuit training for helicopters, a minimum height of 800ft AGL is to apply.

2. Limit the number of circuits and the number of aircraft permitted to overfly identified areas.

In conjunction with operators, operations are to be designed to spread noise over different areas where practical options are available.

3. Limit the hours that circuit training is permitted.

At locations where a noise problem exists circuit training may be limited. During week days, it is proposed that circuit training be limited to 7:00 am - 8:00 pm except for 1 night per week where circuits to may be conducted to 10:00 pm. At weekends and on declared public holidays these operations would be contained within the period 9:00 am - 8:00 pm. Consideration may

need to be given to extending the times beyond those proposed to account for daylight saving periods.

The actual times for circuit operations should be determined through consultation with community representatives, industry representatives and airport operators.

E. AIRWORK AIRCRAFT

1. Built-up Areas

Operators are to avoid residential areas.

If this cannot be achieved, then;

2. Sensitive Areas

Operators are to avoid areas identified as particularly sensitive (with advice from representative community groups).

3. Minimum Limits

If it is not practicable to avoid operations over residential areas, operators are to conduct their operations above 3,000ft AGL for propeller driven aircraft or helicopters and above 5,000ft AGL for jet aircraft.

4. Practice Instrument Approaches

Aircraft engaged in practice instrument approach training are permitted, irrespective of the runway, provided there are no more than 4 approaches per hour between 7:00 am - 8:00 pm on weekdays and between 9:00am - 8:00pm on weekends and on declared public holidays. The actual number of approaches per hour should be determined through consultation with community representatives, industry representatives and airport operators.

5. Community Input

If heights below 3,000 ft AGL (propeller aircraft and helicopters) and 5,000 ft AGL (jet aircraft) are required for airwork on a continuing basis, the number of operations per week permitted is to be the subject of agreement with community representatives.

PART C

A SCREENING PROCESS USING QUANTIFICATION OF IMPACTS TO DETERMINE WHETHER PROPOSED NEW ARRANGEMENTS REQUIRE DETAILED ENVIRONMENTAL ASSESSMENT.

This noise assessment procedure has been adapted from the Noise Screening Procedure for Certain Air Traffic Actions Above 3,000 Feet AGL developed by the US Federal Aviation Administration and modified to reflect Australian requirements. The basis for the screening process is to identify whether a proposed air traffic action will result in a 3 decibel increase in aircraft noise exposure to underlying residential areas. It is proposed that the use of a 3 decibel change criterion is acceptable as long as the noise level averaged over 24 hours (Leq_{24}) of aircraft does not exceed 45 dB(A) for urban residential areas and 40 dB(A) for rural residential areas.

The use of the Noise Screening Procedure proposed below can be linked with the hierarchy of principles mentioned above to provide an adequate, and defensible, initial assessment process for changes to aircraft flight paths in Australia.

Environmental Assessment of Changes to Flight Tracks

The issues that must be considered with regard to proposed changes to flight tracks are:

- The number and type of aircraft,
- Time of operations (day or night),
- Proximity to existing flight tracks, and height of the track over a residential area.

The attached flow chart outlines the process to be undertaken to determine whether any change is likely to be environmentally significant and therefore require a more formal environmental assessment.

Assessment of Impact of New/Modified Flight Tracks

This refers to any new or modified arrival/departure procedures and any new or modified airways (See Figure 1).

A. If the change is not over a residential area (e.g. over water or uninhabited areas, although wilderness areas will be given special consideration) then the change conforms with the highest environmental principle and no further assessment is required.

B. If the track is over a residential area then the next principle applies (i.e. Jet tracks to be 5000 feet AGL or above over residential areas). If the track is below 5000 feet AGL then a more formal environmental assessment is required. The procedure for this assessment is considered later.

C. If the track is above 5000 feet AGL then it must be considered in terms of whether or not the proposed change will produce noise over a new residential area and whether there will be a 3 decibel Leq change in the aircraft noise exposure of the underlying residential area.

Procedure

The following steps are to be used to determine whether a 3 decibel Leq increase in noise exposure will occur:

Step 1: *Does the proposed action introduce noise exposure from large jets (>34,000kg) which may require further assessment of noise impacts?*

Use Table 1 data to identify the conditions required for the possible exceedance of a 40 dB(A) Leq_{24} level of aircraft noise (see Note). If the conditions in Table 1 are met then the assessment proceeds to Step 2. While the conditions set out in Table 1 may indicate further assessment is not necessary, there may be situations involving noise sensitive areas that will require a full assessment.

Step 2: *Does the proposed action introduce large jets over residential areas which are not routinely exposed to jet aircraft noise?*

Use Table 2 to check the lateral position of the proposed new or moved track in relation to an existing track and determine whether the noise exposure should be regarded as new, or as an increase to existing noise exposure.

The lateral spread of noise from aircraft on a track is represented by a band located symmetrically on the ground below the nominal track. This is a consequence of both the propagation of sound from the aircraft, and the normal lateral dispersion of aircraft which are following a nominally identical flight path. The width of the band either side of the track

depends on the height above ground of the aircraft: the higher the aircraft, the wider the spread of its noise. Outside the band, the aircraft noise exposure is not significant. The width of the band is referred to as the "lateral minimum".

If a proposed new or moved track lies beyond the lateral minimum of an existing track as given in Table 2, the community underlying the new or moved track is considered to be exposed to aircraft noise for the first time. Regardless of altitude, any new track lying at least 3 nautical miles from an existing track is considered to expose the underlying community to new aircraft noise. In these cases the assessment proceeds to Step 4.

If Table 2 shows that the new or moved track lies within the lateral minimum of an existing track, the residential area underlying the new or moved track is not considered to be newly exposed to jet aircraft noise, but the proposed action may increase the existing aircraft noise exposure. Proceed to Step 3 to determine whether a 3 decibel change will result.

Step 3: *Will a change to altitude or numbers of jet aircraft on an existing track increase the aircraft noise exposure by 3 decibels?*

Use Table 3 to determine if the change in aircraft noise exposure is at least 3 decibels. If it does, the assessment proceeds to Step 4.

Note that if a new track and an existing track are to co-exist, and the lateral minima of the two tracks overlap, then for the purpose of use of Table 3, the numbers of aircraft on the two tracks are cumulative.

Step 4: *Will the proposed action bring the aircraft noise exposure to 40 dB(A) Leq_{24} in rural residential areas, or 45 Leq_{24} in other areas?*

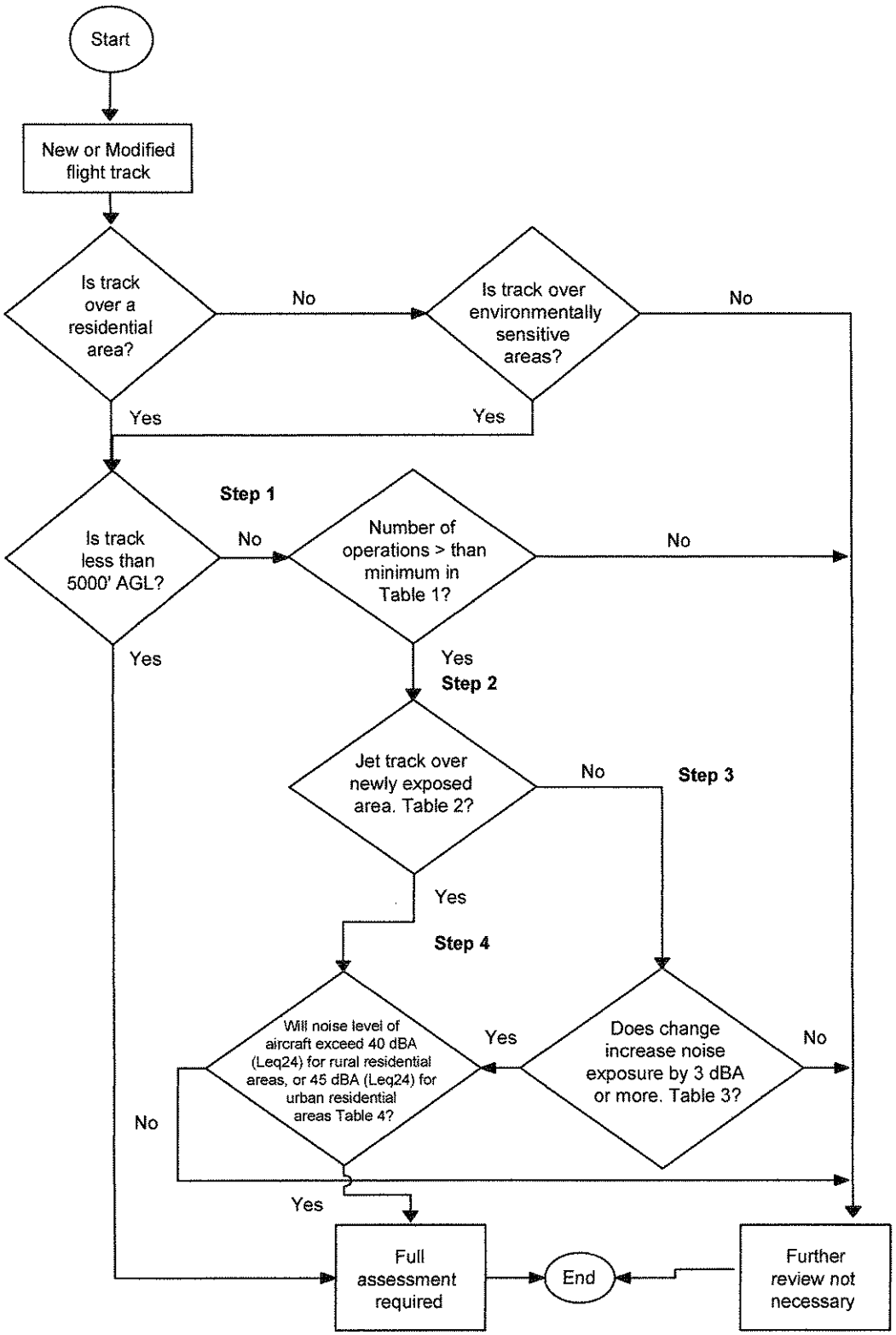
Use Table 4 to decide whether the numbers of jet aircraft will cause these noise criteria to be exceeded.

If the screening procedure (Steps 1 to 4) leads to "Full Assessment Required" on the flow chart, the change requires a more detailed evaluation of the environmental impact to be made.

If the screening procedure leads to the "Further Review Not Necessary" box on the flow chart, the change is deemed not significant, i.e. there is less than a 3 decibel change and/or the aircraft noise exposure will not exceed the criteria (40 and 45 dB(A) Leq_{24} for rural residential and urban residential areas, respectively).

Note: The datum level for the calculation of aircraft noise exposure is the Boeing 747. The use of the B747 reflects the aircraft type producing the greatest noise impact and ensures that the noise exposure is not undervalued.

Figure 1 Flow Chart for Noise Impact Assessment for New or Modified Jet Aircraft Tracks



APPENDIX 1

STEP 1

Does the proposed action introduce noise exposure from large jet aircraft (>34,000Kg) which may require further review of noise impacts?

Application

The procedure applies to new or modified aircraft flight tracks which meet the following conditions:

* involves airports with more than 1,500 large jet aircraft (>34,000kg) operations per year; and
* represents a permanent change or planned test; and
* concerns changes to departure/arrival routes or tracks, used by large jet aircraft, between 5,000 and 18,000 feet AGL

Process

(a) Refer to Table 1.

(b) If the estimated number of daily operations on the affected track are greater than the minimum, the answer is **YES** and proceed to **STEP 2.**

(c) If the estimated number of daily operations on the affected track are less than the tabulated values, the answer is **NO** and further review is not necessary except in special situations.

Table 1:

Aircraft Altitude (feet AGL)	*Number of Daily Operations*	
	by large Jet aircraft (>34,000kg) on the Affected Route See Notes (1) and (2) below	
	Departures	*Arrivals*
5000	2	20
6000	3	30
7000	5	40
8000	6	50
9000	8	65
10000	12	80
11000	15	100
12000	20	120
13000	25	140
14000	30	160
15000	35	180
16000	45	200
17000	55	230
18000	65	260

(1) Chapter 2 jet aircraft (e.g. B727, FK28) and large International jet aircraft (Chapter 2 and Chapter 3) shall be counted in full. Count 50% of all other Chapter 3 jet aircraft.

(2) Each nighttime (1900 - 0700) flight counts as four operations.

STEP 2

Does this action introduce large jet aircraft over residential areas which are not routinely exposed to jet aircraft noise?

Process

(a) Refer to Table 2.

(b) If the location of the new track is greater than 3 nautical miles from the nearest existing track, the answer is **YES** and proceed to **STEP 4.**

(c) If the new or moved track is within 3 nautical miles of the existing track minimum but at a distance such that the noise could be regarded as new, as determined by reference to Table 2, the answer is **YES.** Proceed to **STEP 4** to determine whether the action will cause aircraft noise exposure to exceed 40 dB(A) Leq_{24} in rural residential areas or 45 dB(A) Leq_{24} in urban residential areas.

(d) If the new or moved track lies within the lateral minimum distance from the existing route, as determined by reference to Table 2, the answer is **NO** and proceed to **STEP 3** to determine whether the action will cause a 3 decibel increase in existing aircraft noise exposure.

Table 2:

Aircraft Altitude (feet AGL)	*No Change Lateral Minimum (nautical miles))*
5000 — 6000	1
6000 — 12000	2
above 12000	3

STEP 3

Will a change to altitude or numbers of jet aircraft on an existing track increase the aircraft noise exposure by 3 decibels?

Process

(a) Refer to Table 3.

(b) If Table 3 indicates the change in aircraft noise exposure is 3 or more decibels, the assessment then proceeds to **Step 4.**

(c) If Table 3 indicates that the change in aircraft noise exposure is less than 3 decibels, no further assessment is necessary.

Table 3: Change in Aircraft Noise Exposure (decibels)

Change in Altitude of Jet Aircraft (%)	Change in Number of daily Operations of Jet Aircraft (%)																				
	-90	**-70**	**-50**	**-30**	**-10**	**0**	**10**	**30**	**50**	**70**	**90**	**100**	**110**	**130**	**150**	**170**	**190**	**210**	**230**	**250**	**260**
10	-11	-6	-4	-3	-1	-1	-1	0	1	1	2	2	2	3	3	3	4	4	4	4	5
5	-11	-6	-4	-2	-1	-1	0	1	1	2	2	2	3	3	3	4	4	4	5	5	5
0	-10	-5	-3	-2	0	0	0	1	2	2	3	3	3	4	4	4	5	5	5	5	6
-5	-9	-5	-3	-1	0	1	1	2	2	3	3	4	4	4	5	5	5	6	6	6	6
-10	-9	-4	-2	0	1	1	2	2	3	3	4	4	4	5	5	5	6	6	6	7	7
-15	-8	-3	-1	0	1	2	2	3	4	4	5	5	5	5	6	6	6	7	7	7	7
-20	-8	-3	-1	1	2	2	3	4	4	5	5	5	6	6	7	7	7	7	8	8	8
-25	-7	-2	0	2	3	3	4	4	5	6	6	6	6	7	7	7	8	8	8	9	9
-30	-6	-1	1	2	3	4	4	5	6	6	7	7	7	7	8	8	8	9	9	9	9
-35	-5	-1	2	3	4	5	5	6	6	7	7	8	8	8	9	9	9	10	10	10	10
-40	-4	0	3	4	5	6	6	7	7	8	8	9	9	9	10	10	10	10	11	11	11
-45	-4	1	3	5	6	6	7	8	8	9	9	9	10	10	10	11	11	11	12	12	12
-50	-3	2	4	6	7	8	8	9	9	10	10	11	11	11	11	12	12	12	13	13	13
-55	-1	3	6	7	8	9	9	10	10	11	11	12	12	12	13	13	13	14	14	14	14
-60	0	5	7	8	9	10	10	11	12	12	13	13	13	14	14	14	15	15	15	15	25
-65	1	6	8	10	11	11	12	12	13	14	14	14	16	15	15	16	18	16	17	17	27
-70	3	8	10	11	13	13	13	14	15	15	16	16	16	17	17	17	18	18	18	18	29
-75	5	10	12	13	15	15	15	16	17	17	17	18	18	19	19	19	20	20	20	20	21
-80	7	12	14	16	17	17	18	19	19	20	20	20	21	21	22	22	22	22	23	23	23

Note that if a new track and an existing track are to co-exist, and the lateral minima of the two tracks overlap, then for the purpose of use of Table 3, the numbers of aircraft on the two tracks are cumulative.

STEP 4

Considering the type of residential community, will the noise (Leq_{24}) from large jet aircraft reach 40 dB(A) in rural residential areas, or 45 dB(A) in other areas?

Process

(a) Refer to Table 4.

(b) If the estimated number of daily operations on the affected track is greater than the minimum then the answer is **YES** and a detailed environmental assessment is required.

(c) If the estimated number of daily operations on the affected track is less than the minimum then the answer is **NO** and further noise assessment is not necessary except in special situations.

Table 4: Minimum Number of Daily Operations by Large Jet Aircraft (34,000Kg) on the Affected Route.

Aircraft Altitude (feet AGL)	Departures Residential Community (see below)		Arrivals Residential Community (see below)	
	Rural	*Urban*	*Rural*	*Urban*
5000	2	6	20	60
6000	3	10	30	90
7000	5	15	40	120
8000	6	20	50	150
9000	8	25	65	200
10000	12	35	80	240
11000	15	45	100	300
12000	20	60	120	360
13000	25	75	140	420
14000	30	90	160	480
15000	35	110	180	>500
16000	45	130	200	>500
17000	55	160	230	>500
18000	65	200	260	>500

(1) Chapter 2 jet aircraft (e.g. B727, FK28) and large International jet aircraft (Chapter 2 and Chapter 3) shall be counted in full. Count 50% of all other Chapter 3 jet aircraft.

(2) Each nighttime (1900 — 0700) flight counts as four operations.

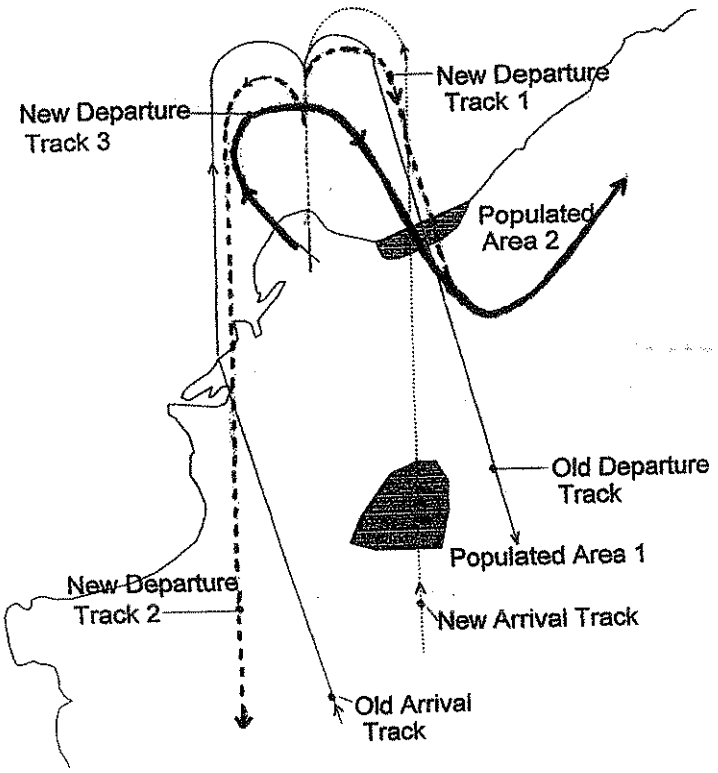
(3) If the composition of an area is not known, classify the area as rural residential.

Examples of new tracks subjected to proposed assessment procedure

Scenario

The airport proposing the changes has more than 1,500 large jet aircraft (>34,000kg) operations a year. The proposed changes are to be permanent and the changes involve tracks used by large jet aircraft between 5,000 and 18,000 feet AGL (See Figure 2).

Figure 2. Diagram representing existing and proposed tracks.



Departure Tracks

Proposed New Track 1.

This track is a new track over a residential area at 5000 feet AGL. Therefore it requires assessment using the noise screening process to determine whether the change is likely to produce a 3 decibel increase in aircraft noise exposure on the underlying community.

Step 1. The number of jet aircraft movements on this track is estimated to be 27 per day. As the number of jet aircraft exceeds the number of operations in Table 1 at 5000 feet AGL, the assessment proceeds to Step 2.

Step 2. The proposed new track lies outside the No Change lateral minimum at 5000 feet AGL, i.e. beyond 1 nautical mile of a pre-existing departure track, therefore the assessment proceeds to Step 4.

Step 4. The estimated number of jet aircraft departures exceeds the number set out in Table 4. As the proposed change is assessed as being likely to result in a 3 decibel increase in exposure from aircraft noise on the underlying community, further assessment to determine the environmental significance of the proposed change is required.

Proposed New Track 2.

This is a new departure track , however, it will not be over a residential area or a wilderness area, therefore no further assessment is required.

Proposed New Track 3.

This track is a new track that passes over a residential area at 6000 feet AGL. Therefore it requires assessment using the noise screening process to determine whether the change is likely to produce a 3 decibel increase in aircraft noise exposure on the underlying community.

Step 1. The number of jet aircraft movements on this track is estimated to be 5 per day. As the number of jet aircraft exceeds the number of operations in Table 1 at 5000 feet AGL, the assessment proceeds to Step 2.

Step 2. The new track lies within the No Change lateral minimum of the existing route closest to the community therefore the assessment proceeds to Step 3.

Step 3. The existing track has 29 jet movements. The new track will have 5 jet movements i.e. an 83% decrease, therefore Table 3 indicates that the change in aircraft noise exposure is less than a 3 decibel increase. This indicates that no further assessment is required.

Arrival Tracks

Proposed New Track 1.

The track will pass over two residential areas, one approximately 25 nautical miles from the airport and another approximately 10 nautical miles from the airport. The number of jet aircraft using the track daily is 46.

Residential area 1.

Step 1. The aircraft will be at approximately 7500 feet AGL over the first populated area. Table 1 indicates that the acceptable number of aircraft at this level is approximately 45. Therefore proceed to Step 2.

Step 2. The new track is outside the no change lateral minimum therefore proceed to Step 4.

Step 4. As the area is urban, Table 4 indicates 130 jet arrivals would be required to increase aircraft noise exposure by 3 decibels. This track has 46 arrivals, therefore no further assessment is required.

Residential area 2.

Step 1 The aircraft will be at approximately 5000 feet AGL over the second populated area. Table 1 indicates that the required number of arrivals to increase noise exposure by 3 decibels is 20, therefore proceed to Step 2.

Step 2. Table 2 indicates that, as the new track is within 1 nautical mile of a pre-existing track, it is within the no change lateral minimum, therefore proceed to Step 3.

Step 3. Table three is used to assess the impact of the increase or decrease in traffic. The new track will introduce 46 arrivals, and, as there will be a coexisting departure track with 5 departures, the total number of jet aircraft overflights will be 51. Table 3 indicates that this increase will produce an increase in noise exposure greater than 3 decibels, therefore further assessment to determine the environmental significance of the proposed change will be required.