ATTACHMENT A

NOISE AND FLIGHT PATH MONITORING SYSTEM
PERTH QUARTERLY REPORT
JULY - SEPTEMBER 2009

AIRSERVICES AUSTRALIA

NOISE AND FLIGHT PATH MONITORING SYSTEM

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Foreword

Airservices Australia has established a Noise and Flight Path Monitoring System (NFPMS) at Australia's major airports. Operated from a single control centre, the system monitors aircraft operations and their environmental effects at airports across the Australian continent.

This report provides a brief description of the system and the data it collects and processes. It also contains a summary of data collected in Perth over the third quarter 2009 by the NFPMS.

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FIGURES AND TABLES

GLOSSARY OF TERMS

A:	Arrivals
AA:	Airservices Australia
CNE:	Correlated noise events - noise events which are correlated with aircraft movements
CNE_{all}:	All correlated noise events
CNE_{70}:	Only correlated noise events equal to or greater than 70 dB(A)
D:	Departures
H:	Helicopters
I:	Indeterminate
JET:	Jet aircraft
LEQ:	Time average A-weighted sound pressure level
Movement:	An aircraft operation, such as a take-off or landing
N70:	Average daily number of correlated noise events equal to or greater than 70 dB(A)
N80:	Average daily number of correlated noise events equal to or greater than 80 dB(A)
N90:	Average daily number of correlated noise events equal to or greater than 90 dB(A)
NFPMS:	Noise and Flight Path Monitoring System

NMT: Noise Monitoring Terminal

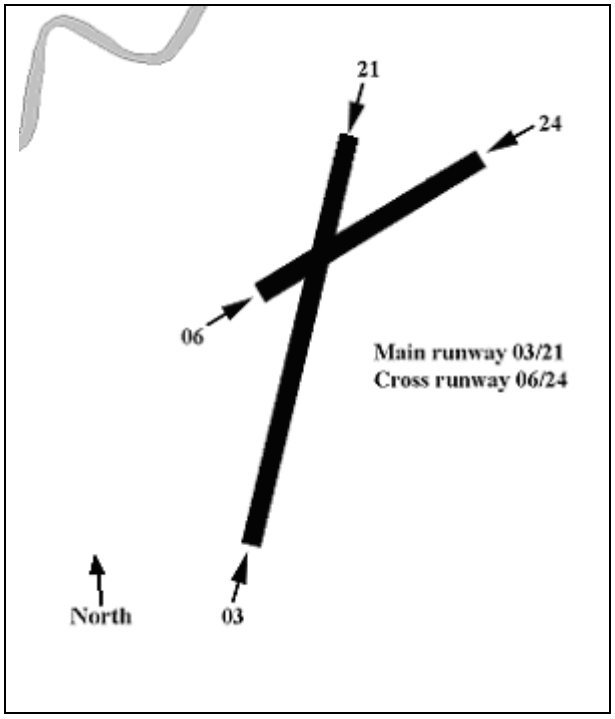
Noise Event: A noise exceeding the threshold sound pressure level for longer than the threshold duration

NON-JET: Non-jet aircraft

RUNWAY:

Runway on which the aircraft operates.

The runways at Perth Airport are numbered 03/21 (the main runway) and 06/24 (the cross runway).



T: Total

TAAATS: The Australian Advanced Air Traffic System

TYPE: Aircraft type

1. INTRODUCTION

Under its environmental responsibilities, Airservices Australia (AA) has established a Noise and Flight Path Monitoring System (NFPMS) at Australia's major airports. An overview of the NFPMS is shown in Appendix A. A map displaying all noise and flight path monitoring locations in Australia is shown in Figure 1.

This report is a summary of data collected by the Perth segment of the system over the third quarter (July to September) 2009.

Figure 1: Noise and flight path monitoring locations in Australia

2. NMT LOCATIONS AND NOISE DATA SUMMARIES

The Perth component of the NFPMS has five permanently installed Noise Monitoring Terminals (NMTs) which are strategically located around Perth Airport as shown in Figure 2 and listed in Table 1. In addition to the permanent NMTs, there are portable NMTs which may be connected to the system for measuring aircraft noise data at temporary locations, if required by the Airport Noise Management Consultative Committee.

Figure 2: Locations of NMTs around Perth Airport.

The A-weighted average noise exposure levels (LAeq) for the current and preceding 4 quarters at each NMT are contained in Table 1, the values for the night period (23:00 to 6:00 each day) are given in brackets. These noise levels encompass the whole environment (including aircraft)

as measured at each NMT. Also included in Table 1 are the number of correlated noise events (CNE), and the N70, N80 and N90 values for each NMT during the quarter. N70 is calculated by dividing the total number of CNE equal to or greater than 70 dB(A) detected during the quarter by the number of days in the quarter that the NMT is in operation (Op Days). For N80 and N90, the CNE noise thresholds are 80 dB(A) and 90 dBA respectively.

Appendix B includes graphs showing the daily value of N70 at each NMT throughout the quarter, and the distribution of N70 values. In some cases an NMT may suffer a hardware outage, for example during routine maintenance. The caption under each graph details such outages for each NMT during the report cycle.

Table 1: Location and noise parameters for each permanent NMT about Perth Airport for the third quarter of 2009 and previous four quarters.

NMT LOCATION (NMT NUMBER)	NOISE PARAMETERS	09Q3	09Q2	09Q1	08Q4	08Q3
Gibbs St Primary School Cannington (NMT 1)	**LAeq 24hr (LAeq night), dBA**	59.6 (54.9)	58.9 (53.5)	58.5 (57.4)	60.0 (55.9)	60.0 (54.8)
	Days	91.9	91.0	89.5	89.3	86.4
	CNE 24hr (CNE night)	6,191 (970)	5,121 (758)	6,687 (1,597)	6,962 (1,148)	4,279 (576)
	CNE_{70}	4,789	3.629	5,256	5,703	3,101
	N70	52.1	39.9	58.7	63.9	35.9
	N80	1.1	0.7	0.8	2.9	2.2
	N90	0.1	0.1	0.1	0.1	0.1
Queens Park Primary School Queens Park (NMT 2)	**LAeq 24hr (LAeq night), dBA**	59.3 (57.2)	58.6 (56.3)	58.4 (57.7)	59.1 (57.4)	59.4 (56.8)
	Days	92.0	91.0	79.3	91.8	92.0
	CNE 24hr (CNE night)	9,989 (1,506)	9,692 (1,272)	8,477 (1,745)	9,150 (1,372)	8,618 (959)
	CNE_{70}	9,005	8,417	7,449	8,282	7,416
	N70	97.9	92.5	94.0	90.2	80.6
	N80	3.3	2.3	3.3	4.9	4.7
	N90	0.0	0.0	0.0	0.0	0.0
Child Day Care Centre Redcliffe (NMT 3)	**LAeq 24hr (LAeq night), dBA**	58.0 (55.4)	58.4 (56.1)	57.5 (55.8)	57.7 (56.6)	58.9 (56.4)
	Days	92.0	90.9	89.8	91.8	91.9
	CNE 24hr (CNE night)	3,966 (482)	3,800 (494)	2,334 (447)	2,537 (388)	3,196 (419)
	CNE_{70}	1,715	1,730	970	1,211	1,729
	N70	18.6	19.0	10.8	13.2	18.8
	N80	4.1	5.3	2.5	3.3	3.9
	N90	0.2	0.2	0.1	0.1	0.2
AA Outer Marker Greenmount (NMT 4)	**LAeq 24hr (LAeq night), dBA**	55.2 (51.5)	54.4 (52.2)	54.8 (53.6)	55.3 (52.2)	55.2 (51.4)
	Days	92.0	91.0	89.6	91.8	92.0
	CNE 24hr (CNE night)	4,540 (408)	4,357 (372)	4,841 (404)	5,684 (470)	4,584 (347)
	CNE_{70}	4,065	3,752	4,276	5,170	4,087
	N70	44.2	41.2	47.7	56.3	44.4
	N80	2.2	1.3	1.0	2.2	1.8
	N90	0.0	0.0	0.0	0.0	0.0
Water Authority Guildford (NMT 5)	**LAeq 24hr (LAeq night), dBA**	57.8 (56.7)	57.3 (56.4)	56.0 (54.5)	56.5 (54.6)	58.0 (56.9)
	Days	92.0	91.0	83.8	91.8	92.0
	CNE 24hr (CNE night)	8,594 (1,267)	7,728 (1,070)	6,962 (738)	7,999 (862)	7,018 (929)
	CNE_{70}	6,727	5,904	4,786	5,469	5,348
	N70	73.1	64.9	57.1	59.6	58.1
	N80	5.5	6.0	2.1	2.9	6.6
	N90	0.0	0.0	0.0	0.0	0.1

3. QUARTERLY TRACK DATA

3.1. Quarterly track density plots.

The quarterly track density plot is a map which displays the pattern of aircraft flight tracks passing over the region around the airport during the quarter. The system analyses the number of flights passing over each grid element of an array defined by the user. Grid elements of 200m x 200m have been adopted as a standard. The track density plot takes into account all aircraft and provides a useful indication of the general patterns of the flight operations.

Figure 3 shows the quarterly track density plot for all aircraft operations for the third quarter of 2009. The colour coding from green to red represents the range 184 to 1840 flight tracks (ie. 2 per day to 20 or more per day) over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element during the quarter was less than 184, ie. less than 2 flights per day on average. The concentration at the bottom of the plot includes aircraft using Jandakot Airport.

For comparison purposes, the quarterly track density plot for jet operations only for the quarter is shown in Figure 4.

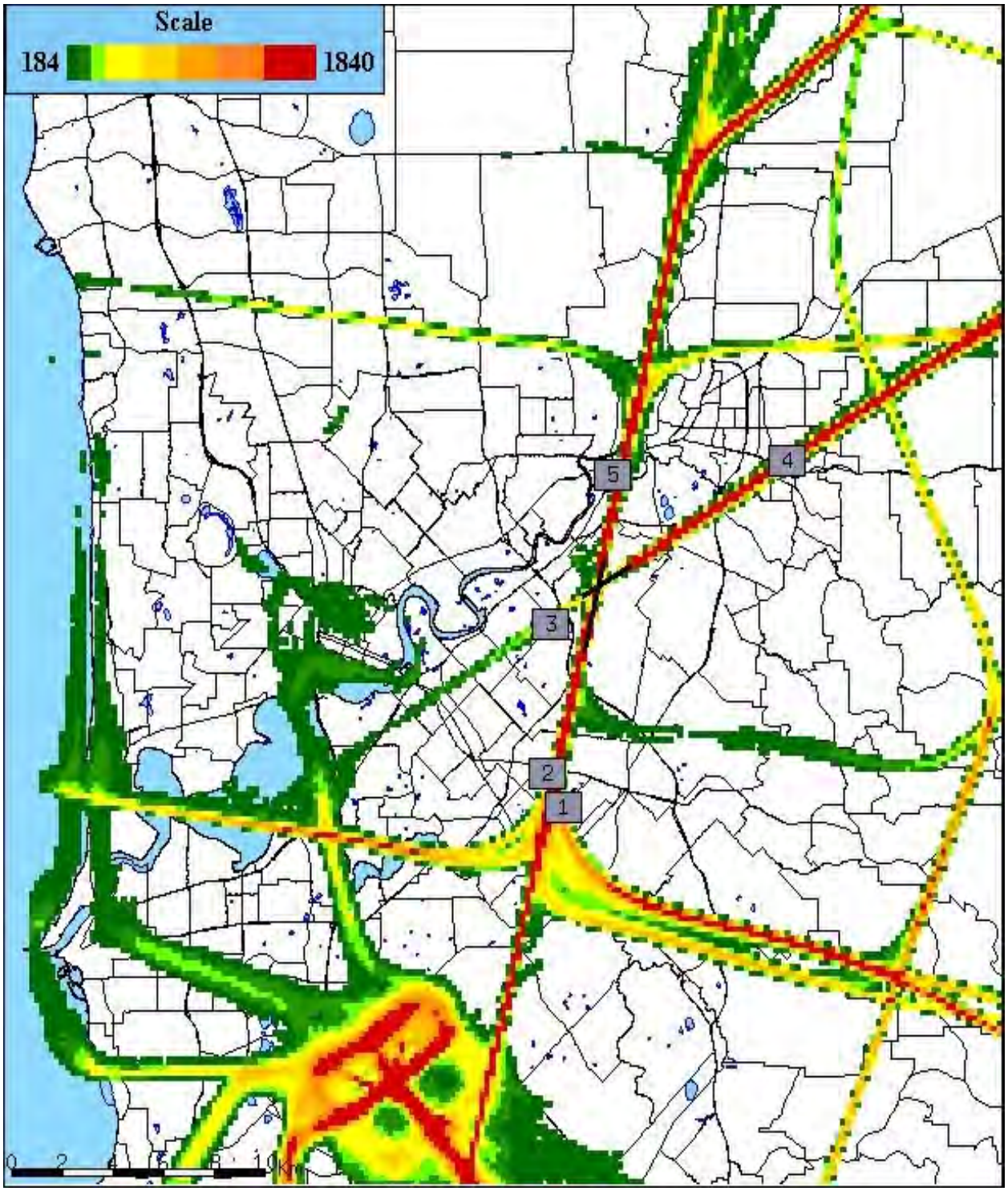
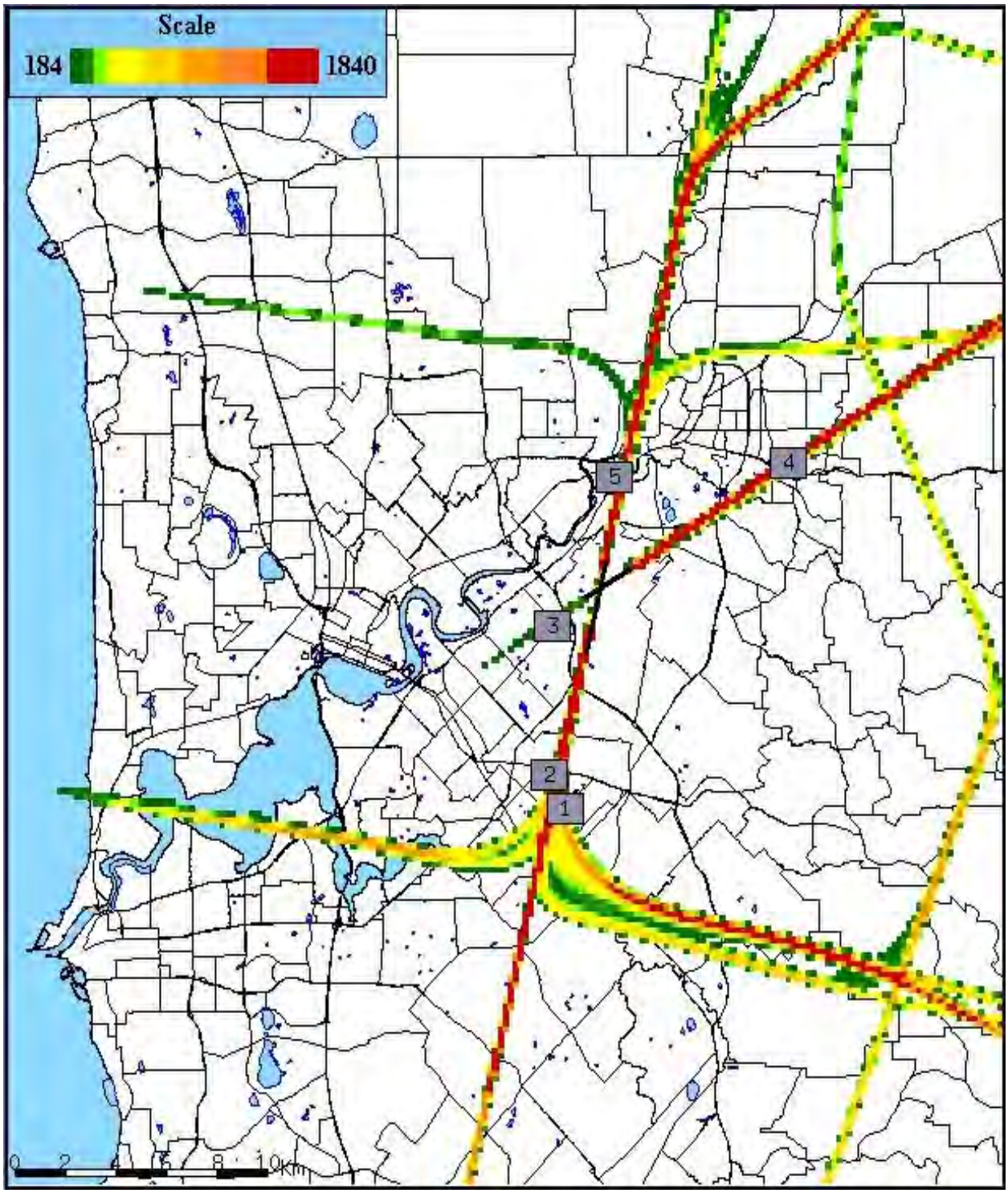


Figure 3: Track density plot for all aircraft operations during the third quarter 2009.



<u>Figure 4:</u> Track density plot for jet operations only during the third quarter 2009.

3.2. Jet track plots.

Plots of actual tracks for arrivals and departures of individual aircraft type or group can also be obtained from the system. Figures 5 and 6 show the track plots for jet arrivals and departures over the one-week period 2 to 8 September 2009. These tracks have been coloured according to the aircraft altitude (height above the mean sea level):

- Red when less than 1000ft
- Orange between 1000ft and 3000ft
- Yellow between 3000ft and 5000ft
- Green above 5000ft.

These heights have been chosen in accordance with the criteria in the document "Environmental Principles and Procedures for Minimising the Impact of Aircraft Noise". This document can be found on the Airservices Australia's web site; www.airservicesaustralia.com/reports/.

3.3. Non-jet and helicopter track plots.

Non-jet operations are principally the operations of propeller and turbo-prop aircraft. The track plots for the period 2 to 8 September 2009 for arriving and departing non-jet aircraft and helicopters are shown in Figures 7 and 8 respectively. The same colour coding used for jet track plots is used in these figures. For both arrivals and departures by non-jets, the tracks disperse from the runway centrelines closer to the airport, to allow a clear path for jets, which are significantly faster.

4. AIRCRAFT MOVEMENT AND AIRCRAFT NOISE DATA

4.1. Movement statistics.

Movement statistics for Perth Airport expressed in monthly figures are shown in Table 2. Explanations of the terms shown in Table 2 can be found in the Glossary section on Pages 6 and 7. The figures are based on TAAATS data.

Table 2 also covers the runway usage for arrivals and departures individually and as a total for each runway. Although their flight tracks may be available on NFPMS, TAAATS does not always provide operational details for movements by helicopters and light propeller-driven aircraft. This is the main reason that the Table includes figures for operations by miscellaneous General Aviation aircraft, or aircraft with indeterminate runway (I).

The total number of monthly arrival and departure movements of all types (jets, non-jets and helicopters) at Perth Airport for July was 10014, for August was 9605 and for September was 9896. The total number of arrival and departure movements for all aircraft types during the quarter was 29515.

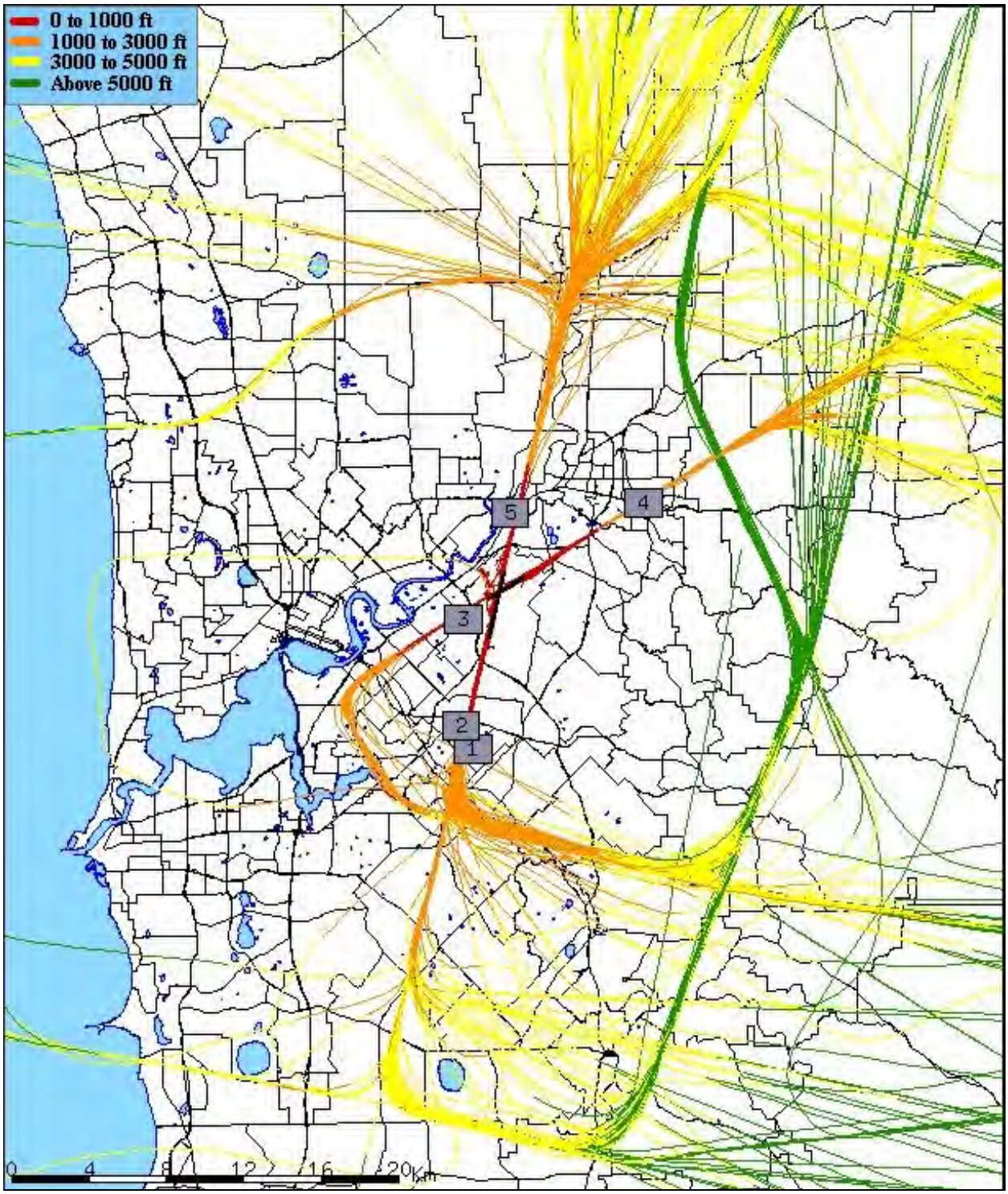


Figure 5: Track plots coloured by height for jet arrivals during the period 2/09/2009 to 8/09/2009.

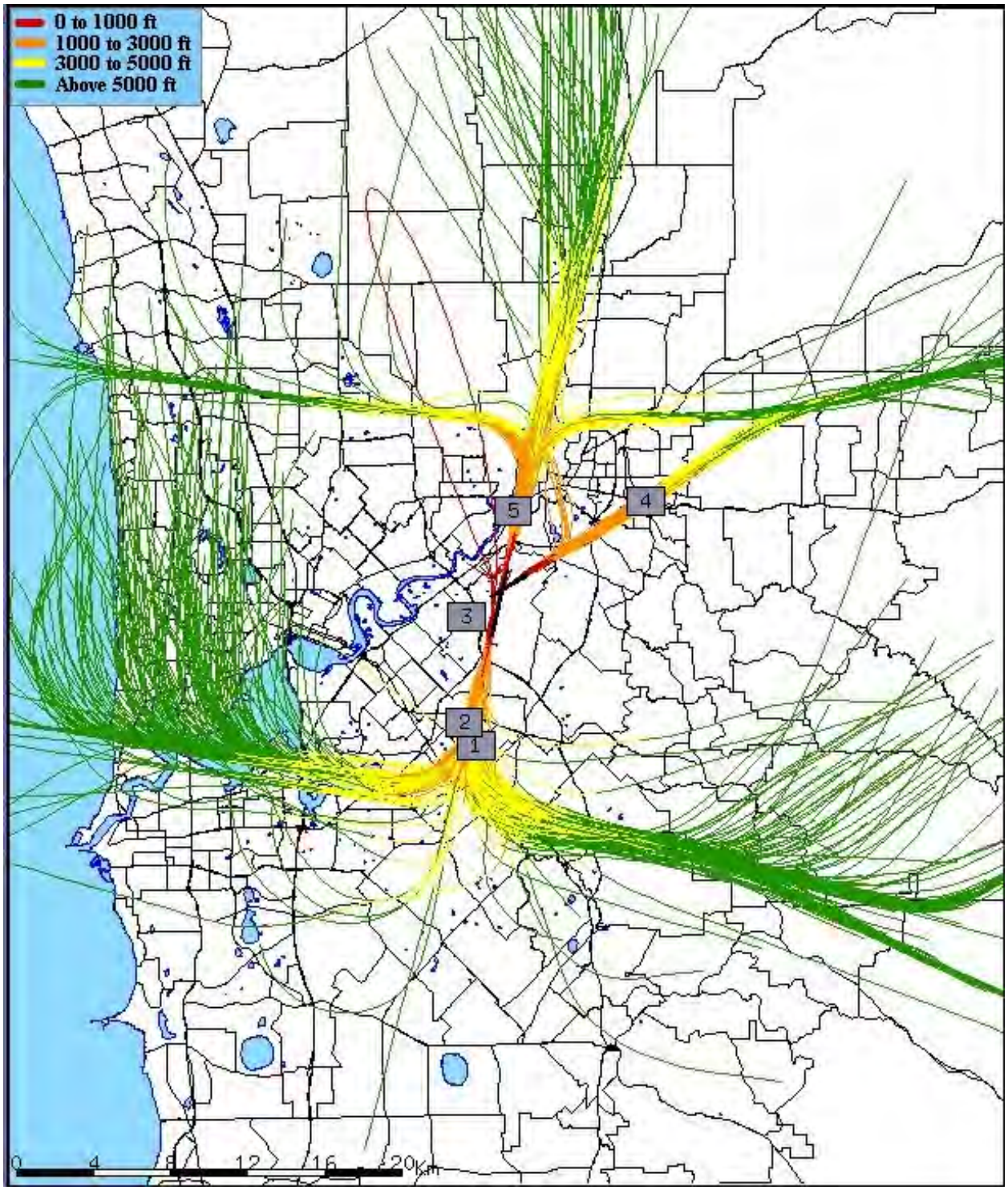


Figure 6: Track plots coloured by height for jet departures during the period 2/09/2009 to 8/09/2009.

Figure 7: Track plots coloured by height for non-jet and helicopter arrivals during the period 2/09/2009 to 8/09/2009.

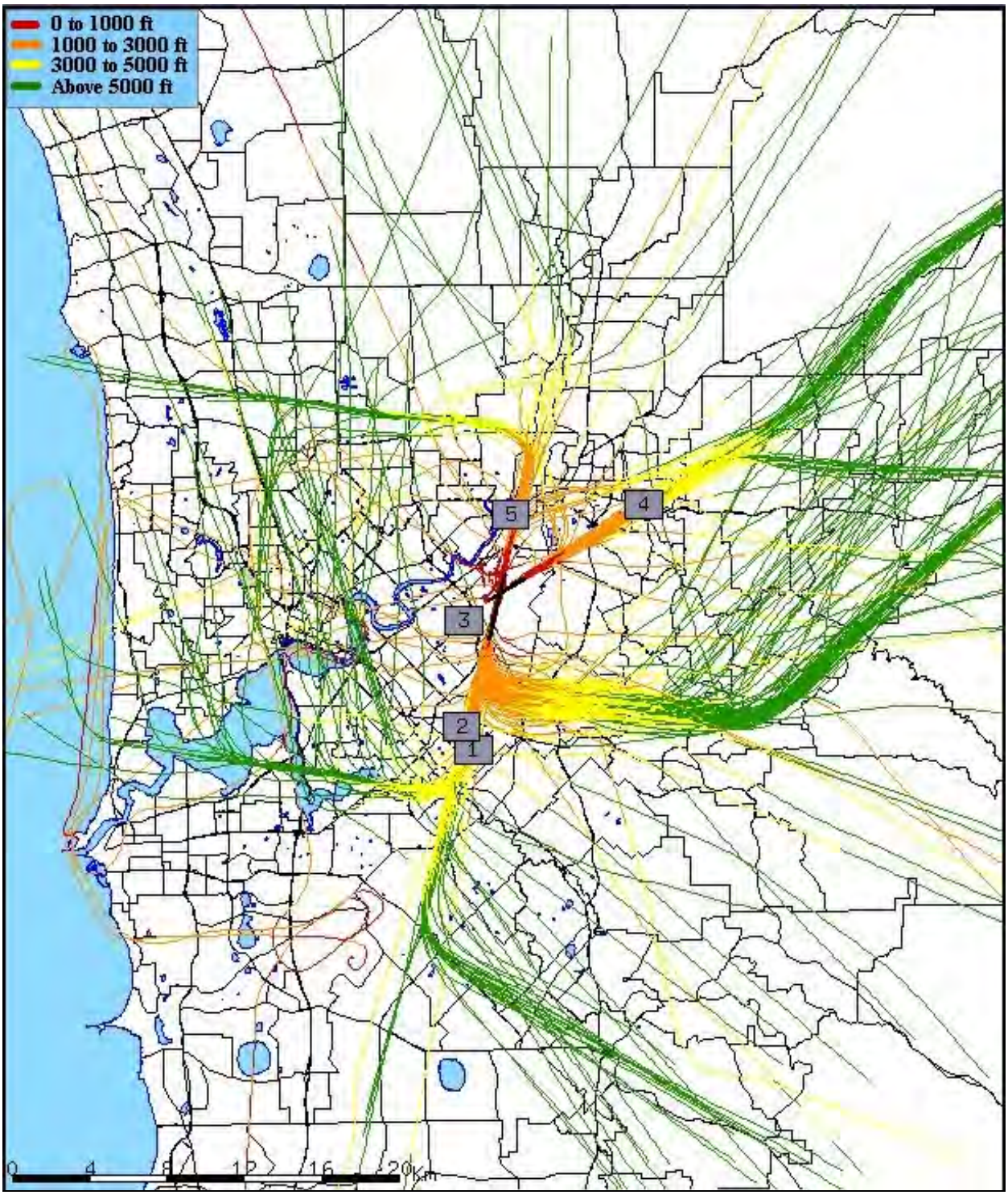


Figure 8: Track plots coloured by height for non-jet and helicopter departures during the period 2/09/2009 to 8/09/2009.

Note that a training operation involving multiple circuits is counted by the system as a single movement, which may be arrival or departure. This is the reason that numbers of arrivals may differ from the corresponding numbers of departures. It is also the reason that movement numbers obtained from TAAATS data may differ from other ATC-sourced data.

In addition to the movement numbers of Table 2 the NFPMS detected 477 local area operations which both originated and terminated at the airport. Some of these were General Aviation aircraft operations involved multiple training circuits at the airport.

Movement data for the preceding 4 quarters are given in Table 3.

4.2. Night movement statistics.

Movement statistics for aircraft operating during the night hours (23:00 to 6:00) for Perth Airport are shown in Table 4. The total number of arrival and departure movements during the night period in the third quarter of 2009 was 3702.

Movement data for the night period for the preceding 4 quarters are given in Table 5.

4.3. Daily runway usage per calendar month for arrivals and departures during the quarter.

The daily runway usage per calendar month for arrivals and departures of all aircraft types including jets, non-jets, helicopters and emergency aircraft during the quarter is shown in Appendix C in which the movement figures of aircraft arrivals and departures are counted separately and wholly per runway for each day of the calendar month for the quarter.

4.4. Hourly movements per calendar month for arrivals and departures during the quarter.

The hourly movements per calendar month of the quarter for all aircraft movements operating in and out of the airport including helicopters and emergency aircraft are shown in Appendix D. The data in Appendix D are calculated for whole clock hours within the day.

4.5. Quarterly aircraft average noise levels.

Appendix E presents a summary of movement numbers and noise levels recorded over the quarter for jet and non-jet aircraft types. It shows the actual movements and the correlated noise events of aircraft types operating on specific runways together with the average maximum sound pressure levels and standard deviations of the maxima for overflights by each type at each NMT. The terms used in the data output are explained in the Glossary. The data is sorted in order of descending maximum sound pressure levels for the 25 noisiest types/operations at each NMT.

Table 2
Movement statistics for the third quarter of 2009

		Jul-09	Aug-09	Sep-09	3rd Quarter 2009	
		Movements	Movements	Movements	Movements	Percents
Jets	A	3568	3498	3530	10596	
	D	3555	3500	3534	10589	
	T	7123	6998	7064	21185	
Non-Jets	A	1363	1228	1339	3930	
	D	1314	1193	1293	3800	
	T	2677	2421	2632	7730	
Helicopter	A	45	42	44	131	
	D	71	48	52	171	
	T	116	90	96	302	
Miscellaneous General Aviation Aircraft	A	46	51	54	151	
	D	52	45	50	147	
	T	98	96	104	298	
All Types *	A	5022	4819	4967	14808	100.0%
	D	4992	4786	4929	14707	100.0%
	T	10014	9605	9896	29515	
Runway Usage Arrivals	03	1834	1588	1374	4796	32.4%
	06	83	62	34	179	1.2%
	21	1860	1934	2672	6466	43.7%
	24	1147	1143	785	3075	20.8%
	H	45	42	44	131	0.9%
	I	53	50	58	161	1.1%
Runway Usage Departures	03	1141	1227	1432	3800	25.8%
	06	1018	648	294	1960	13.3%
	21	2664	2824	2890	8378	57.0%
	24	87	28	245	360	2.4%
	H	71	48	52	171	1.2%
	I	11	11	16	38	0.3%
Runway Usage All Movements	03	2975	2815	2806	8596	
	06	1101	710	328	2139	
	21	4524	4758	5562	14844	
	24	1234	1171	1030	3435	
	H	116	90	96	302	
	I	64	61	74	199	

* In addition to the number of aircraft arrival and departure movements listed in the table, there were also another 477 local area operations which both originated and terminated at the airport. Some of the General Aviation aircraft operations involved multiple training circuits at the airport.
Note some of the percentages can be affected by rounding to the nearest 0.1%.

Table 3: Movement statistics for the previous four quarters

		2nd Quarter 2009		1st Quarter 2009		4th Quarter 2008		3rd Quarter 2008	
		Movements	Percents	Movements	Percents	Movements	Percents	Movements	Percents
Jets	A	10279		10145		10342		9173	
	D	10251		10120		10292		9144	
	T	20530		20265		20634		18317	
Non-Jets	A	4048		4158		4692		4592	
	D	3862		3954		4447		4288	
	T	7910		8112		9139		8880	
Helicopter	A	178		528		548		237	
	D	179		352		195		179	
	T	357		880		743		416	
Miscellaneous General Aviation Aircraft	A	143		232		184		186	
	D	153		93		110		156	
	T	296		325		294		342	
All Types	A	14648	100.0%	15063	100.0%	15766	100.0%	14188	100.0%
	D	14445	100.0%	14519	100.0%	15044	100.0%	13767	100.0%
	T	29093		29582		30810		27955	
Runway Usage Arrivals	03	6041	41.2%	2296	15.2%	1839	11.7%	5575	39.3%
	06	375	2.6%	252	1.7%	185	1.2%	278	2.0%
	21	5634	38.5%	7728	51.3%	8012	50.8%	4989	35.2%
	24	2255	15.4%	4096	27.2%	4973	31.5%	2872	20.2%
	H	178	1.2%	528	3.5%	548	3.5%	237	1.7%
	I	165	1.1%	163	1.1%	209	1.3%	237	1.7%
Runway Usage Departures	03	3624	25.1%	1304	9.0%	1133	7.5%	2978	21.6%
	06	3792	26.3%	1795	12.4%	1460	9.7%	3371	24.5%
	21	6473	44.8%	10919	75.2%	12001	79.8%	6971	50.6%
	24	292	2.0%	97	0.7%	206	1.4%	218	1.6%
	H	179	1.2%	352	2.4%	195	1.3%	179	1.3%
	I	85	0.6%	52	0.4%	49	0.3%	50	0.4%
Runway Usage All Movements	03	9665		3600		2972		8553	
	06	4167		2047		1645		3649	
	21	12107		18647		20013		11960	
	24	2547		4193		5179		3090	
	H	357		880		743		416	
	I	250		215		258		287	

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Table 4
Night movement statistics for the third quarter of 2009

		Jul-09	Aug-09	Sep-09	3rd Quarter 2009	
		Movements	Movements	Movements	Movements	Percents
Jets	A	477	480	494	1451	
	D	648	619	650	1917	
	T	1125	1099	1144	3368	
Non-Jets	A	22	27	20	69	
	D	66	71	69	206	
	T	88	98	89	275	
Helicopter	A	0	0	0	0	
	D	0	0	0	0	
	T	0	0	0	0	
Miscellaneous General Aviation Aircraft	A	9	8	10	27	
	D	12	10	10	32	
	T	21	18	20	59	
All Types	A	508	515	524	1547	100.0%
	D	726	700	729	2155	100.0%
	T	1234	1215	1253	3702	
Runway Usage Arrivals	03	204	181	195	580	37.5%
	06	2	1	0	3	0.2%
	21	194	235	273	702	45.4%
	24	100	93	49	242	15.6%
	H	0	0	0	0	0.0%
	I	8	5	7	20	1.3%
Runway Usage Departures	03	218	199	259	676	31.4%
	06	119	96	51	266	12.3%
	21	387	405	409	1201	55.7%
	24	0	0	7	7	0.3%
	H	0	0	0	0	0.0%
	I	2	0	3	5	0.2%
Runway Usage All Movements	03	422	380	454	1256	
	06	121	97	51	269	
	21	581	640	682	1903	
	24	100	93	56	249	
	H	0	0	0	0	
	I	10	5	10	25	

Note some of the percentages can be affected by rounding to the nearest 0.1%.

Table 5: Night movement statistics for the previous four quarters

		2nd Quarter 2009		1st Quarter 2009		4th Quarter 2008		3rd Quarter 2008	
		Movements	Percents	Movements	Percents	Movements	Percents	Movements	Percents
Jets	A	1161		1192		1213		1174	
	D	1792		1813		1730		1355	
	T	2953		3005		2943		2529	
Non-Jets	A	78		75		96		87	
	D	187		175		181		129	
	T	265		250		277		216	
Helicopter	A	1		5		3		2	
	D	0		0		1		1	
	T	1		5		4		3	
Miscellaneous General Aviation Aircraft	A	22		8		8		24	
	D	29		8		15		20	
	T	51		16		23		44	
All Types	A	1262	100.0%	1280	100.0%	1320	100.0%	1287	100.0%
	D	2008	100.0%	1996	100.0%	1927	100.0%	1505	100.0%
	T	3270		3276		3247		2792	
Runway Usage Arrivals	03	577	45.7%	146	11.4%	137	10.4%	560	43.5%
	06	27	2.1%	34	2.7%	11	0.8%	18	1.4%
	21	493	39.1%	735	57.4%	692	52.4%	466	36.2%
	24	128	10.1%	350	27.3%	437	33.1%	203	15.8%
	H	1	0.1%	5	0.4%	3	0.2%	2	0.2%
	I	36	2.9%	10	0.8%	40	3.0%	38	3.0%
Runway Usage Departures	03	669	33.3%	203	10.2%	205	10.6%	521	34.6%
	06	447	22.3%	184	9.2%	95	4.9%	232	15.4%
	21	875	43.6%	1607	80.5%	1623	84.2%	748	49.7%
	24	7	0.3%	0	0.0%	0	0.0%	0	0.0%
	H	0	0.0%	0	0.0%	1	0.1%	1	0.1%
	I	10	0.5%	2	0.1%	3	0.2%	3	0.2%
Runway Usage All Movements	03	1246		349		342		1081	
	06	474		218		106		250	
	21	1368		2342		2315		1214	
	24	135		350		437		203	
	H	1		5		4		3	
	I	46		12		43		41	

4.6. Data included in Appendix E.

It may be noted in Appendix E that in some cases there is a difference between the reported number of aircraft movements and the number of correlated noise events.

A noise event occurs when a noise being measured at an NMT stays above a preset level for a preset time duration. When that condition occurs, the NFPMS looks at the radar input to see whether there is an aircraft track within a preset radius around the NMT location. If there is, the noise event is correlated with that aircraft track and registered as a correlated noise event.

Differences between the number of aircraft movements and the number of correlated noise events may be due to the following:

(i) For aircraft operations which are not relatively close to the NMT location, the noise levels received from the aircraft may be below the event threshold level. This results in less correlated noise events than actual aircraft movements.

(ii) Noise events may not be correlated with aircraft tracks due to radar system downtime or transponders on the aircraft being turned off. This also results in less correlated noise events than actual aircraft movements.

(iii) In some cases, extraneous noise events caused by sources other than aircraft occur concurrently with an aircraft operation, and are coincidentally correlated with an aircraft track in the vicinity of the NMT. This may result in more correlated noise events than actual aircraft movements.

For larger data samples, the absence or mistaken identity of some noise events will have minimal effect on the mean data presented in the report. Data for small sample sizes may however not be truly representative. Noting that aircraft noise certification procedures specify a minimum of six overflights (under closely controlled conditions) to establish a mean noise level, the figure of six has been adopted in this analysis as the minimum number of arrival or departure operations of any one aircraft type for the data to be considered meaningful.

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APPENDIX A

An overview of the Noise and Flight Path Monitoring System

A. SYSTEM OVERVIEW

A.1. System configuration and features.

The NFPMS is the world's largest, most geographically-spread system of its type. The complete system is operated and controlled from AA Head Office in Canberra.

Around each of the airports are a number of noise monitoring terminals (NMTs). The NMT basically consists of a microphone, atop a mast of 6m height, and an electronics box. The noise level to which the microphone is exposed over the range 30 to 130 dB(A) is continuously measured and then transmitted, via a data line, to the NFPMS central computer where it is processed and stored for later analysis. Apart from measuring the aircraft noise, the NMT also continuously monitors the background noise levels.

Through the TAAATS system, the NFPMS acquires flight track and operational information on aircraft operating in and out of the airport.

On a map display for each airport, the system displays the noise levels measured by each of the NMTs and the flight tracks of the aircraft in the vicinity of the airport.

When the level and duration of noise from any noise source in the vicinity of an NMT exceed the threshold level and duration which have been set for the NMT, a "noise event" is recorded. The time at which the noise event is recorded at the NMT location is then checked against movement times and radar tracks of aircraft operating in the vicinity. If the time and NMT location of the noise event match the movement time and radar track of an aircraft, the noise event is attributed to that aircraft, i.e it becomes a “correlated noise event”. Otherwise, it is regarded as part of the background noise.

The incoming data is stored in the central computer and can be recalled to display the tracks flown by any user selection of aircraft operations, together with the noise levels which those operations produced at the NMTs. The track information includes aircraft identity, altitude and speed.

The system includes statistical and acoustical software to undertake analyses of noise or flight track information as required by the user.

Automatically and regularly, the NFPMS produces reports that contain tabular and graphical summaries of noise and aircraft movement data for each airport over selected time periods.

The system includes the capability to analyse aircraft tracks, by selecting and listing the tracks which have passed through defined windows and corridors. The analysis can be selective, e.g. on specification of aircraft type or the route being flown.

A.2. System applications.

The NFPMS collects noise and flight path data 24 hours a day, seven days per week. It also accumulates flight plan and weather data.

The information collected is used by AA to:

. determine the contribution of aircraft to overall noise exposure;

. detect occurrences of excessive noise levels from aircraft operations;

. assess the effects of operational and administrative procedures for noise control and compliance with these procedures;

. assist in planning of airspace usage;

. validate noise forecasts and forecasting techniques;

. assist relevant authorities in land-use planning for developments on areas in the vicinity of an airport;

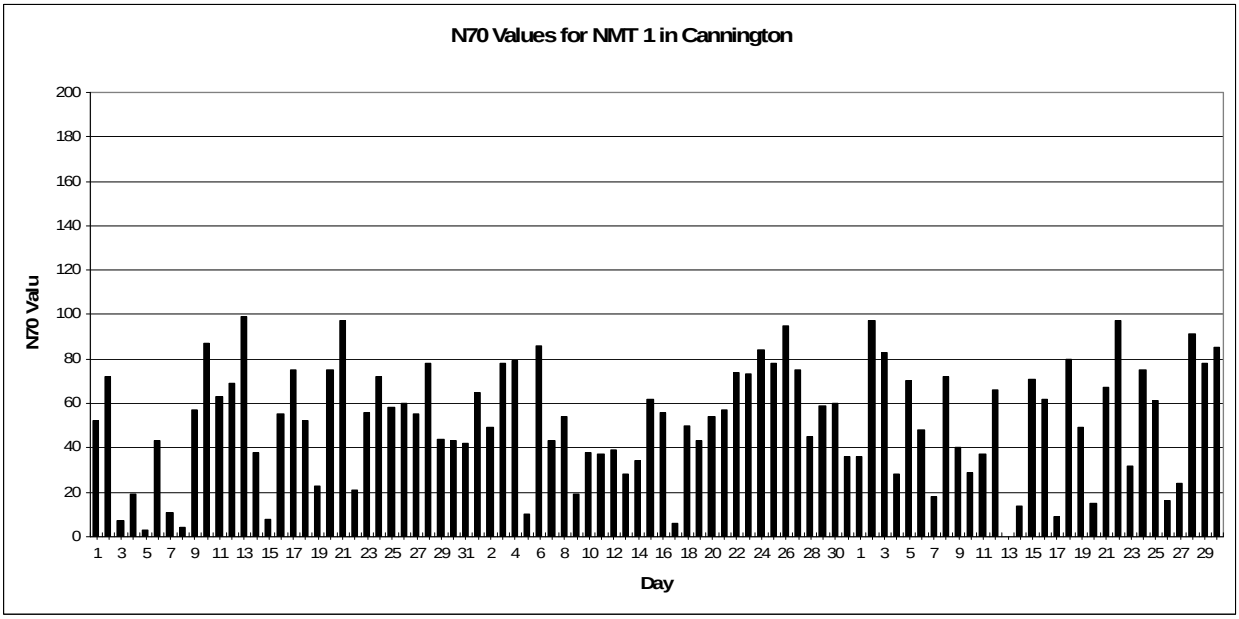
. provide reports to, and responses to questions from, Government and other Members of Parliament, industry organisations, airport owners, community groups and individuals; and

. assist in answering noise complaints about aircraft operations from the general public.

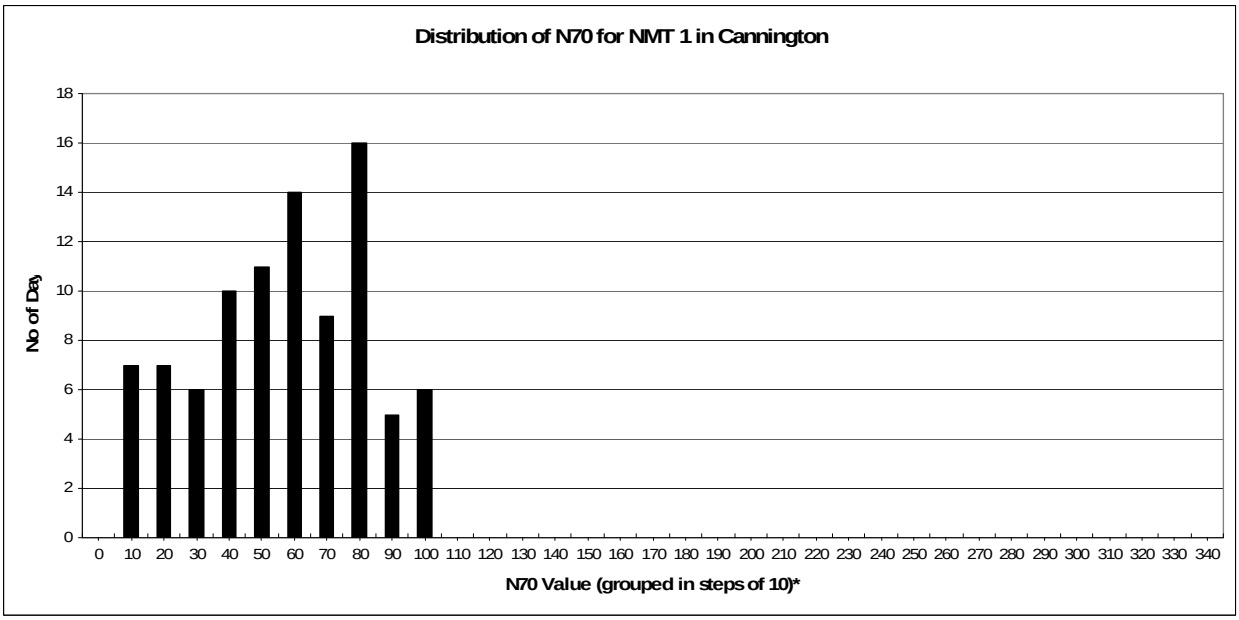
APPENDIX B

Daily value of N70 and N70 distribution for each NMT

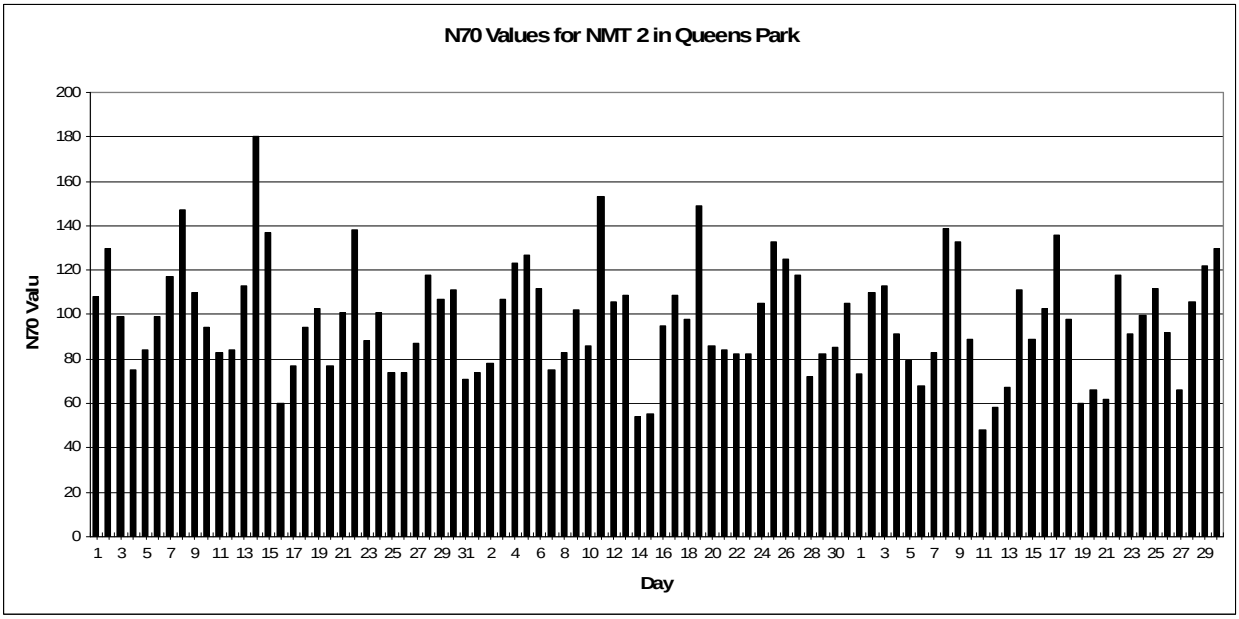
during the period July to September 2009



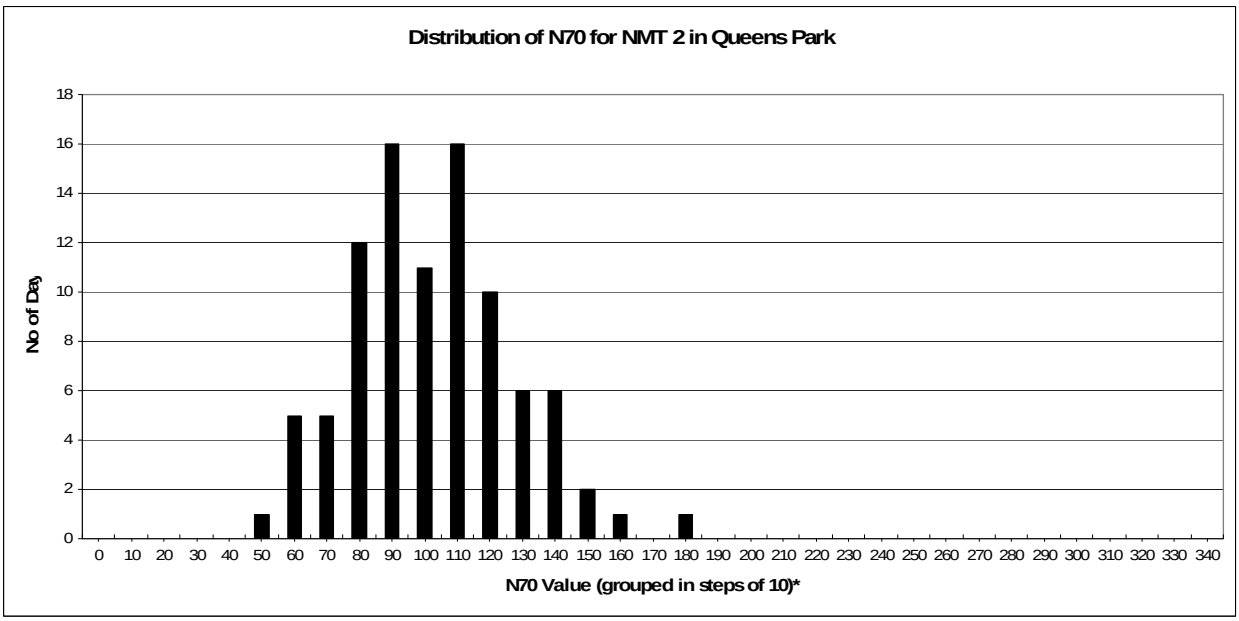
NMT 1 at Cannington was non operational on the following days: 13/09/09



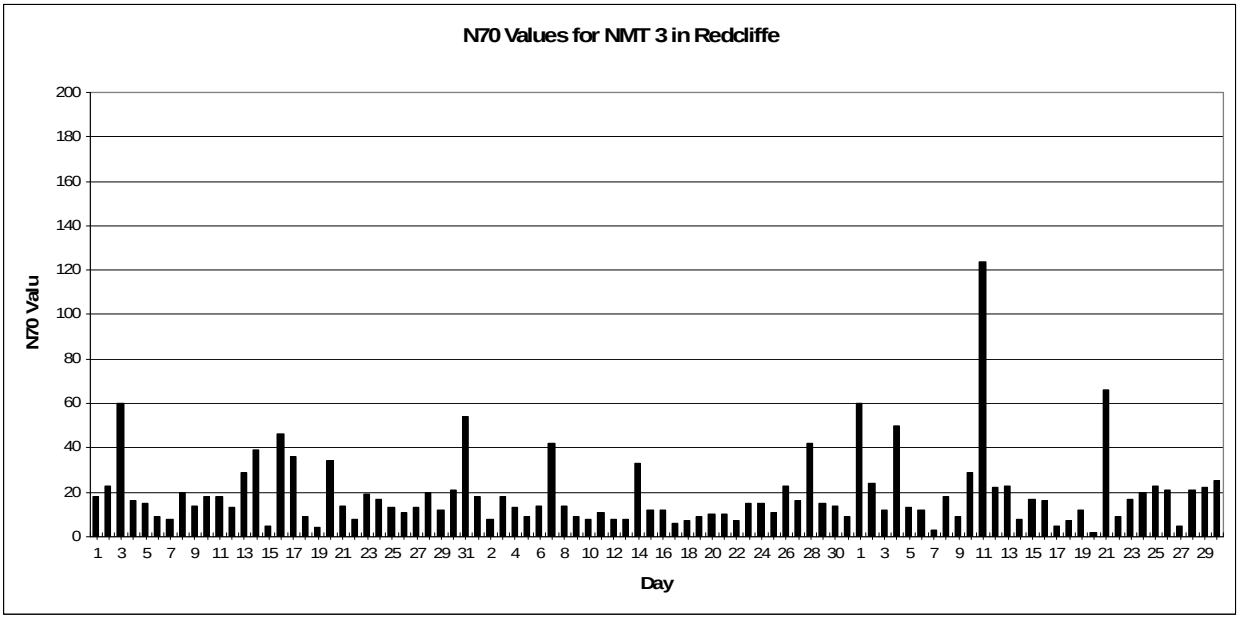
* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).



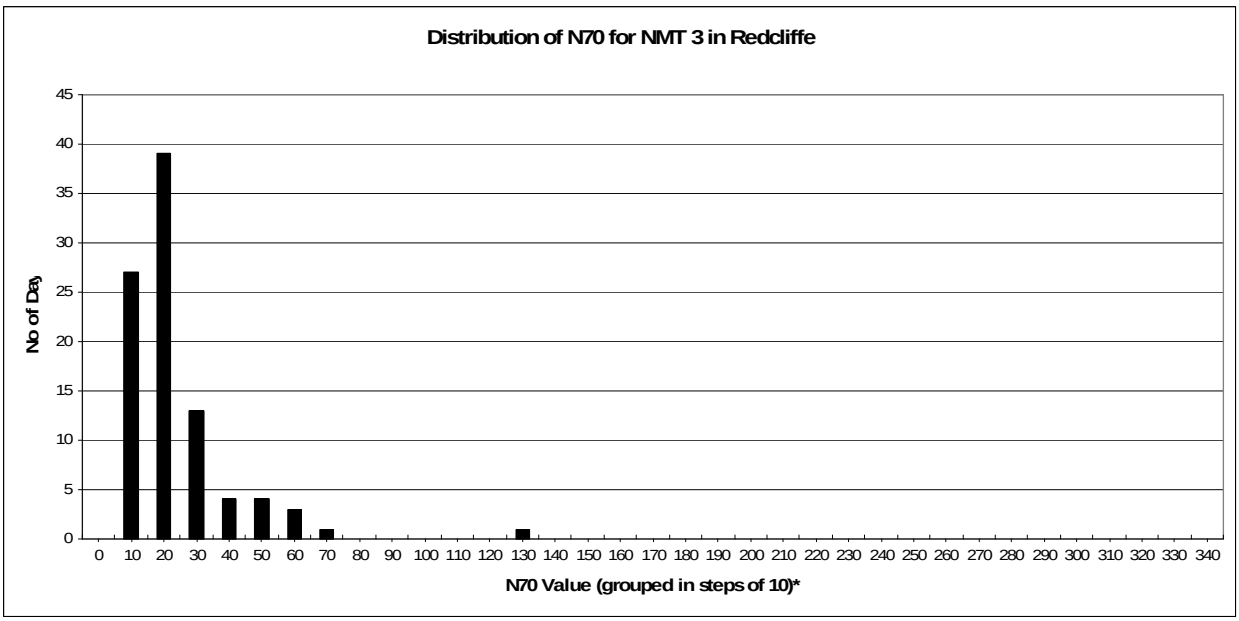
NMT 2 at Queens Park



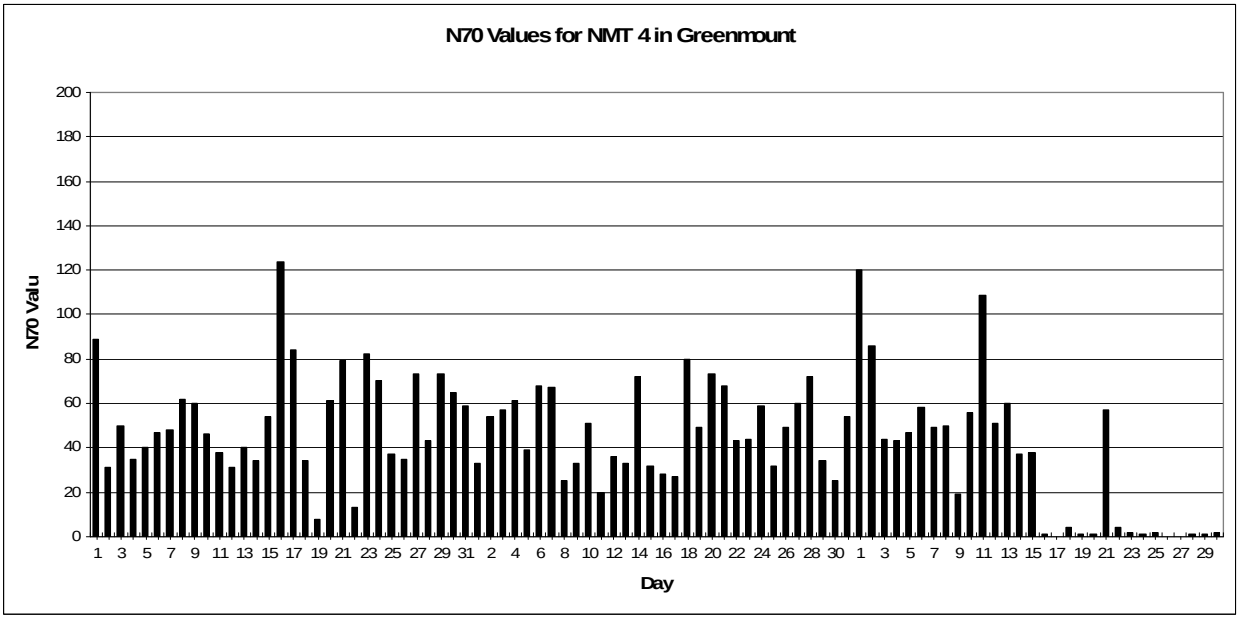
* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).



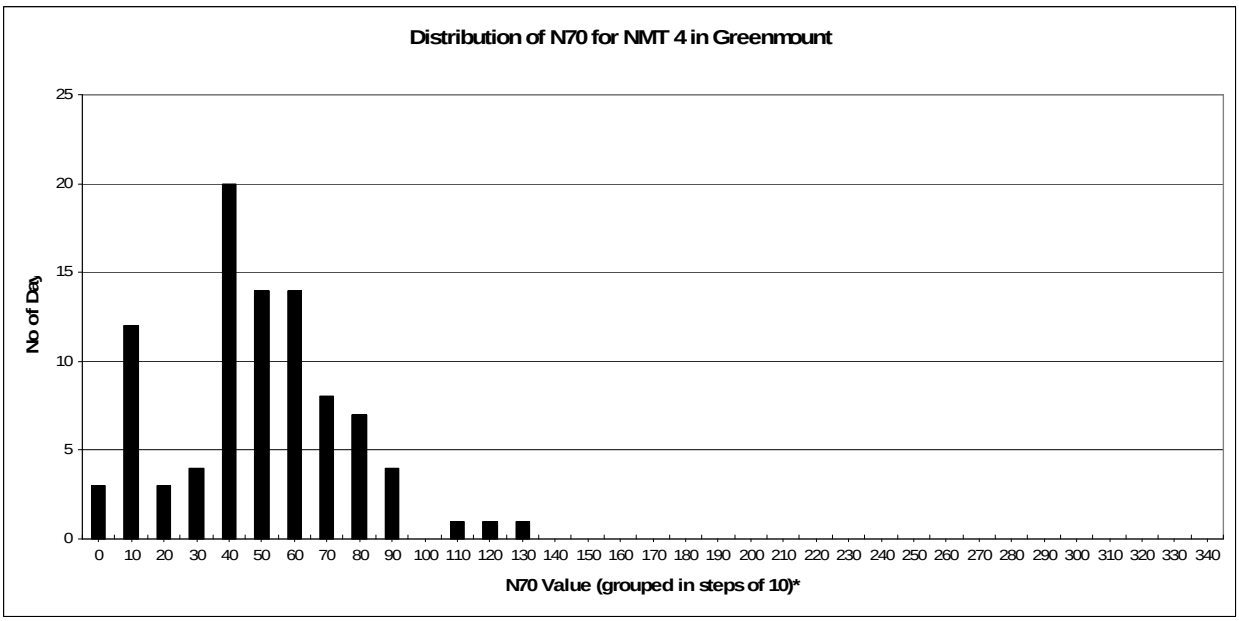
NMT 3 at Redcliffe



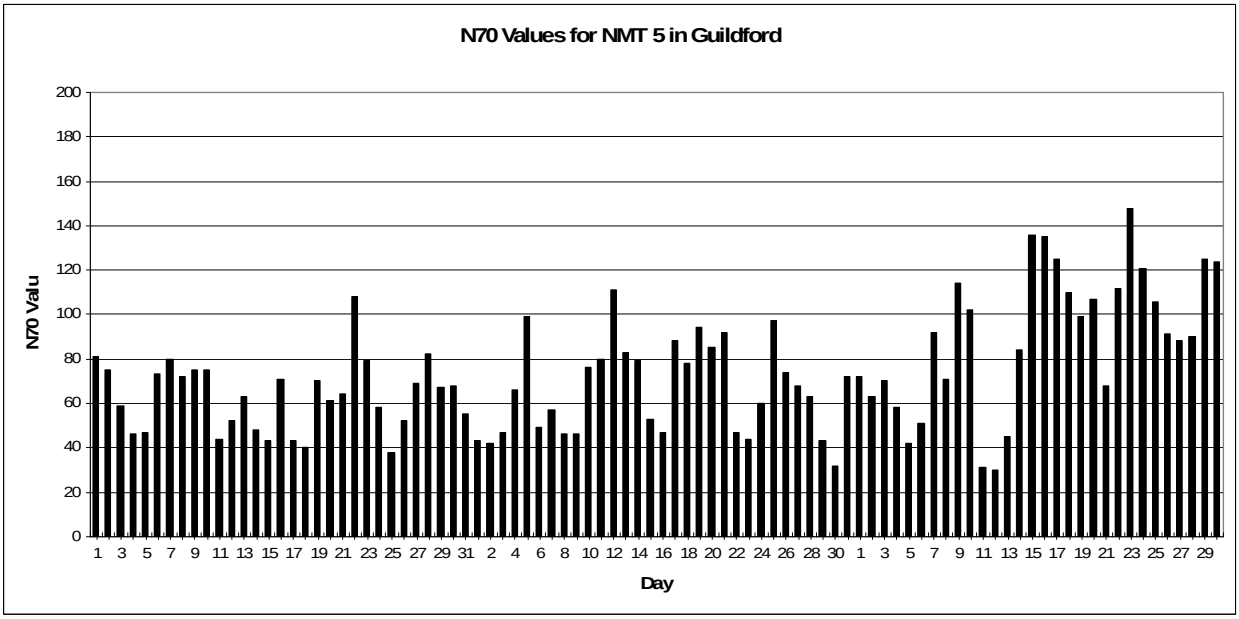
* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).



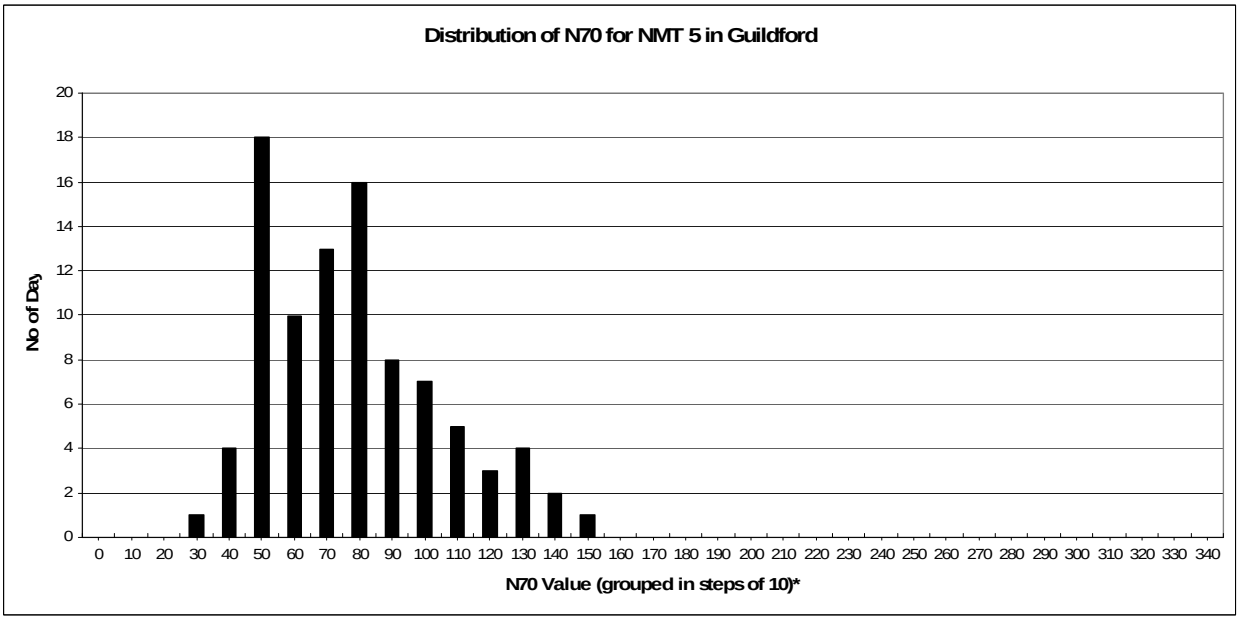
NMT 4 at Greenmount



* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).



NMT 5 at Guildford



* Except for N70 value of 0, which shows number of days with zero exceedances of N70 dB(A). All other values are in steps of 10 (eg. days with N70 of 1 to 10, 11 to 20, 21 to 30 etc).

APPENDIX C

Daily runway usage per calendar month for arrivals and departures

during the period July to September 2009

Perth Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Jul-09

days	Totals	03	06	21	24	H	I
01-Jul-09	203	67	0	76	57	1	2
02-Jul-09	195	21	0	146	26	1	1
03-Jul-09	167	115	36	14	0	1	1
04-Jul-09	96	63	0	19	10	3	1
05-Jul-09	109	105	0	0	0	0	4
06-Jul-09	155	66	0	56	30	1	2
07-Jul-09	198	190	1	3	2	1	1
08-Jul-09	205	197	4	0	0	2	2
09-Jul-09	184	73	1	62	48	0	0
10-Jul-09	162	5	0	110	44	2	1
11-Jul-09	98	21	1	46	27	1	2
12-Jul-09	116	0	1	76	33	5	1
13-Jul-09	167	0	0	116	44	3	4
14-Jul-09	196	180	2	9	0	4	1
15-Jul-09	200	196	0	0	0	2	2
16-Jul-09	192	11	0	46	133	1	1
17-Jul-09	158	0	0	69	88	0	1
18-Jul-09	98	48	0	15	33	0	2
19-Jul-09	106	93	0	8	3	0	2
20-Jul-09	158	6	0	85	64	0	3
21-Jul-09	196	0	0	111	82	1	2
22-Jul-09	194	185	0	8	0	0	1
23-Jul-09	195	17	0	104	72	1	1
24-Jul-09	169	0	0	93	70	3	3
25-Jul-09	96	0	0	56	37	1	2
26-Jul-09	107	7	1	68	28	2	1
27-Jul-09	162	10	0	92	57	1	2
28-Jul-09	192	0	0	146	43	3	0
29-Jul-09	192	88	1	62	38	2	1
30-Jul-09	196	59	2	88	40	3	4
31-Jul-09	160	11	33	76	38	0	2
total	**5022**	**1834**	**83**	**1860**	**1147**	**45**	**53**
percentage	**100.0%**	**36.5%**	**1.7%**	**37.0%**	**22.8%**	**0.9%**	**1.1%**

Perth Airport
Daily Runway Usage (Departures for All Aircraft Types)
Jul-09

days	Totals	03	06	21	24	H	I
01-Jul-09	203	53	54	95	0	1	0
02-Jul-09	192	3	4	184	0	1	0
03-Jul-09	168	61	103	0	0	2	2
04-Jul-09	105	40	36	21	0	8	0
05-Jul-09	107	53	45	0	0	9	0
06-Jul-09	160	51	51	57	0	1	0
07-Jul-09	195	101	84	10	0	0	0
08-Jul-09	203	90	111	0	0	2	0
09-Jul-09	186	61	27	98	0	0	0
10-Jul-09	154	3	4	145	0	2	0
11-Jul-09	112	5	13	82	0	12	0
12-Jul-09	104	0	0	101	1	2	0
13-Jul-09	168	0	0	163	1	4	0
14-Jul-09	195	48	71	73	0	3	0
15-Jul-09	199	80	115	0	0	3	1
16-Jul-09	188	62	0	83	42	1	0
17-Jul-09	157	0	0	136	21	0	0
18-Jul-09	103	32	3	66	1	0	1
19-Jul-09	101	73	6	21	0	0	1
20-Jul-09	157	2	0	133	21	0	1
21-Jul-09	194	0	0	193	0	1	0
22-Jul-09	192	162	20	10	0	0	0
23-Jul-09	188	31	34	122	0	0	1
24-Jul-09	157	0	0	153	0	4	0
25-Jul-09	97	0	0	97	0	0	0
26-Jul-09	107	5	11	85	0	6	0
27-Jul-09	166	23	36	105	0	2	0
28-Jul-09	185	0	0	182	0	2	1
29-Jul-09	193	43	83	65	0	2	0
30-Jul-09	195	35	58	98	0	3	1
31-Jul-09	161	24	49	86	0	0	2
total	**4992**	**1141**	**1018**	**2664**	**87**	**71**	**11**
percentage	**100.0%**	**22.9%**	**20.4%**	**53.4%**	**1.7%**	**1.4%**	**0.2%**

Perth Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Jul-09

days	Totals	03	06	21	24	H	I
01-Jul-09	406	120	54	171	57	2	2
02-Jul-09	387	24	4	330	26	2	1
03-Jul-09	335	176	139	14	0	3	3
04-Jul-09	201	103	36	40	10	11	1
05-Jul-09	216	158	45	0	0	9	4
06-Jul-09	315	117	51	113	30	2	2
07-Jul-09	393	291	85	13	2	1	1
08-Jul-09	408	287	115	0	0	4	2
09-Jul-09	370	134	28	160	48	0	0
10-Jul-09	316	8	4	255	44	4	1
11-Jul-09	210	26	14	128	27	13	2
12-Jul-09	220	0	1	177	34	7	1
13-Jul-09	335	0	0	279	45	7	4
14-Jul-09	391	228	73	82	0	7	1
15-Jul-09	399	276	115	0	0	5	3
16-Jul-09	380	73	0	129	175	2	1
17-Jul-09	315	0	0	205	109	0	1
18-Jul-09	201	80	3	81	34	0	3
19-Jul-09	207	166	6	29	3	0	3
20-Jul-09	315	8	0	218	85	0	4
21-Jul-09	390	0	0	304	82	2	2
22-Jul-09	386	347	20	18	0	0	1
23-Jul-09	383	48	34	226	72	1	2
24-Jul-09	326	0	0	246	70	7	3
25-Jul-09	193	0	0	153	37	1	2
26-Jul-09	214	12	12	153	28	8	1
27-Jul-09	328	33	36	197	57	3	2
28-Jul-09	377	0	0	328	43	5	1
29-Jul-09	385	131	84	127	38	4	1
30-Jul-09	391	94	60	186	40	6	5
31-Jul-09	321	35	82	162	38	0	4
total	**10014**	**2975**	**1101**	**4524**	**1234**	**116**	**64**
percentage	**100.0%**	**29.7%**	**11.0%**	**45.2%**	**12.3%**	**1.2%**	**0.6%**

Perth Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Aug-09

days	Totals	03	06	21	24	H	I
01-Aug-09	106	0	7	68	28	1	2
02-Aug-09	118	25	0	49	40	3	1
03-Aug-09	150	0	0	92	57	0	1
04-Aug-09	198	2	0	129	64	2	1
05-Aug-09	197	192	2	0	0	1	2
06-Aug-09	199	15	0	109	73	1	1
07-Aug-09	162	12	27	80	41	1	1
08-Aug-09	92	34	0	35	21	0	2
09-Aug-09	114	99	0	13	0	1	1
10-Aug-09	148	67	0	47	32	2	0
11-Aug-09	191	173	1	11	2	2	2
12-Aug-09	191	116	0	40	34	1	0
13-Aug-09	184	182	0	0	0	1	1
14-Aug-09	154	65	0	14	73	0	2
15-Aug-09	98	0	0	63	32	1	2
16-Aug-09	110	39	0	46	23	1	1
17-Aug-09	155	149	0	0	0	0	6
18-Aug-09	204	69	0	73	55	0	7
19-Aug-09	200	151	0	22	25	1	1
20-Aug-09	185	33	0	89	62	0	1
21-Aug-09	168	26	0	77	58	5	2
22-Aug-09	103	0	0	55	43	4	1
23-Aug-09	115	0	0	63	45	7	0
24-Aug-09	163	0	0	100	61	0	2
25-Aug-09	200	40	0	139	20	0	1
26-Aug-09	195	0	0	138	54	1	2
27-Aug-09	193	0	0	132	59	1	1
28-Aug-09	158	11	24	75	46	0	2
29-Aug-09	105	0	0	64	34	5	2
30-Aug-09	107	0	0	67	40	0	0
31-Aug-09	156	88	1	44	21	0	2
total	**4819**	**1588**	**62**	**1934**	**1143**	**42**	**50**
percentage	**100.0%**	**33.0%**	**1.3%**	**40.1%**	**23.7%**	**0.9%**	**1.0%**

Perth Airport
Daily Runway Usage (Departures for All Aircraft Types)
Aug-09

days	Totals	03	06	21	24	H	I
01-Aug-09	107	2	15	87	0	3	0
02-Aug-09	112	13	24	69	0	6	0
03-Aug-09	156	0	0	156	0	0	0
04-Aug-09	190	1	2	185	0	2	0
05-Aug-09	201	137	62	0	0	1	1
06-Aug-09	192	16	0	175	0	1	0
07-Aug-09	164	20	51	91	0	2	0
08-Aug-09	98	22	7	66	0	3	0
09-Aug-09	108	42	43	22	0	1	0
10-Aug-09	155	56	42	56	0	1	0
11-Aug-09	185	90	30	63	0	2	0
12-Aug-09	195	134	5	54	0	1	1
13-Aug-09	180	131	49	0	0	0	0
14-Aug-09	154	106	0	20	28	0	0
15-Aug-09	96	0	0	95	0	0	1
16-Aug-09	106	19	6	73	0	8	0
17-Aug-09	165	116	47	0	0	2	0
18-Aug-09	196	48	53	91	0	1	3
19-Aug-09	198	98	42	57	0	1	0
20-Aug-09	187	43	33	110	0	0	1
21-Aug-09	165	52	16	92	0	4	1
22-Aug-09	102	0	0	102	0	0	0
23-Aug-09	104	0	0	104	0	0	0
24-Aug-09	170	0	0	168	0	1	1
25-Aug-09	189	13	13	162	0	1	0
26-Aug-09	196	0	0	194	0	1	1
27-Aug-09	189	0	0	188	0	1	0
28-Aug-09	155	15	53	87	0	0	0
29-Aug-09	102	0	0	101	0	1	0
30-Aug-09	103	0	0	99	0	4	0
31-Aug-09	166	53	55	57	0	0	1
total	**4786**	**1227**	**648**	**2824**	**28**	**48**	**11**
percentage	**100.0%**	**25.6%**	**13.5%**	**59.0%**	**0.6%**	**1.0%**	**0.2%**

Perth Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Aug-09

days	Totals	03	06	21	24	H	I
01-Aug-09	213	2	22	155	28	4	2
02-Aug-09	230	38	24	118	40	9	1
03-Aug-09	306	0	0	248	57	0	1
04-Aug-09	388	3	2	314	64	4	1
05-Aug-09	398	329	64	0	0	2	3
06-Aug-09	391	31	0	284	73	2	1
07-Aug-09	326	32	78	171	41	3	1
08-Aug-09	190	56	7	101	21	3	2
09-Aug-09	222	141	43	35	0	2	1
10-Aug-09	303	123	42	103	32	3	0
11-Aug-09	376	263	31	74	2	4	2
12-Aug-09	386	250	5	94	34	2	1
13-Aug-09	364	313	49	0	0	1	1
14-Aug-09	308	171	0	34	101	0	2
15-Aug-09	194	0	0	158	32	1	3
16-Aug-09	216	58	6	119	23	9	1
17-Aug-09	320	265	47	0	0	2	6
18-Aug-09	400	117	53	164	55	1	10
19-Aug-09	398	249	42	79	25	2	1
20-Aug-09	372	76	33	199	62	0	2
21-Aug-09	333	78	16	169	58	9	3
22-Aug-09	205	0	0	157	43	4	1
23-Aug-09	219	0	0	167	45	7	0
24-Aug-09	333	0	0	268	61	1	3
25-Aug-09	389	53	13	301	20	1	1
26-Aug-09	391	0	0	332	54	2	3
27-Aug-09	382	0	0	320	59	2	1
28-Aug-09	313	26	77	162	46	0	2
29-Aug-09	207	0	0	165	34	6	2
30-Aug-09	210	0	0	166	40	4	0
31-Aug-09	322	141	56	101	21	0	3
total	**9605**	**2815**	**710**	**4758**	**1171**	**90**	**61**
percentage	**100.0%**	**29.3%**	**7.4%**	**49.5%**	**12.2%**	**0.9%**	**0.6%**

Perth Airport
Daily Runway Usage (Arrivals for All Aircraft Types)
Sep-09

days	Totals	03	06	21	24	H	I
01-Sep-09	201	51	0	41	105	2	2
02-Sep-09	208	0	0	115	91	2	0
03-Sep-09	188	0	0	137	48	1	2
04-Sep-09	169	94	27	23	20	3	2
05-Sep-09	104	0	0	49	48	7	0
06-Sep-09	115	19	0	54	40	1	1
07-Sep-09	157	100	0	37	17	0	3
08-Sep-09	204	92	1	79	28	2	2
09-Sep-09	199	139	0	47	9	1	3
10-Sep-09	193	119	0	11	60	0	3
11-Sep-09	157	12	0	27	116	0	2
12-Sep-09	97	0	0	38	53	4	2
13-Sep-09	120	18	5	50	42	4	1
14-Sep-09	160	155	1	0	0	2	2
15-Sep-09	200	12	0	147	40	0	1
16-Sep-09	207	69	0	132	1	0	5
17-Sep-09	194	191	0	0	0	0	3
18-Sep-09	164	4	0	154	1	2	3
19-Sep-09	104	13	0	87	1	1	2
20-Sep-09	115	78	0	33	0	1	3
21-Sep-09	159	0	0	93	65	1	0
22-Sep-09	205	6	0	194	0	2	3
23-Sep-09	199	15	0	182	0	0	2
24-Sep-09	201	0	0	200	0	0	1
25-Sep-09	174	0	0	172	0	1	1
26-Sep-09	102	91	0	8	0	1	2
27-Sep-09	108	59	0	45	0	2	2
28-Sep-09	161	0	0	159	0	0	2
29-Sep-09	202	37	0	159	0	3	3
30-Sep-09	200	0	0	199	0	1	0
total	**4967**	**1374**	**34**	**2672**	**785**	**44**	**58**
percentage	**100.0%**	**27.7%**	**0.7%**	**53.8%**	**15.8%**	**0.9%**	**1.2%**

Perth Airport
Daily Runway Usage (Departures for All Aircraft Types)
Sep-09

days	Totals	03	06	21	24	H	I
01-Sep-09	197	51	45	47	53	1	0
02-Sep-09	204	0	0	203	0	1	0
03-Sep-09	182	0	0	180	0	2	0
04-Sep-09	165	56	62	43	0	3	1
05-Sep-09	103	0	0	102	0	0	1
06-Sep-09	105	15	21	68	0	1	0
07-Sep-09	169	96	51	20	0	0	2
08-Sep-09	199	29	28	140	0	2	0
09-Sep-09	199	119	3	74	0	2	1
10-Sep-09	193	167	0	13	10	0	3
11-Sep-09	157	9	0	35	113	0	0
12-Sep-09	97	0	0	81	16	0	0
13-Sep-09	104	9	27	63	4	1	0
14-Sep-09	161	106	53	0	0	2	0
15-Sep-09	193	51	4	138	0	0	0
16-Sep-09	208	95	0	113	0	0	0
17-Sep-09	182	182	0	0	0	0	0
18-Sep-09	162	10	0	147	0	3	2
19-Sep-09	111	52	0	58	0	1	0
20-Sep-09	114	100	0	7	0	7	0
21-Sep-09	167	0	0	118	49	0	0
22-Sep-09	198	4	0	192	0	2	0
23-Sep-09	203	72	0	130	0	1	0
24-Sep-09	194	0	0	193	0	0	1
25-Sep-09	172	0	0	169	0	2	1
26-Sep-09	120	98	0	11	0	11	0
27-Sep-09	110	78	0	25	0	7	0
28-Sep-09	157	0	0	157	0	0	0
29-Sep-09	195	32	0	158	0	3	2
30-Sep-09	208	1	0	205	0	0	2
total	**4929**	**1432**	**294**	**2890**	**245**	**52**	**16**
percentage	**100.0%**	**29.1%**	**6.0%**	**58.6%**	**5.0%**	**1.1%**	**0.3%**

Perth Airport
Daily Runway Usage (Arrivals and Departures for All Aircraft Types)
Sep-09

days	Totals	03	06	21	24	H	I
01-Sep-09	398	102	45	88	158	3	2
02-Sep-09	412	0	0	318	91	3	0
03-Sep-09	370	0	0	317	48	3	2
04-Sep-09	334	150	89	66	20	6	3
05-Sep-09	207	0	0	151	48	7	1
06-Sep-09	220	34	21	122	40	2	1
07-Sep-09	326	196	51	57	17	0	5
08-Sep-09	403	121	29	219	28	4	2
09-Sep-09	398	258	3	121	9	3	4
10-Sep-09	386	286	0	24	70	0	6
11-Sep-09	314	21	0	62	229	0	2
12-Sep-09	194	0	0	119	69	4	2
13-Sep-09	224	27	32	113	46	5	1
14-Sep-09	321	261	54	0	0	4	2
15-Sep-09	393	63	4	285	40	0	1
16-Sep-09	415	164	0	245	1	0	5
17-Sep-09	376	373	0	0	0	0	3
18-Sep-09	326	14	0	301	1	5	5
19-Sep-09	215	65	0	145	1	2	2
20-Sep-09	229	178	0	40	0	8	3
21-Sep-09	326	0	0	211	114	1	0
22-Sep-09	403	10	0	386	0	4	3
23-Sep-09	402	87	0	312	0	1	2
24-Sep-09	395	0	0	393	0	0	2
25-Sep-09	346	0	0	341	0	3	2
26-Sep-09	222	189	0	19	0	12	2
27-Sep-09	218	137	0	70	0	9	2
28-Sep-09	318	0	0	316	0	0	2
29-Sep-09	397	69	0	317	0	6	5
30-Sep-09	408	1	0	404	0	1	2
total	**9896**	**2806**	**328**	**5562**	**1030**	**96**	**74**
percentage	**100.0%**	**28.4%**	**3.3%**	**56.2%**	**10.4%**	**1.0%**	**0.7%**

APPENDIX D

Hourly movements per calendar month for arrivals and departures

during the period July to September 2009

Perth Airport
Hourly Movements (Arrivals and Departures for All Aircraft Types)
Jul-09

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
01-Jul-09	406	13	4	5	1	2	16	28	21	12	23	26	25	20	19	30	22	23	30	28	16	17	6	9	10
02-Jul-09	387	8	4	1	1	2	16	32	21	13	27	22	16	16	23	30	25	24	19	31	18	15	7	9	7
03-Jul-09	335	9	5	0	1	1	12	24	15	15	29	14	15	16	14	25	17	20	28	20	17	11	7	10	10
04-Jul-09	201	13	4	2	0	0	3	10	13	8	13	13	19	19	9	12	8	13	10	8	3	4	2	7	8
05-Jul-09	216	7	4	2	0	0	3	9	5	6	12	15	11	13	9	18	16	15	12	9	9	14	6	10	11
06-Jul-09	315	14	2	1	2	0	10	29	22	14	17	18	18	16	15	14	17	19	15	22	15	11	4	9	11
07-Jul-09	393	6	5	1	0	2	12	27	17	17	29	29	24	28	17	24	25	23	20	22	22	10	10	12	11
08-Jul-09	408	11	4	4	1	1	17	31	22	9	28	25	29	18	19	25	28	22	22	27	28	10	10	9	8
09-Jul-09	370	8	5	3	1	3	13	30	22	8	22	22	18	15	14	24	38	17	20	20	25	14	11	7	10
10-Jul-09	316	5	7	2	2	3	7	21	13	14	23	12	14	16	16	23	21	23	22	17	16	11	10	10	8
11-Jul-09	210	14	2	4	0	0	3	11	13	8	11	15	19	17	14	12	9	10	11	9	6	4	4	7	7
12-Jul-09	220	9	2	2	1	0	6	6	7	6	8	14	10	10	16	12	16	18	15	16	9	13	7	9	8
13-Jul-09	335	11	5	2	0	0	9	29	25	11	23	26	17	16	17	19	20	21	20	15	16	10	4	11	8
14-Jul-09	391	9	3	2	1	2	16	35	16	12	25	30	24	19	15	22	29	23	27	26	17	14	5	10	9
15-Jul-09	399	15	3	2	1	1	18	29	18	13	30	25	23	16	20	22	25	27	25	27	26	6	11	6	10
16-Jul-09	380	10	4	3	1	2	16	35	19	9	24	26	15	15	20	24	28	20	21	25	24	15	8	7	9
17-Jul-09	315	10	7	1	2	2	11	21	14	14	18	18	13	13	14	29	17	18	24	20	13	13	7	8	8
18-Jul-09	201	12	4	4	0	1	4	13	18	6	14	11	14	13	11	9	12	13	8	8	3	3	7	7	6
19-Jul-09	207	10	4	3	1	1	5	7	7	4	7	14	8	11	13	12	14	13	17	17	7	11	4	8	9
20-Jul-09	315	14	9	5	1	1	12	25	20	14	18	20	21	8	21	13	14	18	18	15	15	10	7	6	10
21-Jul-09	390	10	9	2	1	1	17	30	18	12	22	28	26	18	16	22	25	22	26	21	19	13	11	11	10
22-Jul-09	386	11	5	0	2	3	16	24	18	14	25	25	27	17	20	22	23	25	23	25	22	12	9	7	11
23-Jul-09	383	10	6	2	2	2	18	26	20	14	24	22	16	17	20	28	25	19	25	31	22	13	7	7	7
24-Jul-09	326	9	4	5	2	2	11	22	14	11	22	22	16	15	18	24	14	22	21	20	16	7	9	10	10
25-Jul-09	193	12	5	1	0	1	4	9	16	5	12	11	13	15	9	12	11	14	10	11	3	5	2	6	6
26-Jul-09	214	10	4	0	0	2	4	9	5	6	8	17	11	10	11	15	14	15	16	16	8	10	4	9	10
27-Jul-09	328	12	6	2	0	1	11	28	22	14	23	24	17	12	13	17	15	22	19	19	17	12	3	9	10
28-Jul-09	377	6	5	3	2	2	16	34	18	12	24	32	22	13	15	24	24	21	25	25	16	12	8	7	11
29-Jul-09	385	9	4	2	2	1	16	32	19	10	30	26	24	15	18	26	22	25	21	31	19	10	5	9	9
30-Jul-09	391	10	3	1	1	2	18	36	22	15	25	23	17	15	16	39	26	21	19	29	22	10	5	7	9
31-Jul-09	321	10	6	0	1	2	13	21	16	10	23	18	17	17	11	20	16	23	20	20	16	14	6	12	9
Total	**10014**	**317**	**144**	**67**	**30**	**43**	**353**	**723**	**516**	**336**	**639**	**643**	**559**	**479**	**483**	**648**	**616**	**609**	**609**	**630**	**485**	**334**	**206**	**265**	**280**
Percentage	**100.0**	**3.2**	**1.4**	**0.7**	**0.3**	**0.4**	**3.5**	**7.2**	**5.2**	**3.4**	**6.4**	**6.4**	**5.6**	**4.8**	**4.8**	**6.5**	**6.2**	**6.1**	**6.1**	**6.3**	**4.8**	**3.3**	**2.1**	**2.6**	**2.8**

Perth Airport

Hourly Movements (Arrivals and Departures for All Aircraft Types)

Aug-09

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
01-Aug-09	213	12	5	1	0	1	4	11	14	8	12	17	16	18	9	14	10	13	9	10	5	5	3	7	9
02-Aug-09	230	8	2	1	0	1	5	9	7	8	7	15	15	13	11	13	19	17	14	16	10	14	5	10	10
03-Aug-09	306	9	5	1	1	1	13	27	18	14	22	24	12	15	18	14	11	19	20	16	13	9	9	8	7
04-Aug-09	388	10	2	2	3	4	21	30	18	11	28	34	22	13	18	19	23	23	26	26	15	11	10	9	10
05-Aug-09	398	10	6	1	1	2	18	34	16	13	24	31	21	22	17	23	26	19	27	24	18	15	15	8	7
06-Aug-09	391	13	5	3	1	4	19	25	26	11	17	30	20	9	21	26	28	24	21	30	21	12	9	5	11
07-Aug-09	326	11	4	2	0	4	10	21	13	14	23	14	20	14	18	20	16	26	25	23	10	11	11	7	9
08-Aug-09	190	14	3	2	1	1	3	10	14	5	11	11	17	10	8	13	10	13	10	9	5	4	5	5	6
09-Aug-09	222	10	4	1	0	1	5	8	3	8	8	11	10	11	12	13	14	25	19	15	8	13	3	10	10
10-Aug-09	303	11	3	4	0	1	13	28	19	13	16	19	19	14	12	14	14	20	20	16	10	11	7	9	10
11-Aug-09	376	9	3	2	1	4	15	23	20	16	23	24	30	15	17	20	27	24	22	26	20	10	9	7	9
12-Aug-09	386	14	5	0	1	2	15	24	25	11	21	27	25	20	17	25	23	23	22	25	21	15	11	9	5
13-Aug-09	364	12	2	3	1	4	17	30	14	10	24	24	21	12	13	26	25	23	19	25	23	14	5	7	10
14-Aug-09	308	10	4	0	2	2	9	20	16	9	21	17	17	17	15	18	17	23	17	21	16	10	9	8	10
15-Aug-09	194	10	4	2	1	2	1	10	13	4	12	10	12	15	11	13	8	12	10	9	6	8	4	7	10
16-Aug-09	216	7	3	0	1	1	4	6	7	5	7	13	10	10	13	14	19	20	17	14	9	10	5	8	13
17-Aug-09	320	10	4	1	1	1	13	27	18	17	16	27	18	16	14	17	15	22	20	16	11	10	5	11	10
18-Aug-09	400	8	5	1	1	2	16	33	23	20	22	28	25	21	16	20	31	23	23	27	19	13	7	7	9
19-Aug-09	398	11	4	1	1	2	17	30	18	12	24	27	24	15	19	27	32	24	23	25	23	10	14	6	9
20-Aug-09	372	11	4	1	4	4	17	28	17	10	22	27	17	14	15	25	25	19	21	27	24	13	8	9	10
21-Aug-09	333	11	6	2	0	2	8	18	20	10	16	25	16	16	20	17	15	21	25	25	15	11	12	10	12
22-Aug-09	205	11	6	4	1	1	3	12	15	5	11	14	16	12	12	10	10	16	11	10	1	4	5	7	8
23-Aug-09	219	10	3	0	0	1	5	7	5	5	8	15	9	11	16	13	18	17	12	18	8	13	6	8	11
24-Aug-09	333	13	6	2	1	2	11	30	27	14	20	30	16	16	10	14	18	22	18	16	15	12	4	6	10
25-Aug-09	389	10	4	1	0	3	17	30	18	15	22	27	28	16	19	20	23	28	23	28	18	13	7	9	10
26-Aug-09	391	9	4	0	2	2	14	30	14	17	27	27	27	12	19	25	26	26	22	29	20	17	7	7	8
27-Aug-09	382	5	6	2	2	4	17	30	12	16	25	23	21	18	18	29	19	25	22	27	21	13	7	11	9
28-Aug-09	313	8	3	2	2	1	13	23	13	10	19	18	15	13	14	20	16	22	24	26	11	10	10	9	11
29-Aug-09	207	11	3	3	1	2	5	9	15	5	15	14	13	15	11	14	11	13	9	11	4	4	6	7	6
30-Aug-09	210	7	3	0	1	1	4	7	4	8	7	15	9	9	12	14	19	17	14	17	10	10	5	9	8
31-Aug-09	322	10	7	2	1	1	11	31	17	13	23	23	21	13	18	13	16	22	19	17	15	10	5	6	8
Total	**9605**	**315**	**128**	**47**	**32**	**64**	**343**	**661**	**479**	**337**	**553**	**661**	**562**	**445**	**463**	**563**	**584**	**641**	**584**	**624**	**425**	**335**	**228**	**246**	**285**
Percentage	**100.0**	**3.3**	**1.3**	**0.5**	**0.3**	**0.7**	**3.6**	**6.9**	**5.0**	**3.5**	**5.8**	**6.9**	**5.9**	**4.6**	**4.8**	**5.9**	**6.1**	**6.7**	**6.1**	**6.5**	**4.4**	**3.5**	**2.4**	**2.6**	**3.0**

Perth Airport

Hourly Movements (Arrivals and Departures for All Aircraft Types)

Sep-09

days	total	00:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
01-Sep-09	398	12	3	2	1	3	18	32	21	12	22	32	22	15	16	25	24	26	28	24	22	13	7	8	10
02-Sep-09	412	12	4	1	2	3	18	32	19	17	29	27	24	16	13	27	27	24	27	28	23	13	11	6	9
03-Sep-09	370	9	5	1	2	3	21	28	15	12	24	24	20	13	16	26	27	27	19	29	20	15	5	6	3
04-Sep-09	334	12	7	1	1	2	11	25	12	14	21	16	15	18	19	18	17	23	26	26	11	10	13	5	11
05-Sep-09	207	12	3	2	2	1	3	10	16	9	8	14	13	18	11	13	11	12	14	8	5	3	4	8	7
06-Sep-09	220	10	2	1	0	2	4	7	6	6	9	15	8	13	10	15	21	18	15	14	9	11	6	9	9
07-Sep-09	326	8	5	5	0	2	13	30	18	16	21	27	15	11	18	13	14	22	18	16	19	12	5	9	9
08-Sep-09	403	10	4	3	2	3	11	28	24	13	26	34	31	16	14	22	24	27	29	21	22	15	5	10	9
09-Sep-09	398	11	3	1	1	2	19	27	21	11	23	31	29	16	13	24	31	22	23	25	22	12	11	11	9
10-Sep-09	386	12	5	1	1	4	15	28	22	12	25	27	16	11	20	24	29	26	18	20	25	18	10	6	11
11-Sep-09	314	11	5	2	2	3	8	25	13	12	20	14	14	17	12	17	18	22	21	27	14	10	11	6	10
12-Sep-09	194	12	3	2	3	0	4	8	14	7	9	13	14	14	11	11	10	9	11	9	5	4	6	6	9
13-Sep-09	224	9	4	1	1	1	4	5	6	7	7	17	9	11	11	14	19	21	16	13	10	11	6	8	13
14-Sep-09	321	10	3	3	1	1	10	24	20	15	23	22	18	16	15	15	18	23	19	17	14	11	5	9	9
15-Sep-09	393	11	4	1	1	2	16	28	25	14	22	28	29	11	16	26	20	27	27	24	22	12	8	7	12
16-Sep-09	415	9	5	3	2	3	15	33	20	16	22	31	28	13	24	27	26	23	24	29	19	16	10	7	10
17-Sep-09	376	11	5	1	1	2	20	30	16	11	24	22	17	14	15	29	24	25	23	25	23	13	10	7	8
18-Sep-09	326	10	5	3	1	3	10	23	15	9	25	16	17	12	18	20	15	23	22	28	13	12	5	10	11
19-Sep-09	215	11	5	2	0	1	3	12	16	11	13	15	19	12	11	12	8	13	12	7	4	6	6	9	7
20-Sep-09	229	11	3	0	1	1	4	7	7	6	8	15	12	14	14	13	13	19	16	16	9	10	8	12	10
21-Sep-09	326	12	3	2	1	1	12	31	16	16	20	22	20	19	14	14	15	26	18	15	14	15	6	8	6
22-Sep-09	403	11	3	6	2	3	17	36	17	12	24	33	26	13	19	24	23	27	28	24	16	16	7	6	10
23-Sep-09	402	15	5	0	2	1	20	25	21	13	19	32	25	21	17	26	28	21	24	27	20	13	16	6	5
24-Sep-09	395	15	7	4	1	5	16	32	16	12	25	22	14	14	19	29	28	19	25	28	26	16	5	6	11
25-Sep-09	346	11	5	2	2	1	10	27	17	13	25	20	17	13	18	21	18	24	21	29	14	14	8	10	6
26-Sep-09	222	8	8	3	1	0	4	14	17	8	10	19	18	17	10	11	14	11	13	8	3	5	4	6	10
27-Sep-09	218	9	3	0	1	0	5	5	9	7	8	14	11	14	7	19	13	22	18	11	11	10	4	6	11
28-Sep-09	318	9	6	4	0	2	12	24	22	14	20	24	15	14	14	12	19	27	19	15	9	16	4	6	11
29-Sep-09	397	12	5	1	1	2	19	29	21	11	20	24	31	15	21	21	26	30	26	25	18	14	7	6	12
30-Sep-09	408	11	5	2	3	2	18	30	24	16	27	26	25	16	17	29	22	26	18	30	21	15	7	6	12
Total	**9896**	**326**	**133**	**60**	**39**	**59**	**360**	**695**	**506**	**352**	**579**	**676**	**572**	**437**	**453**	**597**	**602**	**665**	**618**	**618**	**463**	**361**	**220**	**225**	**280**
Percentage	**100.0**	**3.3**	**1.3**	**0.6**	**0.4**	**0.6**	**3.6**	**7.0**	**5.1**	**3.6**	**5.9**	**6.8**	**5.8**	**4.4**	**4.6**	**6.0**	**6.1**	**6.7**	**6.2**	**6.2**	**4.7**	**3.6**	**2.2**	**2.3**	**2.8**

APPENDIX E

Aircraft average noise levels

July to September 2009

PERTH AIRPORT
Aircraft Average Noise Levels
Third Quarter 2009 and Previous Four Quarters
Location: Cannington NMT 1

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
							RESULTS FROM PREVIOUS QUARTERS*			
						09Q3	09Q2	09Q1	08Q4	08Q3
C17	Mcdonnell Globemaster	D	21	8	7	81.9(3.3)				
B734	Boeing 737-400	D	21	131	125	79.0(2.4)	78.1(2.6)	77.8(3.0)	79.0(2.1)	78.4(3.0)
A342	Airbus A340-200	D	21	14	12	77.7(1.2)	77.9(1.6)		77.4(0.9)	78.2(1.2)
A332	Airbus A330-200	D	21	270	227	76.9(1.9)	76.6(2.0)	75.9(1.8)	78.5(2.6)	79.9(2.2)
A343	Airbus A340-300	D	21	62	48	76.8(1.4)	76.8(1.8)	76.7(1.9)	77.3(1.9)	79.4(3.2)
B733	Boeing 737-300	D	21	37	34	76.5(2.3)	75.5(1.8)	73.9(1.4)	75.2(2.0)	75.8(2.1)
B73Y	Boeing 737-300 Freighter	D	21	60	57	76.4(1.9)	76.7(2.0)	76.4(1.7)	75.7(1.5)	76.4(1.6)
B77W	Boeing 777-300ER	D	21	18	18	76.0(0.6)			74.4(1.1)	
A345	Airbus A340-500	D	21	20	15	75.7(3.3)	75.3(1.6)	74.1(1.4)	74.7(1.0)	74.6(1.2)
A333	Airbus A330-300	D	21	472	394	75.3(1.6)	75.1(1.7)	74.2(1.9)	75.0(1.8)	75.2(1.8)
A346	Airbus A340-600	D	21	21	16	75.0(1.5)	74.5(1.2)	74.1(1.2)	74.7(1.7)	
B77L	Boeing 777-200LR	D	21	56	53	74.9(1.4)	74.2(1.4)	72.7(1.2)		
B763	Boeing 767-300	D	21	523	451	74.2(1.8)	74.0(1.8)	73.4(2.0)	74.5(2.2)	75.0(2.7)
B737	Boeing 737-700	D	21	459	429	74.1(1.9)	74.0(1.7)	74.1(1.6)	74.1(1.9)	74.1(2.0)
B738	Boeing 737-800	D	21	1296	1136	73.9(2.9)	73.9(2.9)	73.8(3.2)	74.5(3.2)	74.4(2.9)
B772	Boeing 777-200	D	21	68	32	73.9(1.5)	73.2(1.8)	73.2(2.5)	73.8(2.0)	74.0(1.7)
F100	Fokker 100	D	21	693	488	72.8(2.5)	72.3(2.3)	72.0(2.6)	73.0(2.5)	74.0(2.6)
E170	Embraer ERJ-170	D	21	17	12	72.8(1.6)	72.3(1.4)			77.5(1.1)
A320	Airbus A320	D	21	596	339	72.2(1.8)	71.8(2.0)	71.2(2.2)	72.7(2.8)	73.2(2.7)
E190	Embraer ERJ-190/195	D	21	334	282	72.0(1.3)	71.6(1.5)	71.3(1.4)	72.8(2.7)	
B712	Boeing 717-200	D	21	727	471	71.6(2.2)	70.7(2.6)	70.1(2.3)	70.6(2.4)	70.8(2.3)
B763	Boeing 767-300	A	03	255	73	71.3(2.3)	71.2(2.7)	69.6(3.4)	70.3(2.5)	70.9(2.9)
B463	BAe 146-300	D	21	108	36	71.0(2.4)	69.6(2.6)	69.3(2.3)	70.2(2.4)	71.3(2.8)
B738	Boeing 737-800	D	24	67	20	71.0(2.1)	71.3(0.9)			
B73Y	Boeing 737-300 Freighter	A	03	56	35	70.7(2.2)	69.9(1.5)	68.4(1.0)	70.6(1.6)	70.1(1.5)

*Data in the first 6 columns apply to the current quarter only.

PERTH AIRPORT
Aircraft Average Noise Levels
Third Quarter 2009 and Previous Four Quarters
Location: Queens Park NMT 2

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
							RESULTS FROM PREVIOUS QUARTERS*			
						09Q3	09Q2	09Q1	08Q4	08Q3
C17	Mcdonnell Globemaster	D	21	8	6	83.2(3.2)				
A342	Airbus A340-200	D	21	14	13	83.1(1.3)			82.8(1.8)	82.7(1.7)
A343	Airbus A340-300	D	21	62	59	80.9(2.0)	81.2(2.0)	81.0(2.4)	82.2(1.3)	82.6(2.3)
A346	Airbus A340-600	D	21	21	20	79.3(1.4)	79.6(1.0)	79.2(1.1)	80.2(1.3)	
A345	Airbus A340-500	D	21	20	20	79.1(2.6)	79.1(1.4)	79.7(1.6)	79.4(1.4)	79.6(1.3)
B772	Boeing 777-200	D	21	68	63	78.9(1.5)	77.7(2.0)	77.2(2.4)	78.3(2.2)	79.0(1.9)
A333	Airbus A330-300	D	21	472	426	78.8(1.4)	78.6(1.4)	78.1(1.7)	78.6(1.4)	78.6(1.4)
A332	Airbus A330-200	D	21	270	257	78.6(1.5)	78.2(1.4)	77.9(1.5)	78.0(1.4)	77.6(1.6)
B77W	Boeing 777-300ER	D	21	18	17	78.3(1.0)			77.9(0.9)	
B734	Boeing 737-400	D	21	131	124	78.0(1.4)	77.8(1.4)	77.3(1.5)	77.6(1.6)	78.4(1.6)
B763	Boeing 767-300	A	03	255	242	77.5(2.3)	76.9(2.1)	76.2(1.9)	77.3(2.3)	77.3(2.3)
B733	Boeing 737-300	A	03	26	26	77.4(1.4)	78.3(1.8)	78.5(1.8)	77.9(1.1)	78.0(1.8)
B734	Boeing 737-400	A	03	60	60	77.4(1.4)	77.1(1.4)	76.6(1.6)	76.6(1.6)	77.4(1.5)
B77L	Boeing 777-200LR	D	21	56	52	77.4(1.2)	77.2(1.4)	76.7(1.5)		
B73Y	Boeing 737-300 Freighter	A	03	56	51	77.3(1.2)	77.6(1.5)	77.6(1.3)	78.0(1.6)	78.0(1.8)
A346	Airbus A340-600	A	03	15	13	77.1(1.1)	76.4(1.8)	77.2(1.3)	77.2(1.8)	
B77W	Boeing 777-300ER	A	03	9	9	76.6(1.3)				
B772	Boeing 777-200	A	03	27	25	76.5(2.2)	75.8(1.9)	77.0(2.8)	77.3(1.6)	76.9(2.0)
B763	Boeing 767-300	D	21	523	494	76.5(1.5)	76.1(1.7)	75.8(1.9)	75.6(1.8)	75.0(1.7)
WW24	IAI Westwind 24/24A	D	21	7	6	76.3(1.6)		73.9(3.0)	73.6(2.7)	
B73Y	Boeing 737-300 Freighter	D	21	60	59	76.1(1.9)	76.6(2.0)	75.8(1.8)	74.8(2.4)	75.2(1.5)
B77L	Boeing 777-200LR	A	03	24	22	76.1(0.9)	75.6(1.0)			
A332	Airbus A330-200	A	03	147	136	75.9(2.4)	75.8(2.3)	75.8(2.0)	76.3(2.1)	75.8(2.3)
A345	Airbus A340-500	A	03	15	15	75.9(1.2)	76.0(1.5)	76.4(2.1)	76.3(1.2)	76.0(1.4)
A333	Airbus A330-300	A	03	287	273	75.8(1.9)	75.6(1.9)	76.1(2.6)	76.8(2.7)	76.2(1.9)

*Data in the first 6 columns apply to the current quarter only.

PERTH AIRPORT
Aircraft Average Noise Levels
Third Quarter 2009 and Previous Four Quarters
Location: Redcliffe NMT 3

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
							RESULTS FROM PREVIOUS QUARTERS*			
						09Q3	09Q2	09Q1	08Q4	08Q3
B763	Boeing 767-300	A	06	8	8	90.1(2.3)	87.7(4.1)	87.8(1.7)	86.4(5.1)	89.0(1.5)
A333	Airbus A330-300	D	24	6	6	89.1(3.5)	88.2(3.9)			
B738	Boeing 737-800	A	06	37	36	87.3(1.0)	86.6(1.2)	85.4(1.5)	86.4(2.0)	87.3(1.4)
A332	Airbus A330-200	D	24	7	7	86.2(2.9)				
F50	Fokker 50	A	06	20	18	85.9(0.8)	85.0(1.6)	84.0(1.0)	84.4(1.4)	85.1(1.0)
F100	Fokker 100	D	24	34	31	85.7(3.3)	83.8(5.3)	84.5(2.9)	86.9(2.1)	87.1(1.3)
B463	BAe 146-300	D	24	6	6	85.5(2.7)				
F100	Fokker 100	A	06	9	9	85.0(2.7)	82.7(1.9)	80.4(3.4)	83.5(3.6)	85.2(3.7)
E190	Embraer ERJ-190/195	A	06	16	16	84.5(0.9)	84.2(4.1)	82.9(1.8)	83.0(1.2)	
B763	Boeing 767-300	D	24	17	14	84.2(1.8)	84.9(2.2)		85.6(1.8)	85.0(2.8)
B737	Boeing 737-700	D	24	12	12	84.2(1.7)	84.2(1.7)		85.4(2.1)	84.8(1.8)
B738	Boeing 737-800	D	24	67	64	84.1(2.4)	84.5(2.9)	87.1(1.7)	86.6(2.7)	85.1(2.0)
A320	Airbus A320	A	06	7	7	83.8(1.3)	83.6(1.0)	82.7(4.8)		
E190	Embraer ERJ-190/195	D	24	20	18	83.6(1.6)	82.7(1.7)		84.6(1.2)	
A320	Airbus A320	D	24	15	14	82.8(1.9)	82.3(1.9)		83.6(2.3)	83.5(2.7)
B712	Boeing 717-200	A	06	18	17	82.1(0.8)	81.0(1.0)	80.1(1.0)	81.0(1.1)	82.2(1.0)
B712	Boeing 717-200	D	24	41	41	80.9(2.5)	80.8(2.1)	81.2(2.1)	82.3(2.8)	80.9(2.3)
SW4	Fairchild MerlinIV/C Metro23	A	06	10	10	80.4(4.8)	78.2(3.8)	77.6(3.7)	80.2(3.6)	79.9(4.3)
SW4	Fairchild MerlinIV/C Metro23	D	24	18	15	77.8(6.1)	77.6(6.3)			79.3(7.7)
DH8C	DHC Dash 8C	D	24	7	7	76.7(1.6)				
F50	Fokker 50	D	24	39	37	75.5(2.2)	75.5(2.5)		76.4(2.7)	75.8(3.1)
E120	Embraer Brasilia	D	24	16	16	75.4(1.9)	75.3(2.1)			76.1(2.6)
DH8A	DHC Dash 8A	D	24	15	15	73.7(3.1)	71.9(2.5)			74.6(2.0)
A332	Airbus A330-200	D	21	270	166	72.2(2.8)	71.8(2.7)	70.0(2.2)	70.2(2.1)	72.1(2.6)
A343	Airbus A340-300	A	03	27	10	72.2(2.7)	74.2(3.7)	72.7(2.7)		72.6(4.8)

*Data in the first 6 columns apply to the current quarter only.

PERTH AIRPORT
Aircraft Average Noise Levels
Third Quarter 2009 and Previous Four Quarters
Location: Greenmount NMT 4

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
							RESULTS FROM PREVIOUS QUARTERS*			
						09Q3	09Q2	09Q1	08Q4	08Q3
B763	Boeing 767-300	A	24	345	342	79.2(1.5)	78.7(1.7)	78.1(1.3)	78.6(1.4)	79.1(1.4)
B733	Boeing 737-300	A	24	16	16	78.9(1.6)	78.7(0.9)	78.0(1.2)	77.9(1.2)	78.7(1.6)
A333	Airbus A330-300	A	24	22	21	78.3(1.4)	79.2(2.5)	76.7(0.7)		
B73Y	Boeing 737-300 Freighter	A	24	25	25	78.2(1.2)	79.1(1.1)	77.6(1.5)	77.4(1.4)	78.2(1.7)
A332	Airbus A330-200	A	24	65	62	78.1(1.7)	77.8(1.6)	77.2(1.3)	77.7(1.3)	78.1(1.4)
A332	Airbus A330-200	D	06	20	19	77.7(1.2)	76.3(1.5)	75.4(1.6)	76.5(1.7)	76.4(1.3)
B734	Boeing 737-400	A	24	83	82	77.5(1.3)	76.9(1.5)	76.7(1.4)	77.0(1.3)	77.1(1.3)
DH8C	DHC Dash 8C	A	24	64	63	77.3(2.5)	76.4(2.9)	74.4(2.8)	75.0(2.5)	75.7(2.4)
B734	Boeing 737-400	D	06	14	13	77.2(1.1)	76.2(0.9)	75.2(1.4)	74.7(1.7)	74.7(1.9)
B738	Boeing 737-800	A	24	517	506	77.0(1.2)	76.8(1.2)	76.1(1.1)	76.4(1.1)	76.8(1.2)
DH8A	DHC Dash 8A	A	24	111	107	76.5(3.0)	75.6(2.8)	74.4(2.9)	74.7(2.7)	75.4(3.2)
F100	Fokker 100	D	06	192	162	76.1(1.9)	75.0(2.1)	73.2(2.0)	74.7(2.3)	76.0(2.0)
B737	Boeing 737-700	A	24	286	280	76.0(1.1)	75.7(1.1)	75.3(1.2)	75.4(1.0)	75.9(1.2)
A320	Airbus A320	D	06	105	67	75.5(2.5)	73.5(2.6)	72.6(1.7)	73.1(2.7)	74.0(2.3)
A320	Airbus A320	A	24	226	219	75.5(1.4)	75.1(1.5)	74.4(1.4)	74.5(1.4)	75.1(1.4)
B763	Boeing 767-300	D	06	147	131	75.4(2.4)	74.0(2.1)	72.1(1.9)	74.8(2.4)	74.4(2.2)
E190	Embraer ERJ-190/195	A	24	114	111	75.4(1.4)	75.1(1.4)	74.5(1.2)	74.7(1.1)	75.4(0.9)
F50	Fokker 50	A	24	227	222	74.8(1.4)	74.5(1.7)	73.6(1.5)	74.0(1.4)	74.2(1.4)
B738	Boeing 737-800	D	06	218	198	74.6(1.7)	73.4(1.7)	72.4(1.5)	73.1(1.9)	73.6(1.8)
D328	Dornier Fairchild 328	A	24	7	7	74.3(0.9)		72.4(1.9)	72.7(2.1)	73.8(1.7)
E170	Embraer ERJ-170	D	06	6	6	74.2(1.8)	71.7(2.4)			
B737	Boeing 737-700	D	06	133	127	73.7(1.6)	72.5(1.5)	71.5(1.6)	71.8(1.6)	72.4(1.6)
B462	BAe 146-200	D	06	28	27	73.5(1.9)	72.3(1.7)	72.1(2.3)	72.2(3.2)	72.5(1.9)
E190	Embraer ERJ-190/195	D	06	101	85	73.5(1.6)	72.0(1.5)	71.3(1.6)	71.4(1.4)	
B712	Boeing 717-200	D	06	197	169	73.5(1.5)	72.1(1.7)	70.9(1.4)	71.7(1.6)	72.8(1.4)

*Data in the first 6 columns apply to the current quarter only.

PERTH AIRPORT
Aircraft Average Noise Levels
Third Quarter 2009 and Previous Four Quarters
Location: Guildford NMT 5

TYPE	DESCRIPTION	OPERATION	RUNWAY	MOVEMENTS	CORRELATED NOISE EVENTS	MEAN MAXIMUM SOUND LEVEL (Std Dev) , dB(A)				
							RESULTS FROM PREVIOUS QUARTERS*			
						09Q3	09Q2	09Q1	08Q4	08Q3
A342	Airbus A340-200	D	03	15	15	84.0(1.1)			83.5(1.9)	84.3(2.0)
A343	Airbus A340-300	D	03	36	34	82.8(2.0)	81.9(2.3)	81.5(2.7)	83.4(1.9)	82.7(2.1)
A346	Airbus A340-600	D	03	9	9	81.6(1.8)	80.8(1.0)	80.9(1.3)		
B77W	Boeing 777-300ER	D	03	13	12	81.4(1.3)	79.5(1.4)			
B734	Boeing 737-400	D	03	58	56	81.0(1.4)	80.9(1.2)	79.6(1.7)	81.0(1.8)	81.1(1.4)
A345	Airbus A340-500	D	03	19	18	80.6(1.6)	80.7(1.8)	81.2(2.1)	81.3(2.4)	80.8(2.5)
A333	Airbus A330-300	D	03	271	257	80.1(1.8)	79.9(1.7)	79.1(2.0)	80.0(1.8)	80.1(1.7)
B77L	Boeing 777-200LR	D	03	30	30	80.0(1.7)	79.5(1.5)			
A332	Airbus A330-200	D	03	113	107	79.8(1.3)	79.7(1.3)	79.0(1.4)	79.6(1.2)	79.7(1.3)
B772	Boeing 777-200	D	03	22	20	79.0(2.1)	78.1(2.4)	76.8(2.2)	78.8(2.4)	78.6(2.4)
B763	Boeing 767-300	D	03	160	153	78.7(2.2)	77.6(1.7)	76.1(2.3)	78.4(2.3)	78.7(2.1)
B73Y	Boeing 737-300 Freighter	D	03	22	22	78.7(1.4)	79.1(2.2)			
B738	Boeing 737-800	D	03	633	586	77.5(1.5)	77.3(1.5)	77.1(1.9)	77.4(1.7)	77.5(1.5)
B733	Boeing 737-300	D	03	11	11	77.4(2.1)	76.6(2.3)			
F100	Fokker 100	D	03	360	314	77.0(2.5)	76.9(2.3)	76.8(2.7)	77.9(2.4)	77.3(2.3)
B737	Boeing 737-700	D	03	150	143	76.7(1.3)	76.3(1.4)	76.0(0.9)	76.6(1.5)	76.0(1.2)
E190	Embraer ERJ-190/195	D	03	132	130	76.7(1.3)	76.5(1.6)	75.7(1.7)	75.3(1.6)	
B772	Boeing 777-200	A	21	63	62	76.6(2.3)	75.5(2.2)	76.1(2.3)	76.7(2.5)	76.8(2.3)
B763	Boeing 767-300	A	21	239	230	76.2(2.3)	75.2(1.8)	75.3(2.0)	75.8(2.0)	76.1(2.1)
B733	Boeing 737-300	A	21	14	14	76.2(1.0)	75.4(1.7)	75.9(1.4)	76.2(1.5)	76.4(1.2)
B73Y	Boeing 737-300 Freighter	A	21	24	24	76.2(0.9)	75.7(1.2)	76.1(1.6)	76.8(1.8)	76.9(1.6)
B463	BAe 146-300	D	03	98	91	76.0(1.8)	75.9(2.2)	77.0(2.2)	76.7(3.3)	75.9(2.5)
B734	Boeing 737-400	A	21	57	56	75.8(1.5)	75.3(1.5)	75.0(1.4)	75.6(1.5)	76.3(1.5)
A346	Airbus A340-600	A	21	16	15	75.6(1.2)	75.5(2.2)	74.6(1.0)	75.2(1.2)	
A320	Airbus A320	D	03	243	225	75.3(1.7)	74.8(1.6)	74.8(1.4)	75.1(1.6)	74.6(1.6)

*Data in the first 6 columns apply to the current quarter only.

ATTACHMENT B

WEB LINKS

WEB LINKS

1. Airservices Australia
   www.airservicesaustralia.com

2. Air Services Act 1995
   www.comlaw.gov.au/comlaw/Legislation/ActCompilation1.nsf/0/7B474353695F4102CA2575DD00223C60?OpenDocument

3. Noise and Flight Path Monitoring System Reports
   www.airservicesaustralia.com/projectsservices/reports/nfpms/default.asp

4. WebTrak
   www.airservicesaustralia.com/aviationenvironment/noise/webtrak

5. Environmental Principles and Procedures for minimising the impact of aircraft noise.
   www.airservicesaustralia.com/projectsservices/reports/principlesprocedures.pdf

6. Quarterly Reports To Industry
   www.airservicesaustralia.com/media/corporatepubs/default.asp

7. Waypoint
   https://www.airservicesaustralia.com/projectsservices/industryforums/waypoint/default.asp

8. Annual Report 2008–09
   www.airservicesaustralia.com/media/corporatepubs/docs/annualreports/areport0809.pdf

9. Corporate Plan 2009-14
   www.airservicesaustralia.com/media/corporatepubs/docs/corporateplan.pdf

10. ATM Performance Reports
    - Brisbane Green Project Report
    - Long Term Operating Plan for Sydney Report

    www.airservicesaustralia.com/projectsservices/reports/default.asp

11. Daily Weekday Peak Hour Arrival Performance Reports
    www.airservicesaustralia.com/projectsservices/reports/perfrep/html.asp?/perfrep/default.asp

ATTACHMENT C

AIRSERVICES AUSTRALIA QUARTERLY REPORT TO INDUSTRY
Q3 2008 -2009

AIRSERVICES AUSTRALIA

Airservices Australia

Quarterly Report to Industry

Q3 2008–2009

airspace | airside | **AIRSERVICES AUSTRALIA**

Introduction

Airservices issues quarterly reports to provide information to our customers and industry partners on our performance and future activities.

Key themes of this report:

- Industry outlook
- Aircraft activity
- Aviation Rescue and Fire Fighting (ARFF) activity
- Training
- Financial performance
- Major project update
- The Aviation White Paper
- Collective agreement negotiations
- Environment and efficiency initiatives

Industry outlook

In the last quarter industry activity declined across all activity measures.

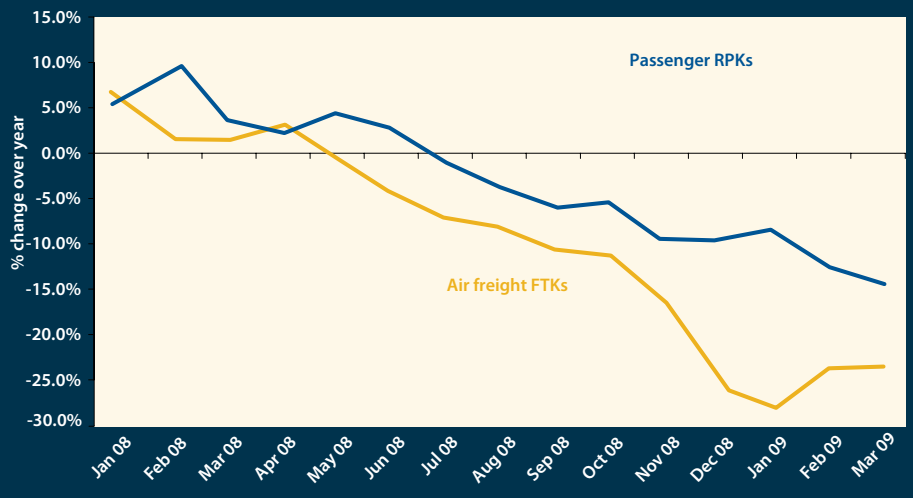
The March quarter industry activity showed a decline in all activity measures compared to the previous three quarters. Weighted average growth for the quarter for all services was only 0.7% when compared to the same period in the previous year. Of each of the key activity drivers (number of flights, tonnes landed and chargeable distance), only chargeable distance showed marginal growth when compared to the same period in the previous year.

The International Air Transport Association (IATA) international traffic statistics for February 2009, released in late March 2009, showed a continuing deterioration in demand in the international market.

Passenger volumes fell to 10.1% below 2008 levels and reductions in capacity did not keep pace with the fall in demand, pushing the February 2009 load factor down to 69.9% (3.2 percentage points below the same month in the previous year).

Table 1: Asia Pacific passenger and freight tonne-kilometres

Source:IATA



Aircraft activity

International

International activity across key regions grew in the March 2009 quarter in comparison to the same period in the previous year, with the Middle East region experiencing the strongest growth. South Asia was the only region to experience a decrease in activity over the period.

Whilst international revenue levels were above forecast in the March 2009 quarter, is its expected international activity will soften as the effects of the global economic downturn come into play and passenger loads reduce, bringing full year revenue results back in line with forecast by June 2009.

Airservices expects any short term growth in international revenue will be offset by decreases in domestic revenue.

Table 2: International En route Revenue Growth
March quarter 2009 compared to March quarter 2008

Region	
Africa	5.7% ▲
South Asia	2.8% ▼
Middle East	39.3% ▲
South-East Asia	3.5% ▲
North-East Asia	0.3% ▲
North America	0.8% ▲
Islands	6.3% ▲
New Zealand	2.6% ▲
Australia	6.0% ▲

Domestic

Domestic activity across key the top 10 city pairings declined in the March 2009 quarter in comparison to the same period in the previous year, with only the Sydney-Perth and Melbourne-Perth routes experiencing growth.

The impact of announced capacity reductions by Virgin Blue and Qantas will ultimately depend on how much capacity reduction is picked up by Jetstar and others. Recent activity modelling estimates a preliminary reduction of $10m-$15m, which is in line with forecast reductions in the next year.

With industry-wide reductions in load factors forecast, Airservices continues to monitor the financial impact of changes within the industry.

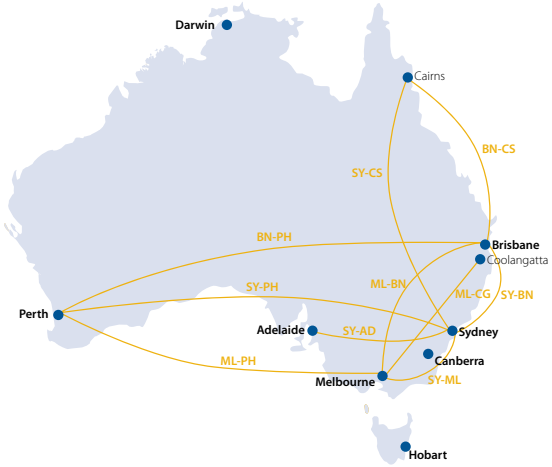


Table 3: Domestic En route Revenue Growth
March quarter 2009 compared to March quarter 2008

City Pair Code	
BN-CS Brisbane to Cairns	8.9% ▼
BN-PH Brisbane to Perth	12.4% ▲
ML-CG Melbourne to Coolangatta	19.4% ▼
ML-PH Melbourne to Perth	5.8% ▲
ML-BN Melbourne to Brisbane	4.1% ▼
SY-BN Sydney to Brisbane	10.7% ▼
SY-ML Sydney to Melbourne	3.5% ▼
SY-PH Sydney to Perth	22.8% ▲
SY-AD Sydney to Adelaide	8.6% ▼
SY-CS Sydney to Cairns	26% ▼
Other Routes	2.5% ▼

Left: Airservices technical trainees on a visit to the Melbourne Air Traffic Services Centre.

Workforce planning & training

Air traffic control

At the end of February 2009 Airservices had 938 air traffic controllers. There are a number of ab initio and experienced courses involving 100 trainees at the Airservices Learning Academy in Melbourne scheduled throughout 2009. In this quarter, twelve trainees began an en route ab initio course in February and are targeted for graduation at Christmas. Eight veteran controllers began a 15 week experienced controller course at the start of the year and were expected to complete it around April 2009.

Aviation rescue & fire fighting (ARFF)

Another 22 ARFF recruits graduated as trainee fire fighters following eight weeks intensive training. They will be posted to ARFF stations at major regional, domestic and international airports around the country.

More than 70 additional recruits are expected to complete their training and graduate during 2009.

Technology & asset services regional technical training program

The first group of 18 technical trainees have begun a brand-new, Airservices-sponsored course at TAFE NSW's Riverina Institute designed to give them the skills to maintain Australia's high-tech air traffic control equipment.

The trainees will complete two-year Diploma of Electrical Engineering at the Wagga Wagga campus leading to careers as technical engineers with Airservices. They will learn about communications, surveillance, navigation aids and data systems and how to maintain the world's best aviation equipment.

Airservices has provided $2.8m to establish the trade-specific curriculum and training facility. The program aims to train up to 50 students each year for the next five years.

Principal activities

ATC performance

The performance of our air traffic control group was again affected during the early part of the quarter by service interruptions. Airservices regrets the disruptions to our airline customers and the Australian travelling public. We are committed to working with our controllers to maintain a safe, efficient workforce and airspace management system. Airservices also remains committed to increased training in order to meet the problem of an ageing workforce.

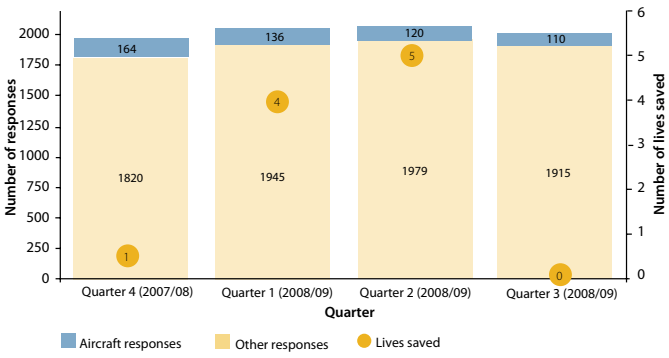
Air traffic control tower services commenced at Avalon following the completion of familiarisation and air traffic controller training. CASA indicated agreement to the provision of a service from Melbourne Centre and planning for a transition is well underway.

ARFF performance

During the March 2009 quarter, ARFF provided assistance to the Victorian Country Fire Authority's bush fire response with staff and vehicles being deployed on four occasions to Whittlesea, Gisborne, Daylesford and Bacchus Marsh. ARFF fire fighters also manned the Victorian Country Fire Authority's Greenvale Fire Station. These responses were made without affecting category levels at airports with staff volunteering to come in off leave.

Work is underway to establish a Category 5 ARFF presence at Karratha airport by June 2009. A Category 7 service is expected to be provided by the end of 2009.

Table 4: ARFF performance



Financial performance

Operating results

Total operating revenue for the quarter was $189.6m.

Gross airways revenue (GAR) was $186.3m. With load factors declining there have been some reductions in flight activity, though revenues are holding up at forecast levels. In line with revenues being maintained, GAR continues to exceed the upper limit of the risk sharing threshold as part of our Long Term Pricing Agreement (LTPA) with $5.9m expected to be returned to customers following this quarter's results.

Operating expenses for the quarter were $156.2m. Savings of $3.8m were achieved due to reduced supplier costs and lower depreciation and amortisation. Net profit after tax for the quarter ending 31 March 2009 was $22.9m.

Capital expenditure for the quarter was $34.9m, which brings the year to date spend to $103.7m.

Long Term Pricing Agreement (LTPA)

The review of pricing and structural options for a new long term pricing agreement is continuing.

Consultation has continued with the Pricing Consultative Committee (PCC) to develop the key elements underpinning the new long term pricing agreement. Discussion with the PCC has included the emerging air traffic management services plan, Airservices capital works program and asset management plan, forecast reviews of airways activity and trends, the weighted average cost of capital and, more broadly, the issues raised in the pricing options paper.

Recently, we received the International Air Transport Association's (IATA) draft airways activity forecast to 2015, which is being reviewed.

Input to the Aviation White Paper

Airservices lodged a submission in response to the Government's national aviation policy statement Green Paper with the Department of Infrastructure, Transport, Regional Development and Local Government on 19 March. A White Paper is expected to be published later this year.

Key points of Airservices submission include:

- our commitment to move towards the development of a single, national air navigation service provider platform for Australia. This will incorporate an integrated airspace and air traffic management system for civil and military operations under common regulation and strategic objectives.
- support for the wider adoption of satellite coverage for navigation and surveillance purposes, and to ensure Australia keeps pace with world aviation developments
- a commitment to the development of aviation skills training in regional Australia based on the successful introduction of our regional traineeship scheme in Wagga Wagga, NSW, this year
- a focus on helping our neighbours in the region develop and implement a seamless and interoperable air traffic management system with common procedures.

We are committed to working with the Government and industry to support initiatives designed to make aviation safe, secure and efficient.

Above: Equipment similar to that pictured, installed in Montreal in Canada, will be rolled out to Australia's air traffic control towers.

Major projects

Telecommunications infrastructure network replacement (TINR)

The project is progressing with the pre-positioning power works complete at more than 80 sites. The installation of Iterra Satellite Service dishes is also on schedule with 21 of the 23 dishes installed.

Below: Adelaide air traffic control tower.

ADS-B program

The remaining 12 ADS-B ground stations will enter service in 2009 with the completion of communication links, providing surveillance coverage across the continent in upper airspace. Work also commenced at Lord Howe Island, which will see new ADS-B, NDB and DME facilities commissioned in the second half of 2009.

CASA published a Notice for Rule Making regarding ADS-B avionics in upper airspace. Taking effect from December 2013, the new requirements will make fitment and operation of ADS-B OUT avionics mandatory for all civil operations at or above 29,000 feet unless CASA has authorised otherwise.

National towers project

Airservices has awarded a contract for the first stage of a multi-million dollar upgrade to air traffic control tower equipment.

New towers planned for construction in Melbourne, Adelaide and Rockhampton will be the first to receive the technology, which includes touch screens which can be customised to provide information and allow controllers to perform operational tasks.

The system combines flight and operational data, surveillance and voice communications into a single integrated, tower-specific layout. It will replace manual systems dating back to the construction of many towers, in some cases as much as 40 years ago.

Airservices has appointed a consortium of Sensis Corporation (US) and NAV CANADA, Canada's air navigation services provider, to project manage, install and support the technology. The consortium will also provide system design, integration testing and training.

Above: The Minister for Infrastructure, Anthony Albanese (left) and Airservices CEO Greg Russell announce a national upgrade to aviation rescue and fire fighting services in Melbourne.

$70 million upgrade to ARFF capability

The Minister for Infrastructure, Transport, Regional Development and Local Government, Anthony Albanese, announced a $70 million upgrade to aviation rescue and fire fighting services at major airports in March.

The program includes the purchase of another 33 Mk8 fire trucks and an investment of $7m in a new state-of-the-art aviation fire training facility at the Victorian Country Fire Authority's existing training centre in Fiskville, north of Melbourne. The centrepiece will be a full-sized-mock-up of an aircraft, creating realistic environments for students to practise fire fighting and rescue scenarios. It will compliment the training activities being delivered by Airservices' Learning Academy at Melbourne Airport.

The $70 million investment package also includes:

- Fire Control Centre alarm monitoring at 20 locations nationwide
- New fire stations at Perth Airport and Maroochydore
- New aerial fire fighting vehicles to meet the needs of the A380
- New protective clothing and equipment for fire fighters
- New domestic response vehicles at Melbourne, Perth and Brisbane airports.

Rollout of new fire trucks continues

41 Mk8 Rosenbauer fire trucks in new high visibility colours have now been delivered to Adelaide, Avalon, Broome, Canberra, Coolangatta, Cairns, Darwin, Melbourne, Perth, Rockhampton and our training centre at Fiskville, north of Melbourne. Mk8s are also earmarked for Karratha when a full ARFF service is reinstated this year.

Airservices has ordered another seven Mk8s from the Austrian manufacturer as part of the upgrade program referred to above. They will be delivered into service progressively between November 2009 and June 2010.

Collective agreement negotiations

Airservices is pleased to report significant progress in the negotiation of three new collective agreements with our unions and staff. We are working to finalise agreement in three key areas of business activity: corporate and technology and asset services, air traffic control and aviation rescue and fire fighting.

In all cases, our aim has been to reach agreements that provide a fair and reasonable outcome in wages and conditions, with salary increases being offered on the basis of productivity improvements.

As we earn our revenue from the aviation industry, the current and emerging cost pressures on the industry have been a key consideration in the negotiations.

Aviation rescue & fire fighting

Airservices has concluded successful negotiations with the United Fire Fighters Union. The draft agreement was accepted by ARFF staff and has received approval from the Workplace Authority. It was due to take effect in mid-May.

Corporate and technology & asset services

After some delay Airservices has reached agreement with the Community and Public Sector Union (CPSU) and the Communications Electrical Plumbing Union (CEPU).

During the negotiations the CPSU sought approval for, and undertook, protected limited stop work action in Sydney, Melbourne and Brisbane in late March. While the action had little or no direct impact on our customers or regular flight operations, Airservices is disappointed the union took the action.

The action was unfortunate as it had no bearing on the outcome of the negotiations. At the time of writing a draft agreement was being finalised before being presented to staff by our negotiation team and union representatives. The agreement will then be put to a vote before being ratified by the Workplace Authority.

Air traffic control

At the time of production of this report, our controllers had voted in favour of a new agreement following national briefings jointly organised with Civil Air and our negotiating team. Airservices is pleased with this result and is now awaiting final clearance from the Australian Workplace Authority, with the agreement to take effect by early June.

Above: Avalon Airshow.

Airservices support for major events

Airservices staff assisted with several major events during March. These included the Avalon Airshow at Geelong, the Clipsal 500 in Adelaide and the Melbourne F1 Grand Prix. Our staff were on hand to ensure safe skies over the events.

A large contingent of Airservices personnel volunteered their time and skills to assist with the smooth running of the Australian International Airshow and provided support for the Careers and Skills Expo at the event. Around 50 staff including air traffic controllers, aviation rescue and fire fighters, technology and asset services staff and corporate staff worked hard to deliver another successful event.

In Adelaide and Melbourne portable air traffic control towers were also installed trackside by Airservices technicians to ensure the safe operation of the aerial component of each of the motor racing events.

Staffed by Airservices controllers from Adelaide and Melbourne, the event towers managed hundreds of helicopter movements and high-speed flying displays by the RAAF Roulettes and an FA-18 Hornet.

There were more than 1500 race-related aircraft movements around and over the circuits during the racing events.

Environment & efficiency initiatives

ASPIRE

The Asia and South Pacific Initiative to Reduce Emissions (ASPIRE) won the Service Provision Award at the Jane's ATC Global Awards in Amsterdam in mid-March.

ASPIRE is a joint environmental initiative of Airservices, Airways New Zealand and the Federal Aviation Administration (FAA) of the United States to demonstrate and measure gate-to-gate emissions and fuel savings by taking maximum advantage of existing efficiency procedures.

In a highly competitive international field, the multinational ASPIRE partnership was recognised for its innovative approach to safe and efficient airspace management.

The Jane's ATC Global Awards reward excellence in the global air traffic management industry. Winners are selected by a panel of senior representatives from the FAA, Eurocontrol, IATA, CANSO, Jane's Information Group and ICAO.

Above: Airservices CEO Greg Russell (left), Airways NZ CEO Ashley Smout (centre) and the FAA Chief Operating Officer, Air Traffic Organisation, Hank Krakowski, accept the Jane's ATC Global Award for Service Provision for the ASPIRE program in Amsterdam in March.

Sydney's runway end safety project (RESA) update

Works on Sydney Airport Corporation Limited's (SACL) Runway End Safety Area (RESA) project are continuing on schedule. SACL reports Phase 2 of the works will commence as planned in June 2009.

During the last quarter, weather conditions have supported the use of the parallel runways. For Phase 2 of the works, the east/west runway will be available for noise sharing between 0600-0700 and 1900-2300 local time. The runway can also be made available during periods of forecast crosswind on the parallel runways.

Airservices continues to implement traffic management options to help reduce the impact of the works on community and industry.

Flextracks

The Flextracks program continued to expand throughout this quarter. Dubai to Brisbane tracks began regular use in February 2009. Airservices is currently working to reduce constraints on this route to ensure maximum fuel and environmental benefits on the optimum path across southern Australia.

Work has also begun to expand route availability for Melbourne to Middle East city pairs and to accommodate additional flights and airlines.

User-preferred routes (UPRs)

A cross-industry forum was initiated in late 2008 to discuss the development and implementation of UPRs. A key outcome was the establishment of a collaborative development team (CDT) of leading industry representatives. The team will meet regularly, undertake more detailed work and report back to the UPR forum, expected to be convened again in May.

A key enabler of UPRs is conflict detection software known as the flight plan conflict function (FPCF). To speed delivery Airservices has restructured the FPCF software packaging. This is progressing well and substantial testing is underway. The project is dependant on the roll-out of precursor air traffic control software known as Version 12. This has been delayed but is being closely managed by Airservices.

Required navigation performance (RNP)

A substantial amount of industry consultation has been undertaken to determine the way forward for deployment of RNP terminal area procedures across our national network.

A request for proposal for up to 28 aerodromes has been issued to identify our options and allow Airservices to better understand the likely costs. Following this, it is anticipated that key airline user requirements will be finalised and a roll-out of RNP-AR 'Public' and RNP-AR 'Special' procedures will occur.

Major technology projects update – highlights for the quarter

Project Name	Description	Estimated Implementation Dates	Status	Future Milestones
Navigation				
Navigation Aid Life Extension (NAVEX)	Renewal of VOR and NDB ground based nav aids.	**Q3** 2009	The NDB at Maroochydore has been commissioned.	The NDBs at Moomba, Goulburn, Moorabbin and Jandakot are scheduled for commissioning by **Q3** 2009.
Sydney Ground Based Augmentation System (GBAS)	GBAS provides more reliable precision approach CAT-I guidance.	**Q2** 2010	A developmental GBAS system at Sydney airport is radiating signals. Approved aircraft may conduct GLS Approaches under a visual clearance.	The next generation GBAS system design approval package has been submitted to the Federal Aviation Administration for approval.
Aviation Rescue and Fire Fighting (ARFF)				
Fire vehicle replacement project — Stage 3	Acquisition of Rosenbauer Mk8 ultra-large fire vehicles.	**Q2** 2009	Seventeen vehicles have been delivered. Three vehicles have yet to complete acceptance testing.	A rolling five year program involving the replacement of 10 vehicles per year is now underway.
Perth new fire station	Replacement purpose-built fire station at Perth.	**Q2** 2010	Contract negotiations are complete with a contract signed.	Fire station construction expected to commence in **Q3** 2009.
Maroochydore new fire Station	Provide permanent purpose-built fire station at Sunshine Coast Airport.	**Q2** 2010	Lease negotiations and approvals have been completed. Contract negotiations are nearing completion, award of a contract expected **Q2** 2009.	Fire station construction expected to commence in **Q3** 2009.
Surveillance				
ADS-B upper airspace	Installation of ADS-B ground stations at 28 locations across Australia	**Q1** 2010	16 of the 28 ADS-B ground stations are now commissioned.	No further commissioning is planned until the TINR Project new digital communications network is implemented.
Airport Surface Movement Guidance & Control System (ASMGCS)	Enables surveillance on the airport surface at Sydney, Brisbane, Melbourne and Perth.	**Q2** 2010	Optimisation of the Sydney ASMGS system has been completed and acceptance testing has commenced. The Melbourne ASMGS system is in place and commissioning preparations are being made.	Melbourne commissioning is now scheduled for **Q2** 2009, with Sydney commissioning scheduled for **Q3** 2009. Brisbane and Perth commissioning are tentatively scheduled for **Q1** and **Q2** 2010.
Australian Mode S Terminal Area Radar (AMSTAR)	Replacement of aging primary and secondary radars in busy terminal areas.	**Q4** 2011	The transportable radar has been commissioned at Melbourne Airport and the upgrade of Gellibrand Hill Terminal Approach Radar has commenced.	The Gellibrand Hill radar is scheduled for commissioning in **Q3** 2009.

Project Name	Description	Estimated Implementation Dates	Status	Future Milestones
Wide Area Multilateration (WAM) —Sydney	Provides enhanced surveillance and display capabilities to replace the existing electronic scan precision runway monitor (PRM).	**Q4** 2010	Installation of antenna equipment is proceeding at a number of sites within the Sydney basin.	Sensor/antenna equipment installation is scheduled for completion **Q3** 2009. Site acceptance testing for WAM sensor and PRM display is currently planned for **Q1** 2010.
Wide Area Multilateration — Tasmania	Provides surveillance in defined areas over Tasmania for aircraft equipped with ATC transponders.	**Q3** 2009	Commissioning and safety activities continue to confirm the WAM system for operational use.	CASA approval to use WAM for separation of aircraft anticipated in **Q3** 2009. Commissioning for WAM in Tasmania will follow CASA approval.
Enroute Radar Life Extension	Remedial work on 11 enroute radars to ensure continued viability of coverage.	**Q4** 2009	Life extension works on radars at Kalamunda and Summertown have been successfully completed.	A further two sites are scheduled for completion **Q2** 2009 —Mt. Bobbara and Mt. Hargrave.
Infrastructure				
National towers program — new towers Stage 1	Renewal/relocation of aging air traffic control tower buildings.	**Q3** 2012	Negotiations continue with airport owners on sites at each location and location specific detailed tower design work is proceeding. A request for Expressions of Interest in construction was released to the industry.	Melbourne Tower is the first tower scheduled for construction.
National towers program — new tower technology	Design and implementation of a new, integrated, scalable and standardised suite of air traffic control tower technology.	**Q3** 2012	Airservices has appointed a consortium of Sensis Corporation (US) and NAV CANADA, Canada's air navigation service provider, to project manage, install and support the new tower technology.	Timing of this project is dependant on the related new towers and towers refurbishment projects.
National towers program — towers refurbishment	Refurbishment of air traffic control towers to meet future demands for tower service provision.	To be confirmed	The first stage of the Avalon Tower refurbishment was delivered prior to the Avalon Air Show. Design and documentation for eleven tower refurbishments are underway. Current maintenance activities are continuing.	The complete program of tower refurbishments has yet to be finalised.
Telecommunications Infrastructure Network Replacement (TINR)	Provision of a new digital telecommunications network to support current and future infrastructure. Will reduce costs and reliance on satellite communication.	**Q4** 2009	Planning and installation of a pilot network is nearing completion. Site works for the new network are progressing well and are scheduled for completion in **Q2** 2009.	Pilot rollout is expected to be complete in **Q3** 2009, with the main rollout following.
VHF system upgrade (VHFSUP)	Replacement of equipment used for VHF air-ground-air services.	**Q4** 2009	101 sites out of a total of 165 now commissioned on new VHF equipment.	Installation of remaining sites is progressing steadily, with a further 29 sites planned for commissioning by **Q2** 2009.

Waypoint 2009

Waypoint is Airservices premier industry consultative forum. It is your chance to be actively involved in our planning for the future.

This year, international and domestic experts from industry and government will engage in collaborative discussions and decision making on issues critical to the services we provide and the aviation industry as a whole.

Invitees can engage with our aviation partners including airlines, airports, defence, policy makers, regulation providers and the general aviation community.

Workshops will provide you with an opportunity to outline your priorities and contribute to the future of our industry.

The conference will be held at Canberra's National Convention Centre on 17 - 18 June.

More information, including details on international speakers and the event program, can be found at www.airservicesaustralia.com

Quarterly Report feedback

We value your feedback on the content and format of this report.

Please tell us if the information it contains is useful, or let us know if there's information or data you'd like to receive in future editions.

To make any comments or suggestions, please email media@airservicesaustralia.com

AIRSERVICES AUSTRALIA

ATTACHMENT D

ENVIRONMENTAL PRINCIPLES AND PROCEDURES FOR MINIMISING THE IMPACT OF AIRCRAFT NOISE

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?*

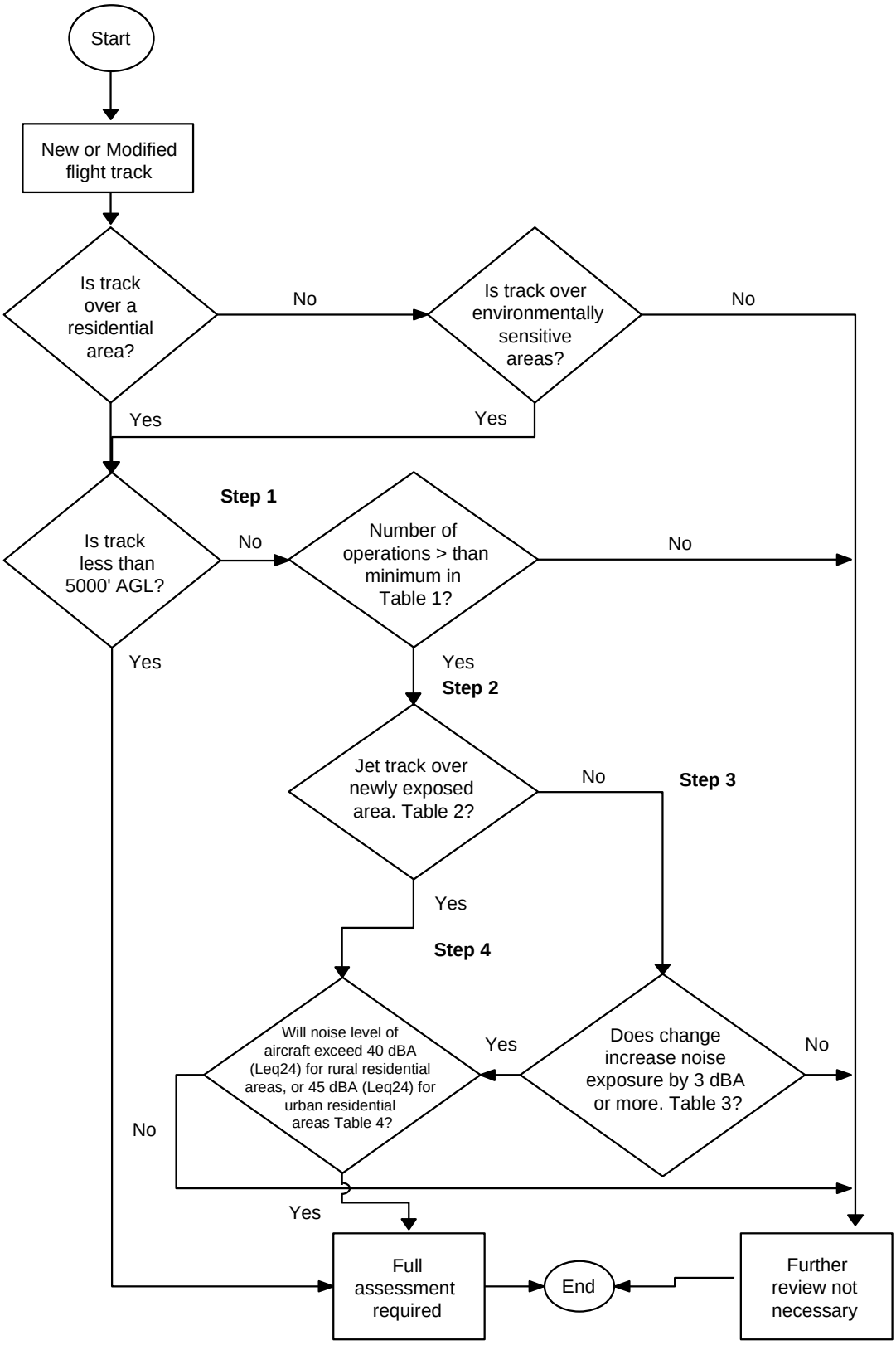
Use Table 4 to decide whether the numbers of jet aircraft will cause these noise criteria to be exceeded.

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.

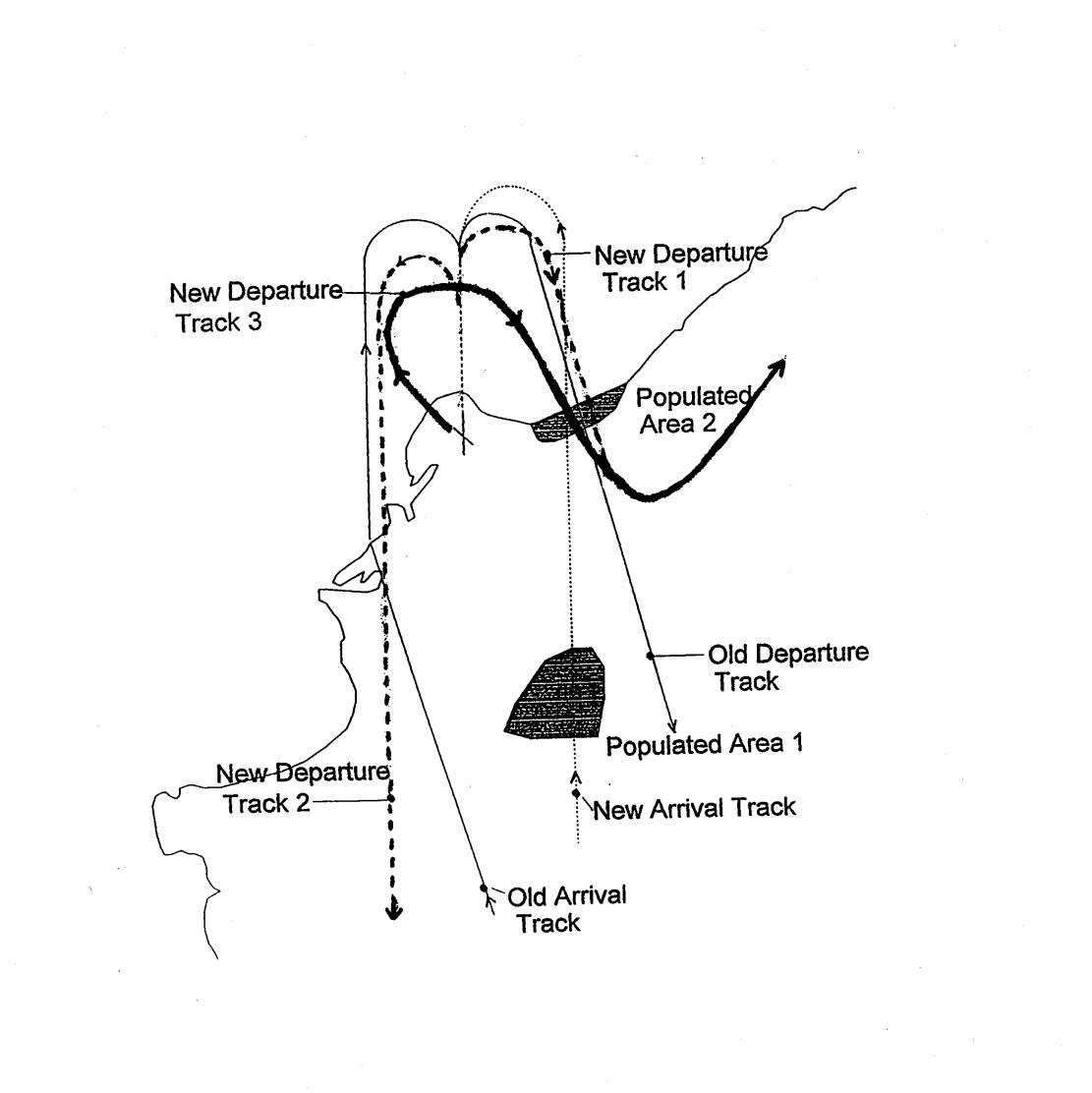
(3) If the composition of an area is not known, classify the area as rural residential.

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.

ATTACHMENT E

MINISTERIAL DIRECTION NUMBER M37/99

Instrument Number M37 / 99

COMMONWEALTH OF AUSTRALIA

Air Services Act 1995

DIRECTION PURSUANT TO SECTION 16 CONCERNING THE RESPONSIBILITIES OF AIRSERVICES AUSTRALIA IN RESPECT OF THE ENVIRONMENTAL EFFECTS OF AIRCRAFT

I, JOHN DUNCAN ANDERSON, Minister of State for Transport and Regional Services, acting pursuant to subsection 16(1) of the *Air Services Act 1995* (the Act) **HEREBY DIRECT** Airservices Australia, for the purposes of paragraph 8(1)(d) and subsection 9(2) of the Act, to undertake the activities specified in the Schedule.

This direction supersedes the direction to the Civil Aviation Authority dated 28 August 1991 by Minister Robert Lindsay Collins, which applied to Airservices Australia by virtue of section 10 of the *Civil Aviation Amendment Act 1995*.

Dated this 3rd day of May 1999

John Anderson

SCHEDULE

ACTIVITIES TO BE PERFORMED BY AIRSERVICES AUSTRALIA UNDER PARAGRAPH 8(l)(d), AND FOR THE PURPOSES OF SUBSECTION 9(2) OF THE *AIR SERVICES ACT 1995*.

(i) Develop, implement and promote high quality environment practices in relation to aircraft operations, provision of navigational aids and rescue and fire fighting activities at Australian airports.

(ii) Provide advice, information and data on environmental aspects of air traffic management including aircraft movements, aircraft noise, aircraft engine emissions and aircraft operations.

(iii) Initiate and participate in discussions, consultations, studies and research with the aviation industry and the community in relation to environmental aspects of air traffic management.

(iv) Undertake monitoring, testing and compliance activities associated with the Air Navigation (Aircraft Noise) Regulations and the Air Navigation (Aircraft Engine Emissions) Regulations.

(v) Develop and implement effective aircraft noise abatement procedures and monitor and report to the Secretary on compliance with those procedures at Australian airports.

(vi) Provide advice and information on aircraft environment related matters to, and participate in, airport consultative committees at those Australian airports that have such a committee.

(vii) Provide, maintain and enhance public response and reporting services through a dedicated Noise Enquiry Service at airports covered by the *Airports Act 1996* and other major Australian airports.

(viii) Install, maintain and operate noise and flight path monitoring systems at major Australian airports.

(ix) Monitor, collate and report to the Secretary on aircraft movements during curfew hours at Sydney (Kingsford Smith), Adelaide and Coolangatta airports.

(x) Make available data for the development of aircraft noise exposure analyses and prediction and be responsible for endorsing Australian Noise Exposure Indices/Forecasts for all Australian airports.

(xi) Provide technical and specialist support for Australia's representation on ICAO's Committee on Aviation Environment Protection and associated fora.

(xii) Provide advice, information, guidance and assistance at locations outside controlled airspace on environmental aspects of aircraft operations, movements and procedures to the Department, the aviation industry and the community.

(xiii) Carry out the activities in this Schedule in accordance with government policy as determined from time to time.

ATTACHMENT F

STATEMENT OF EXPECTATIONS

The Hon Anthony Albanese MP
Minister for Infrastructure,
Transport, Regional Development
and Local Government
Leader of the House

Reference: 08350-2008

Mr David Forsyth
Chair
Airservices Australia
GPO Box 367
CANBERRA ACT 2601

Dear Mr ~~Forsyth~~ David,

I am writing to you about my Statement of Expectations (the Statement) for the Board of Airservices Australia, which I have enclosed.

This Statement replaces the previous statement issued by the former Minister for Transport and Regional Services, the Hon Mark Vaile on 12 March 2007 and represents a notice of strategic direction under Section 17 of the *Air Services Act 1995.*

The Statement will cover the period from 1 November 2008 to 30 June 2010, in order to provide a level of certainty to the Board and Airservices Australia in performing its functions.

I look forward to your support and cooperation in achieving each of the key points outlined in the Statement and I ask that you provide me with a Statement of Intent within a month of the date of this letter, outlining how you intend to meet these expectations.

It is important to note that in drafting your Statement of Intent, that it outlines appropriate targets and key performance indicators, so that Airservices Australia's performance can be measured accordingly.

Yours sincerely

ANTHONY ALBANESE

Enc

PARLIAMENT HOUSE CANBERRA ACT 2600
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Statement of Expectations
For the Board of Airservices Australia
For the period 1 November 2008 to 30 June 2010

This Statement of Expectations (SOE) outlines in a formal and public way, my expectations concerning the operations and performance of Airservices Australia (Airservices) from 1 November 2008 to 30 June 2010. This SOE serves as a notice of strategic direction to Airservices under section 17 of the *Air Services Act 1995*.

The Government's vision for Airservices is that it efficiently and effectively performs its statutory functions to deliver safe, high quality air navigation and related services for the benefit of the Australian community. The Government expects that, consistent with section 9(1) of the *Air Services Act 1995,* Airservices must regard the safety of air navigation as the most important consideration in performing its functions.

As the Board of Airservices, I expect that you:

- will ensure that Airservices acts in accordance with the *Air Services Act 1995, Commonwealth Authorities and Companies Act 1997* (and associated regulations) and the established *Governance Arrangements 1997* as well as other relevant legislation and legal instruments; and

- will keep me and the Secretary of the Department of Infrastructure, Transport, Regional Development and Local Government (the Department), through the Chair of the Board, fully informed of Airservices' actions in relation to the initiatives and activities stated below, and alert me to events or issues that may impact on the operations of Airservices.

My expectations are that Airservices will:

1. perform its functions in a manner that supports Government policy with particular focus on aviation safety.

2. provide input for the development of the National Aviation Policy Statement in conjunction with the Department, Civil Aviation Safety Authority, the Australian Transport Safety Bureau, the Department of Defence, the Department of Finance and Deregulation, and other relevant Government agencies.

3. support the Government's environmental initiatives in relation to climate change and aircraft noise management. This includes the maintenance and appropriate resourcing of the Noise Enquiry Unit.

4. maintain and improve the organisation's financial platform to support investment in current and future infrastructure, by developing a detailed capital expenditure program consistent with the Government's infrastructure policy.

5. modernise radar and other air traffic navigation and surveillance systems to ensure air traffic management services are provided with maximum safety and efficiency.

6. develop through consultation with key stakeholders a new long term pricing agreement for the period 2010 to 2015 that addresses Government policy and organisational needs.

7. develop a detailed workforce capability plan to address the immediate and future operational needs of Airservices. This plan must be developed consistent with the Government's training and industrial relations policies, in particular the Australian Government Employment Bargaining Framework.

8. continue to support the Government's aviation safety agenda in the Asia/Pacific region.

9. adhere to values and a code of conduct that maintains high standards of professionalism, customer service, probity, reporting, accountability and transparency, consistent with the Government's aim of excellence in the public sector.

10. actively engage and consult with government, commercial, industrial, consumer and other relevant bodies in a timely manner.

ATTACHMENT G

MOVEMENTS AT AUSTRALIAN AIRPORTS
Report Period: Between 01/11/2009 and 30/11/2009

Movements at Australian Airports

Report Period: Between 01/11/2009 and 30/11/2009 (DD/MM/YYYY)

Arrival Port Name	Arrival Port Code	Over 136 tonnes	Between 7 tonnes and 136 tonnes	Under 7 tonnes	Helicopter	Military	*Total*
ADELAIDE	**YPAD**	228	6,086	1,548	242	4	**8,108**
ALBURY	**YMAY**		626	1,594	84	2	**2,306**
ALICE SPRINGS	**YBAS**		692	1,122	62	2	**1,878**
ARCHERFIELD	**YBAF**		6	12,094	846		**12,946**
AVALON	**YMAV**	12	398	50	8		**468**
BANKSTOWN	**YSBK**		164	21,504	3,182		**24,850**
BRISBANE	**YBBN**	1,812	11,312	1,424	58	8	**14,614**
CAIRNS	**YBCS**	164	3,274	2,608	708	2	**6,756**
CAMBRIDGE	**YCBG**			1,222	90		**1,312**
CAMDEN	**YSCN**			2,960	160		**3,120**
CANBERRA	**YSCB**	24	3,652	3,044	182	140	**7,042**
COFFS HARBOUR	**YCFS**		598	870	232	2	**1,702**
DARWIN	**YPDN**	82	2,808	3,352	528	18	**6,788**
ESSENDON	**YMEN**		318	3,120	1,492		**4,930**
GOLD COAST	**YBCG**	220	2,648	5,210	1,946	10	**10,034**
HAMILTON ISLAND	**YBHM**		366	300	590		**1,256**
HOBART	**YMHB**		1,150	876	214	6	**2,246**
JANDAKOT	**YPJT**			24,108	3,298	6	**27,412**
LAUNCESTON	**YMLT**		840	838	22	8	**1,708**
MACKAY	**YBMK**		1,212	3,424	724	2	**5,362**
MAROOCHYDORE/ SUNSHINE COAST	**YBMC**		642	1,922	4,216	2	**6,782**
MELBOURNE	**YMML**	3,194	12,966	48	2	34	**16,244**
MOORABBIN	**YMMB**		6	19,632	4,102		**23,740**
PARAFIELD	**YPPF**		14	20,644	1,876		**22,534**
PERTH	**YPPH**	1,648	7,402	530	114	16	**9,710**
ROCKHAMPTON	**YBRK**	22	1,492	1,312	182	34	**3,042**
SYDNEY	**YSSY**	5,830	17,778	600	416	30	**24,654**
TAMWORTH	**YSTW**		238	6,106	86	14	**6,444**
TOWNSVILLE	**YBTL**	6	2,302	2,120	104	20	**4,552**
Report Total		**13,242**	**78,990**	**144,182**	**25,766**	**360**	**262,540**

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.

ATTACHMENT H

DAILY PERFORMANCE REPORT
Peak hour air traffic management performance reports for Perth
20 January 2009

Reports & Statistics

Performance Report

Reports and Statistics > Performance Reports > Perth Airport

Airport	Perth Airport
Report Date	20/1/2010 from 9:00:00 to 9:59:00

Summary

Peak Demand Rate Required	36	/HR
Agreed Rate Available	26	/HR
Delays for Prevailing Conditions		
Agreed Arrival Rate KPI	LOW DEMAND FOR KPI	

Runway in Use	21/24A - 21D Visual
Demand	18
Actual Arrivals	17
Agreed Rate	26
Peak Demand	**8** ETA's in **13** Minutes between 9:09:00 and 9:21:00
Pro Rata	**7** Aircraft were landed in **18** Minutes for a pro rata rate of **23**/hr
Average Delay	4.18
Maximum Delay	12
Significant Delay	Delays experienced
Notes	

ATTACHMENT I

AUSTRALIAN NOISE EXPOSURE INDEX
Sydney Airport
1 April to 30 June 2009

AIRSERVICES AUSTRALIA

Sydney Airport

N463 Australian Noise Exposure Index

1 April to 30 June 2009

REPORT No: EO 09-204

December 2009

DISCLAIMER

The aircraft noise contours on this chart have been calculated using the best available modeling process. The data input to that process are derived from external sources, and Airservices cannot warrant their accuracy. Airservices accepts no liabilities for any reliance placed on any data on this chart by any third party. Airservices accepts no responsibility for any interpretation of this data by third parties.

CONDITIONS OF SUPPLY OF REPORT
No: EO 09-204, Dated December 2009

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Sydney Airport
N463 Australian Noise Exposure Index
1 April to 30 June 2009

1. Introduction

1.1 Background

In accordance with recommendation 21 of the Proponent's Statement for the Long Term Operating Plan (LTOP) at Sydney Airport, Airservices Australia has prepared an Australian Noise Exposure Index (ANEI) for the period 1 April 2009 to 30 June 2009 inclusive (Reference Number N463).

1.2 Airport Layout

Sydney Airport has three runways. Runway 07/25 (2529m long and 45m wide), Runway 16R/34L (3962m long and 45m wide) and Runway 16L/34R (2438m long and 45m wide). The runway end coordinates and elevations, Aerodrome Reference Point coordinates, elevation data and displaced threshold information for Sydney Airport were obtained from airport data held by Airservices Australia and are shown in Table 1.1.

Table 1.1 Sydney Airport Runway Data

Location	Latitude (WGS84)	Longitude (WGS84)	Elevation AHD (m)	Displaced Landing Threshold (m)
Aerodrome Reference Point	33 56 45.6S	151 10 37.6E	6.4	
Runway End 07	33 56 37.5S	151 09 49.1E	5.3	0m
Runway End 25	33 56 15.1S	151 11 23.8E	6.0	340m
Runway End 16R	33 55 45.7S	151 10 17.8E	2.1	85m
Runway End 34L	33 57 51.4S	151 10 50.4E	4.1	0m
Runway End 16L	33 56 58.6S	151 11 17.9E	4.5	230m
Runway End 34R	33 58 19.0S	151 11 38.1E	3.1	38m

The airport average temperature and humidity were obtained from Bureau of Meteorology data. The temperature and humidity shown in Table 1.2 are an average taken over the period of the ANEI.

Table 1.2 Sydney Airport Meteorological Data

Airport Average Temperature	16.8 °C
Airport Average Humidity	65.5 %

2. The Integrated Noise Model (INM)

The Integrated Noise Model version 7.0b (INM 7.0b) developed by the US Federal Aviation Administration (FAA) as a means of evaluating the impact of aircraft noise was used to model the noise contours for the period 1 April to 30 June 2009 for Sydney Airport.

The

2.1 INM Terrain Data

The INM program can import and use terrain elevation data for use in calculating noise metrics. The terrain data is set out in a grid format and includes elevation in feet above mean sea level. The INM interpolates this data to prepare the ground contours for presentation at the required interval. The terrain contours included in Attachment C are a graphical representation of ground contours prepared by the INM program. They indicate the areas to the north, east and west of the airport are higher than that of the airport, which has had the effect of increasing the extent of the length and width of the ANEI contours in these areas.

2.2 Changes Incorporated in INM Version 7.0b

INM7.0b is the most recent release of INM and it includes database updates and correction of minor software issues. The database updates and changes includes performance data updates for many existing Airbus aircraft types and replacing existing fixed-point STANDARD arrival flight profiles with new procedural profiles.

INM Version 7.0b also includes the addition of several new aircraft types to the INM database, including two Airbus A380 variants, five new propeller driven aircraft and new three helicopters. Some substitutions were deleted and several substitution assignments were modified to make use of new aircraft data and minor corrections were made to the data for several existing aircraft.

As a result care should be exercised when comparing this ANEI with studies that were prepared using earlier versions of the INM program.

3. Methodology Used in the Development of the ANEI

3.1 Introduction

The development of the ANEI consisted of the following stages:

i) collection and verification of the required data;

ii) preparation of the data as INM input files;

iii) running of the model; and,

iv) preparation and verification of model's output.

3.2 Collection and verification of the required data

Runway and associated airport data were obtained from airport data held by Airservices Australia. Aircraft movement data were obtained directly from the Airservices Australia Noise and Flight Path Monitoring System (NFPMS). The total number of movement records from the unadjusted NFPMS data for the study period is shown in Table 3.1.

Flyover movements were checked using the NFPMS to determine whether any of these aircraft had made an arrival or departure at Sydney Airport. The records that could not be described as a movement at Sydney Airport were then excluded from the original NFPMS data.

Table 3.1 NFPMS Aircraft Movements

Operation	Movements
Arrivals	34,042
Departures	34,991
General (Arrival and Departure)	308
Total	**69,341**

The NFPMS movements shown above were corrected to ensure the total number of departures and arrivals movements were equal. Movement data derived from Airservices Australia's published 'Movements at Australian Airports' for Sydney Airport for the period of 1 April to 30 June 2009 and the daily average aircraft movements for this period are shown in Table 3.2. The NFPMS movements were then factored to the Avcharges recorded number of aircraft movements and the daily average number of movements was calculated.

Table 3.2 Avcharges Recorded Movements

Period	Movements
1 April to 30 June 2009	69,518
Daily Average during this period	764

The flight tracks used in the model were determined from the NFPMS. Track plots from the NFPMS were used to identify the major flight paths associated with aircraft movements to and from the airport. Representative periods were selected between 1 April and 30 June 2009.

A nominal backbone track for all the major flight paths was identified by means of geographic coordinates along the length of the track and from NFPMS track plots. The corresponding spread of the track was also determined from the NFPMS plots. These tracks

were entered into the INM as 'point type' tracks. Each 'nominal backbone track' was prepared with subsidiary tracks that provided a realistic lateral spread of traffic along the nominal tracks.

A small number of tracks that are mainly used by turbo-propeller and other propeller aircraft departing from Runway 07 for the north-west and Runway 25 for the east were not spread due to the small variations in their dispersal and the minimal number of movements that occur on these routes. In those cases a single nominal track was determined from the NFPMS.

3.3 Preparation of INM input file

The aircraft movement data extracted from the NFPMS were organised into:

- aircraft types and the associated operation (departure or arrival);
- the runway used; and,
- the time of day or night.

For the purposes of modelling and using the Australian Noise Exposure Forecast (ANEF) metric, night is considered to be between the hours of 7:00pm and 7:00am and carries a weighting of 4.

Terrain around the airport was also taken into account. Terrain data for the Sydney region was compiled in accordance with the INM User's Guide into a format suitable to be read by INM 7.0b. The terrain data was aligned to the Aerodrome Reference Point (ARP) and incorporated by INM when calculating the ANEI contours.

The use of terrain data changes the shape of the ANEI contours when compared to a flat ground model. Variances in ground elevation change the distance between the aircraft and the ground, hence the calculated aircraft noise levels at each grid point on the ground.

The types of aircraft that operated at Sydney Airport were assigned to 37 representative aircraft types that are contained within the INM database and are shown in Table 3.3. Where possible, the actual aircraft type was matched to its INM counterpart. However, in cases where a particular aircraft type had a small number of movements, it was grouped with a major INM type or INM substitute.

In order to model helicopters, two helicopter profiles were developed. Their profiles were based on the single engine Bell 206 LongRanger and twin engine Eurocopter AS355F Ecureuil 2. All helicopters that operate at Sydney airport were then assigned to a type depending on the number of engines. In addition, all helicopters were modelled as arriving to or departing from the Helipad that is located south of the threshold of Runway 25.

The aircraft types were assigned to representative tracks based on the type of aircraft (jet, turbo-propeller, piston-engine propeller or helicopter) and the general cardinal direction from Sydney Airport of the destination or originating airport. This was further refined by determining the way-points associated with the major routes. As stated previously, the tracks were prepared as point type tracks, the location and lateral spread being determined from the NFPMS data for each ANEI prepared for Sydney airport.

Table 3.3 Aircraft Types Used by INM for ANEI N463

INM Type	Aircraft
707320	Represents B707, C135 and DC8 type aircraft
717200	Boeing B717-200 aircraft
727EM2	Boeing B727-200 aircraft fitted with hushkitting
737N17	Boeing B737-200 aircraft fitted with hushkitting
737300	Boeing B737-300 aircraft
737400	Boeing B737-400 aircraft
737700	Boeing B737-700 aircraft
737800	Boeing B737-800 aircraft
74720B	Represents B747-200 and B747-300 aircraft
747400	Boeing B747-400 aircraft
757PW	Boeing B757-200 aircraft
767300	Boeing B767-300 aircraft
767JT9	Represents B767-200 aircraft movements
777200	Boeing B777-200 aircraft
777300	Boeing B777-300 aircraft
A310-304	Airbus Industries A300 aircraft
A320-211	Airbus Industries A320 aircraft
A330-301	Airbus Industries A330 aircraft
A340-211	Airbus Industries A340 aircraft
A380-841	Airbus Industries A380 aircraft with Rolls Royce Trent Engines
A380-861	Airbus Industries A380 aircraft with Engine Alliance GP7200 Engines
BAE300	Represents BAe146 aircraft
BEC58P	Represents GA twin piston-engine aircraft
CL601	Represents Canadair CL601 Challenger aircraft
CNA441	Represents GA twin turbine-engine aircraft
DHC6	Represents Twin Otter and similar aircraft
DHC830	Represents Dash 8, FK50 type aircraft
GASEPF	Represents GA single engine fixed pitch propeller aircraft.
GASEPV	Represents GA single engine variable pitch propeller and/or turbine aircraft
GV	Represents Embraer 170 aircraft
JPATS	Represents Pilatus PC-12 and other single engine turbo-prop aircraft
LEAR25	Represents other small business type jet aircraft
LEAR35	Represents other small business type jet aircraft
MD11GE	Represents DC10 and MD11 type aircraft
SF340	Saab 340 aircraft
AS355F	Represents Eurocopter AS355 Ecureuil 2 and all twin engine helicopters
B206L	Represents Bell 206 LongRanger and all single engine helicopters

Each operation associated with a particular runway and direction was assigned to a specific track. Where there was more than one track associated with a particular route, the percentage of operations was proportioned, based on the data obtained from the NFPMS. In the majority of cases the percentage of aircraft operations allocated to the backbone tracks and their subsidiary tracks were generally the default percentages set by the INM.

The average daily movements for each aircraft type by runway, time of day and type of operation are shown in Attachment A.

3.4 Running of the Model

The INM was run using standard noise profile data for each of the aircraft types. The parameters used for the ANEF metric were:

Day multiplier	1.0
Night multiplier	4.0

The evening multiplier is included as part of the night period (7:00pm to 7:00am) and is not modelled separately under the ANEF process.

3.5 Preparation and verification of the model output.

The ANEI contours produced by the INM were plotted using a GIS software package onto a base map. The contours produced for the 1 April to 30 June 2009 ANEI (N463) are consistent with flight tracks and the aircraft operations for the period and the use of terrain data.

Table 3.4 shows the average daily aircraft movements for the 1 April to 30 June 2009 ANEI (N463) compared to the same period for the previous year - the 1 April to 30 June 2008 ANEI (N458).

Table 3.4 Comparison of Average Daily Movements

ANEI Study	Period	Average Daily Aircraft Movements
N458	1 April to 30 June 2008	826
N463	1 April to 30 June 2009	764

4. Comparison of the 2009 ANEI (N463) with the 2008 ANEI (N458)

The 1 April to 30 June 2009 ANEI (N463) contours for Sydney Airport are shown in Attachment D. In addition, a plot of the ANEI contours (N463) with terrain contours is included as Attachment C. For comparison purposes, the 1 April to 30 June 2008 ANEI (N458) for Sydney Airport has been included as Attachment E.

ANEI N463 (1 April to 30 June 2009) was prepared with INM 7.0b and ANEI N458 (1 April to 30 June 2008) was prepared with INM 6.2a. Both studies used terrain data during the calculation of their contours.

4.1 Comparison of ANEI N463 with ANEI N458

The changes evident in the contours for ANEI N463, when compared with the contours for ANEI N458, are consistent with the changes in aircraft types, movement numbers, runway usage, night movements and aircraft flight path use during the two periods.

Table 4.1 shows a comparison of average daily arrival and departure movements by runway for ANEI N463 and ANEI N458.

In accordance with a directive from the Civil Aviation Safety Authority (CASA) issued in 2003 Sydney Airport Corporation Limited (SACL) was to construct a Runway End Safety Area (RESA) for Runway 25 by 3 May 2009 in order to comply with the International Civil Aviation Organization (ICAO) requirements. To maintain safe operations on Runway 25 after the May 2009 and prior to the construction of the RESA, SACL obtained approval from CASA for a temporary RESA which incorporated 97 metres of the existing western end of Runway 25. Additionally, SACL restricted aircraft arrivals on Runway 07 to those times when weather conditions operationally required its use (SACL Draft Major Development Plan – Runway Safety Enhancement Runway 25 - Runway End Safety Area, Sydney Airport). Work began on the permanent RESA on 15 January 2009.

This work has resulted in Runways 07 and 25 only being available for limited numbers of movements during the period. The reduction in the number of movements on Runway 07/25 is reflected in the 1 April – 30 June 2009 ANEI.

Table 4.1 Comparison of Average Daily Runway Movements

Runway	ANEI N463 (1 April - 30 June 2009)			ANEI N458 (1 April - 30 June 2008)		
	Arrivals	Departures	Totals	Arrivals	Departures	Totals
07	0.01	0.02	**0.03**	8.59	0.06	**8.65**
16L	57.47	63.85	**121.32**	74.57	77.49	**152.06**
16R	99.08	118.85	**217.93**	116.05	172.87	**288.92**
25	0.33	1.63	**1.96**	43.03	24.46	**67.49**
34L	163.18	93.25	**256.43**	111.95	64.75	**176.70**
34R	56.06	98.47	**154.53**	52.41	66.93	**119.34**
Helipad	5.77	5.77	**11.54**	6.24	6.24	**12.48**
Total	**381.90**	**381.84**	**763.74**	**412.84**	**412.80**	**825.64**

North-West of the Airport

Average daily departures from Runway 34L have increased by 28.50 movements from the ANEI N458 figures. The 'north-west bump' in the 20 ANEI contour associated with

departures using the Richmond SID and the Katoomba SID has shown a corresponding increase in its extent.

Long-haul jet aircraft departing from Runway 34L for destinations in the USA were split between those following the Richmond Two SID and those aircraft maintaining runway heading before turning east. The proportion of aircraft on each track was determined from analysis of NFPMS data prepared for the INM. Table 4.2 shows a comparison of departures that maintained runway heading and those that tracked via the Richmond Two SID.

Table 4.2 Comparison of Average Daily Long Haul Departures from Runway 34L

Runway 34L US Departures	**ANEI N463 (1 April - 30 June 2009)**		**ANEI N458 (1 April - 30 June 2008)**	
	Movements	% of USA Departures	Movements	% of USA Departures
Maintain Runway Heading	2.74	62%	1.82	69%
RICHMOND TWO SID	1.66	38%	0.82	31%
Total	**4.39**		**2.64**	

North of the Airport

Average daily arrivals on Runway 16R have decreased by 16.97 movements from the ANEI N458 figures. The ANEI contours associated with these arrivals have also shown a corresponding decrease in extent.

Average daily arrivals on Runway 16L decreased by 17.10 movements from the ANEI N458 figures and the ANEI contours associated with arrivals to Runway 16L have shown a corresponding decrease in their extent.

East of the Airport

There was a daily average of less than one arrival per day on Runway 25 during this period, resulting in a decrease of 42.70 movements from the ANEI N458 figures. Average daily departures from Runway 07 decreased by 0.04 and departures from Runway 34R increased by 31.19 movements from the ANEI N458.

The contours associated with arrivals to Runway 25 and departures from Runway 07 have shown a corresponding decrease in extent. The contours associated with departures from Runway 34R have increased as a result of the increase in departures from this runway.

West of the Airport

Average daily arrivals on Runway 07 decreased by 8.58 and average daily departures from Runway 25 decreased by 22.83 movements from the ANEI N458. The contours associated with arrivals to Runway 07 and departures from Runway 25 have shown a corresponding decrease in extent.

South of the Airport

Average daily departures from Runway 16L have decreased by 13.64 movements from ANEI N458 and the ANEI contours associated with these departures from this runway have shown a corresponding decrease in extent.

Average daily arrivals on Runway 34R have increased by 3.65 movements from ANEI N458. The contours associated with arrivals to Runway 34R have shown a corresponding increase in extent.

Average daily departures from Runway 16R have decreased by 54.02 movements from ANEI N458. Average daily arrivals on Runway 34L have increased by 28.50 movements from ANEI N458. The ANEI contours associated with departures from Runway 16R have shown corresponding decreases in their extent and the ANEI contours associated with arrivals to Runway 34L have increased accordingly.

4.2 Comparison of Runway Use

Table 4.3 shows a comparison of runway usage in the 1 April to 30 June 2009 ANEI (N463) to the 1 April to 30 June 2008 ANEI (N458).

Table 4.3 Runway Use Comparison

Runway	ANEI N463 (1 April - 30 June 2009)		ANEI N458 (1 April - 30 June 2008)	
	N463 Arrivals %	N463 Departures %	N458 Arrivals %	N458 Departures %
07	0.0	0.0	1.0	0.0
16L	7.5	8.4	9.0	9.4
16R	13.0	15.6	14.1	20.9
25	0.0	0.2	5.2	3.0
34L	21.4	12.2	13.6	7.8
34R	7.3	12.9	6.3	8.1
Helipad	0.8	0.8	0.8	0.8

Note: Numbers represent percentage of total movements for the respective period of the ANEI and have been rounded to one decimal place.

Figures 4.1a and 4.1b depict this comparison for arrivals and departures respectively.

Figure 4.1a Runway Use Comparison - Arrivals

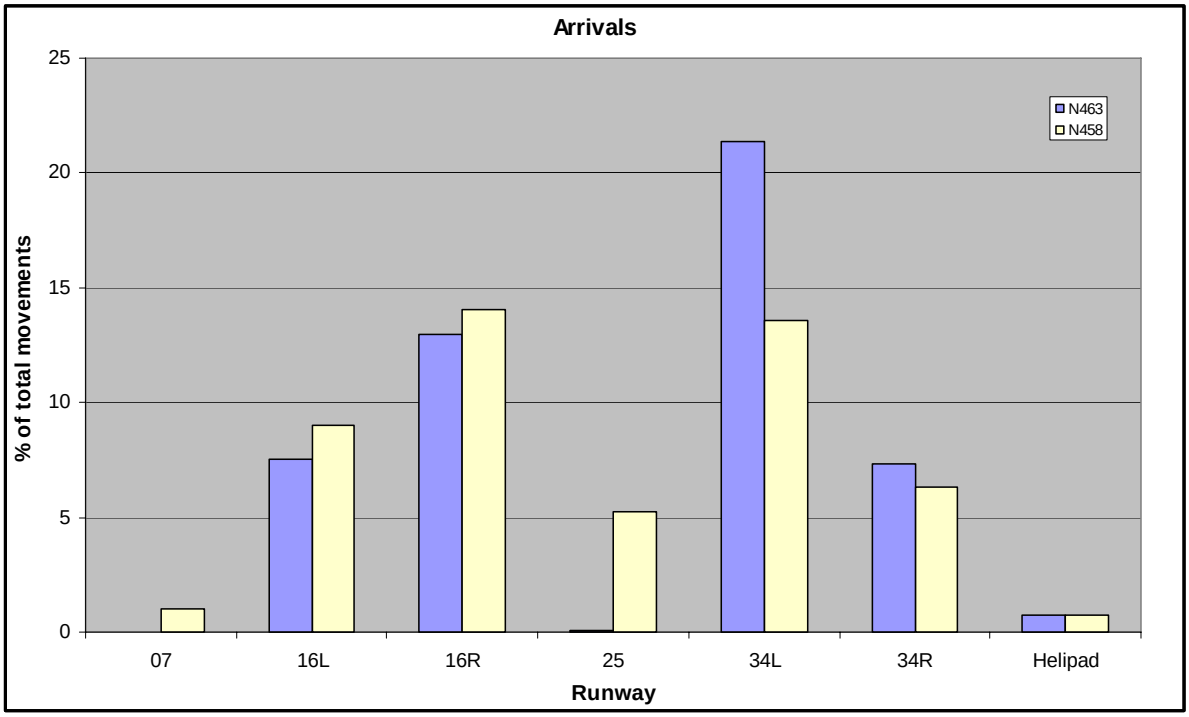


Figure 4.1b Runway Use Comparison - Departures

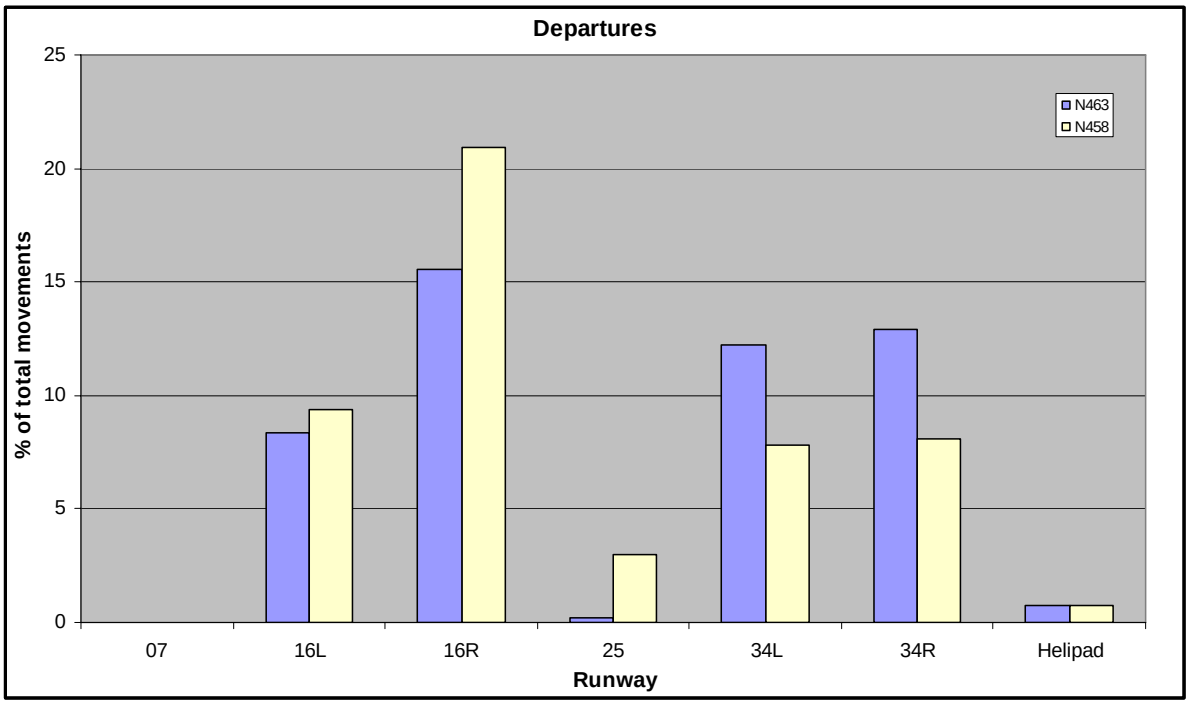


Table 4.4 details the proportion of aircraft movements to the north, south, east and west of Sydney Airport for ANEI N463 compared with ANEI N458. In calculating the proportion of aircraft movements, helicopter operations were not included.

Table 4.4 Runway End Impact Comparison

Direction	Operation		ANEI N463	ANEI N458
	Arrival Runway	Departure Runway	%	%
North	16L and 16R	34L	33.2	31.4
South	34L and 34R	16L and 16R	53.4	51.9
East	25	07 and 34R	13.1	13.5
West	07	25	0.2	4.1

4.3 Comparison of Population Counts

The estimated population within each of the contours of the 1 April to 30 June 2009 ANEI (N463) and the 1 April to 30 June 2008 ANEI (N458) is shown in Table 4.5. These population estimates are based on the Australian Bureau of Statistics 2006 Census of Population and Housing data and have been rounded to the nearest 100.

Table 4.5 Comparison of Total Population Estimates within each ANEI Contour.

ANEI	Period	>=20	>=25	>=30	>=35	>=40
N458	1 April to 30 June 2008	86,000	18,700	3,100	400	0
N463	1 April to 30 June 2009	74,800	18,200	2,600	400	0

A more detailed listing of the number of people within the various ANEI contours is shown by suburb for ANEI N463 and ANEI N458 in Attachment B. Notes and methodology specific to the suburbs and contour population counts are also included in Attachment B.

5. Number of Aircraft Noise Events Above 70dB(A) Noise Map

5.1 Introduction

'Number Above' (Nxx) noise maps are an approach which, while technically less rigorous than the ANEI, provide additional information on aircraft noise in a form that is more easily understood by the community. The contours provide a visual depiction that shows the number of noise events during a given period that are louder than a selected threshold level. The N70 Aircraft Noise Map for Sydney Airport shows for all areas around the airport how many aircraft noise events louder than 70 dB(A) there were, on a daily average, during the period from 1 April to 30 June 2009 ANEI (N463).

70 dB(A) is generally considered to be the external sound level below which no difficulty with reliable communication from radio, television or conversational speech in a typical room with windows open is expected. (Reference - Department of Transport and Regional Services, 2000, *Expanding Ways to Describe and Assess Aircraft Noise,* pp23-35).

5.2 Methodology used in the Development of the N70 Aircraft Noise Map

The N70 aircraft noise map was prepared using the same input files as those for the ANEI contours and was prepared by running the Time-Above (TA) metric, which is a standard metric within the INM 7.0b, to produce a detailed grid output file. It is important to note that the TA metric, unlike the ANEF metric, does not use any night weighting in the calculations.

The detailed grid output file was then modified using propriety software and then imported into a GIS software package for plotting onto a base map.

5.3 Analysis of the N70 Aircraft Noise Map

The N70 map prepared for Sydney Airport is shown in Attachment F – Sydney Airport N463 N70 Aircraft Noise Map - 1 April to 30 June 2009.

The map output is consistent with the patterns that would be expected given the position of the flight paths and the number and types of aircraft using the flight paths modelled in the 1 April to 30 June 2009 ANEI (N463).

The N70 aircraft noise map provides information on the total number of aircraft noise events that exceeded 70 dB(A) in a grid area that were likely to have interfered with conversation, sleeping and listening to the radio or television inside a house with the windows open. However, it is important to note several limitations with the N70 aircraft noise maps. These include:

- Unlike the ANEI computations, 'Number Above' metrics are based on a large INM grid format have so far had limited use in formal noise assessment documents in Australia and they are therefore not tested or verified. The figures that may be derived from the N70 aircraft noise maps are therefore purely indicative.
- The INM does not provide users with a direct way of computing a 'Number Above' chart, unlike the ANEI and TA contours. It is only possible to derive 'Number Above' values on a rectangular grid, which is then processed for importing into the GIS software package. The accuracy of the N70 contours shown in Attachment F is therefore at best plus or minus 500 metres, the distance between grid points used by INM in the calculations. In addition, the superimposed contours may have incurred errors in the transformation from INM coordinates to the map coordinates that were used in the preparation of the N70 chart.

Attachment A

ANEI N463 Average Daily Aircraft Movements by Runway

Table A1 Average Daily Movements by Runway

Runway	Aircraft Type	Arrivals			Departure			Total
		Day	Night	Total	Day	Night	Total	
07	737800	0.00	0.00	0.00	0.00	0.01	0.01	0.01
07	A320-211	0.00	0.00	0.00	0.01	0.00	0.01	0.01
07	DHC6	0.01	0.00	0.01	0.00	0.00	0.00	0.01
07		0.01	0.00	0.01	0.01	0.01	0.02	0.03
								0.00
16L	727EM2	0.01	0.10	0.11	0.00	0.00	0.00	0.11
16L	737300	0.29	0.18	0.47	0.08	0.27	0.34	0.81
16L	737400	1.44	0.19	1.63	2.11	0.68	2.79	4.42
16L	737700	2.79	0.68	3.47	3.30	1.10	4.40	7.87
16L	737800	11.24	2.57	13.81	13.63	5.72	19.35	33.16
16L	737N17	0.03	0.00	0.03	0.02	0.00	0.02	0.05
16L	747400	0.00	0.00	0.00	0.11	0.03	0.14	0.14
16L	757PW	0.04	0.01	0.06	0.00	0.00	0.00	0.06
16L	767300	3.57	1.45	5.01	4.25	1.91	6.15	11.16
16L	767JT9	0.13	0.00	0.13	0.01	0.03	0.04	0.17
16L	777300	0.00	0.00	0.00	0.09	0.07	0.16	0.16
16L	A320-211	7.26	1.11	8.37	7.41	1.42	8.83	17.20
16L	A330-301	0.03	0.09	0.12	0.09	0.10	0.19	0.31
16L	BAE300	0.02	0.14	0.17	0.00	0.00	0.00	0.17
16L	BEC58P	0.04	0.11	0.16	0.10	0.01	0.11	0.27
16L	CL601	0.06	0.00	0.06	0.03	0.01	0.05	0.11
16L	CNA441	0.06	0.01	0.07	0.03	0.01	0.04	0.11
16L	DHC6	3.12	1.16	4.28	3.47	0.79	4.26	8.54
16L	DHC830	8.83	0.36	9.18	6.73	1.36	8.09	17.27
16L	GASEPF	0.02	0.00	0.02	0.01	0.01	0.02	0.04
16L	GV	2.49	0.30	2.79	2.61	1.35	3.96	6.75
16L	JPATS	0.02	0.00	0.02	0.03	0.00	0.03	0.05
16L	LEAR25	0.01	0.00	0.01	0.00	0.00	0.00	0.01
16L	LEAR35	0.77	0.08	0.84	0.60	0.11	0.71	1.55
16L	MD11GE	0.00	0.00	0.00	0.00	0.01	0.01	0.01
16L	SF340	6.03	0.63	6.66	3.81	0.32	4.14	10.80
16L		48.31	9.16	57.47	48.54	15.31	63.85	121.32

Runway	Aircraft Type	Arrivals			Departure			Total
		Day	Night	Total	Day	Night	Total	
16R	727EM2	0.00	0.10	0.10	0.02	0.28	0.30	0.40
16R	737300	0.14	0.28	0.42	0.34	0.61	0.96	1.38
16R	737400	4.20	1.31	5.51	4.74	1.09	5.83	11.34
16R	737700	3.55	1.36	4.90	3.69	1.37	5.06	9.96
16R	737800	16.44	5.76	22.20	17.60	5.25	22.86	45.06
16R	737N17	0.02	0.01	0.03	0.04	0.01	0.06	0.09
16R	74720B	0.07	0.01	0.08	0.09	0.01	0.10	0.18
16R	747400	4.32	1.82	6.15	7.30	0.32	7.62	13.77
16R	757PW	0.06	0.01	0.07	0.10	0.00	0.10	0.17
16R	767300	7.96	2.51	10.47	9.16	2.63	11.80	22.27
16R	767JT9	0.06	0.00	0.06	0.19	0.02	0.21	0.27
16R	777200	0.31	0.12	0.43	0.39	0.09	0.48	0.91
16R	777300	2.91	1.10	4.01	3.19	1.46	4.65	8.66
16R	A320-211	4.37	1.89	6.26	7.16	0.92	8.08	14.34
16R	A330-301	5.24	2.85	8.08	6.69	1.91	8.60	16.68
16R	A340-211	0.74	0.68	1.42	1.51	0.26	1.78	3.20
16R	A380-841	0.13	0.53	0.67	0.62	0.18	0.81	1.48
16R	A380-861	0.11	0.43	0.54	0.51	0.15	0.66	1.20
16R	BAE300	0.01	0.30	0.31	0.03	2.52	2.56	2.87
16R	BEC58P	0.02	0.22	0.24	0.06	0.53	0.58	0.82
16R	CL601	0.09	0.02	0.11	0.17	0.02	0.19	0.30
16R	CNA441	0.02	0.01	0.03	0.04	0.06	0.10	0.13
16R	DHC6	1.28	0.83	2.11	2.35	1.48	3.83	5.94
16R	DHC830	8.17	0.47	8.64	9.23	1.63	10.85	19.49
16R	GASEPV	0.01	0.00	0.01	0.00	0.00	0.00	0.01
16R	GV	4.10	1.10	5.20	4.76	0.68	5.44	10.64
16R	JPATS	0.03	0.01	0.04	0.03	0.01	0.04	0.08
16R	LEAR35	0.73	0.19	0.92	0.94	0.50	1.45	2.37
16R	MD11GE	0.61	0.11	0.72	0.61	0.14	0.76	1.48
16R	SF340	8.73	0.59	9.32	9.34	3.79	13.13	22.45
16R		74.45	24.63	99.08	90.92	27.92	118.85	217.93

Runway	Aircraft Type	Arrivals			Departure			Total
		Day	Night	Total	Day	Night	Total	
25	727EM2	0.00	0.01	0.01	0.00	0.01	0.01	0.02
25	737300	0.00	0.02	0.02	0.00	0.07	0.07	0.09
25	737400	0.00	0.00	0.00	0.00	0.13	0.13	0.13
25	737700	0.00	0.02	0.02	0.00	0.16	0.16	0.18
25	737800	0.00	0.07	0.07	0.01	0.48	0.49	0.56
25	767300	0.00	0.02	0.02	0.02	0.18	0.20	0.22
25	767JT9	0.00	0.00	0.00	0.00	0.01	0.01	0.01
25	777300	0.00	0.00	0.00	0.00	0.02	0.02	0.02
25	A320-211	0.00	0.04	0.04	0.00	0.20	0.20	0.24
25	A330-301	0.00	0.01	0.01	0.00	0.04	0.04	0.05
25	BAE300	0.00	0.02	0.02	0.00	0.00	0.00	0.02
25	BEC58P	0.00	0.01	0.01	0.00	0.00	0.00	0.01
25	DHC6	0.01	0.04	0.06	0.00	0.10	0.10	0.16
25	DHC830	0.00	0.02	0.02	0.00	0.02	0.02	0.04
25	GV	0.00	0.01	0.01	0.00	0.09	0.09	0.10
25	LEAR35	0.00	0.00	0.00	0.00	0.03	0.03	0.03
25	SF340	0.00	0.01	0.01	0.00	0.06	0.06	0.07
25		0.01	0.32	0.33	0.03	1.60	1.63	1.96

Runway	Aircraft Type	Arrivals			Departure			Total
		Day	Night	Total	Day	Night	Total	
34L	707320	0.01	0.01	0.02	0.01	0.00	0.01	0.03
34L	717200	0.01	0.01	0.02	0.01	0.02	0.03	0.05
34L	727EM2	0.01	0.21	0.22	0.03	0.14	0.18	0.40
34L	737300	0.18	0.56	0.73	0.19	0.03	0.22	0.95
34L	737400	6.61	1.75	8.36	1.92	0.37	2.29	10.65
34L	737700	5.83	2.60	8.43	2.39	0.96	3.34	11.77
34L	737800	23.87	10.31	34.18	9.31	2.26	11.57	45.75
34L	737N17	0.02	0.01	0.03	0.03	0.01	0.04	0.07
34L	74720B	0.13	0.01	0.14	0.11	0.01	0.12	0.26
34L	747400	6.76	4.51	11.27	9.32	0.33	9.65	20.92
34L	757PW	0.04	0.00	0.04	0.20	0.00	0.20	0.24
34L	767300	11.12	4.98	16.10	2.06	1.16	3.22	19.32
34L	767JT9	0.21	0.02	0.23	0.27	0.03	0.30	0.53
34L	777200	0.59	0.21	0.80	0.67	0.09	0.76	1.56
34L	777300	4.37	2.60	6.97	4.25	1.91	6.16	13.13
34L	A310-304	0.01	0.00	0.01	0.01	0.00	0.01	0.02
34L	A320-211	8.13	4.08	12.21	2.37	0.35	2.73	14.94
34L	A330-301	7.50	4.62	12.13	8.33	2.32	10.65	22.78
34L	A340-211	0.97	1.44	2.41	1.71	0.34	2.05	4.46
34L	A380-841	0.12	1.19	1.31	0.84	0.33	1.17	2.48
34L	A380-861	0.10	0.98	1.07	0.69	0.27	0.96	2.03
34L	BAE300	0.00	2.02	2.02	0.01	0.00	0.01	2.03
34L	BEC58P	0.06	0.36	0.41	0.08	0.07	0.15	0.56
34L	CL601	0.17	0.04	0.21	0.00	0.01	0.01	0.22
34L	CNA441	0.08	0.03	0.11	0.08	0.00	0.08	0.19
34L	DHC6	2.50	2.72	5.22	3.25	0.55	3.81	9.03
34L	DHC830	11.80	1.20	13.00	12.56	1.89	14.45	27.45
34L	GASEPF	0.00	0.00	0.00	0.01	0.00	0.01	0.01
34L	GASEPV	0.03	0.01	0.04	0.05	0.01	0.06	0.10
34L	GV	6.07	1.69	7.76	1.13	0.03	1.16	8.92
34L	JPATS	0.09	0.00	0.09	0.10	0.01	0.11	0.20
34L	LEAR35	1.16	0.68	1.83	0.54	0.09	0.62	2.45
34L	MD11GE	0.63	0.22	0.86	0.53	0.28	0.81	1.67
34L	SF340	13.51	1.41	14.92	12.32	3.96	16.28	31.20
34L		112.68	50.50	163.18	75.40	17.85	93.25	256.43

Runway	Aircraft Type	Arrivals			Departure			Total
		Day	Night	Total	Day	Night	Total	
34R	707320	0.00	0.00	0.00	0.00	0.01	0.01	0.01
34R	717200	0.01	0.00	0.01	0.00	0.00	0.00	0.01
34R	727EM2	0.03	0.02	0.06	0.01	0.00	0.01	0.07
34R	737300	0.48	0.03	0.51	0.32	0.24	0.57	1.08
34R	737400	1.34	0.17	1.51	5.06	0.91	5.97	7.48
34R	737700	2.67	0.37	3.03	5.50	1.38	6.88	9.91
34R	737800	11.62	1.28	12.90	23.01	5.85	28.87	41.77
34R	737N17	0.02	0.00	0.02	0.00	0.00	0.00	0.02
34R	757PW	0.13	0.00	0.13	0.00	0.00	0.00	0.13
34R	767300	3.87	1.14	5.01	12.86	2.39	15.24	20.25
34R	767JT9	0.16	0.01	0.17	0.01	0.01	0.02	0.19
34R	A320-211	7.48	0.41	7.89	12.92	2.01	14.92	22.81
34R	A330-301	0.04	0.11	0.16	0.80	0.21	1.01	1.17
34R	BAE300	0.00	0.04	0.04	0.00	0.00	0.00	0.04
34R	BEC58P	0.04	0.09	0.13	0.11	0.00	0.11	0.24
34R	CL601	0.02	0.00	0.02	0.13	0.02	0.15	0.17
34R	CNA441	0.03	0.02	0.06	0.04	0.00	0.04	0.10
34R	DHC6	3.29	0.58	3.87	3.17	0.38	3.55	7.42
34R	DHC830	10.10	0.19	10.28	6.46	1.24	7.70	17.98
34R	GASEPF	0.01	0.00	0.01	0.00	0.00	0.00	0.01
34R	GASEPV	0.02	0.00	0.02	0.01	0.00	0.01	0.03
34R	GV	2.51	0.32	2.83	6.72	1.24	7.96	10.79
34R	JPATS	0.04	0.01	0.06	0.02	0.00	0.02	0.08
34R	LEAR25	0.00	0.00	0.00	0.01	0.00	0.01	0.01
34R	LEAR35	0.38	0.04	0.42	1.06	0.14	1.21	1.63
34R	SF340	6.68	0.22	6.90	3.72	0.48	4.20	11.10
34R		50.99	5.07	56.06	81.97	16.51	98.47	154.53
								0.00
H	AS355F	0.70	0.08	0.78	0.71	0.07	0.78	1.56
H	B206L_H	4.94	0.05	4.99	4.93	0.06	4.99	9.98
H		5.64	0.13	5.77	5.64	0.13	5.77	11.54
Grand Total		292.09	89.81	381.90	302.51	79.33	381.84	763.74

Attachment B

ANEI N463 Estimated Population within each ANEI Contour by Suburb

Table B1 Comparison of Estimated Population within each ANEI Contour by Suburb

Study	Suburb		Contours (ANEF)				
	Name	Population	>=20	>=25	>=30	>=35	>=40
N458	Alexandria	5800	100	0	0	0	0
N463	Alexandria	5800	300	0	0	0	0
N458	Annandale	8300	900	100	0	0	0
N463	Annandale	8300	900	100	0	0	0
N458	Arncliffe	8500	1100	0	0	0	0
N463	Arncliffe	8500	0	0	0	0	0
N458	Banksia	2900	2600	1000	0	0	0
N463	Banksia	2900	0	0	0	0	0
N458	Banksmeadow	500	0	0	0	0	0
N463	Banksmeadow	500	0	0	0	0	0
N458	Bexley	17900	2500	0	0	0	0
N458	Botany	7500	3300	600	100	0	0
N463	Botany	7500	4600	1500	200	0	0
N458	Brighton-le-sands	7200	600	0	0	0	0
N463	Brighton-le-sands	7200	0	0	0	0	0
N458	Camperdown	6500	1300	0	0	0	0
N463	Camperdown	6500	1000	0	0	0	0
N458	Coogee	13200	2400	0	0	0	0
N458	Daceyville	1200	1100	400	0	0	0
N458	Drummoyne	10400	3500	0	0	0	0
N463	Drummoyne	10400	2400	0	0	0	0
N458	Eastlakes	6600	1400	600	0	0	0
N463	Eastlakes	6600	2400	0	0	0	0
N458	Erskineville	6500	0	0	0	0	0
N463	Erskineville	6500	0	0	0	0	0
N458	Haberfield	6600	0	0	0	0	0
N463	Haberfield	6600	0	0	0	0	0
N458	Kingsford	14200	3400	200	0	0	0
N458	Kurnell	2100	1100	0	0	0	0
N463	Kurnell	2100	1200	0	0	0	0
N458	Kyeemagh	800	800	300	0	0	0
N463	Kyeemagh	800	500	0	0	0	0
N458	Leichhardt	12300	8300	3100	0	0	0
N463	Leichhardt	12300	9200	2600	0	0	0
N463	Lewisham	2800	100	0	0	0	0
N458	Lilyfield	6800	3600	100	0	0	0
N463	Lilyfield	6800	3400	0	0	0	0
N458	Marrickville	23200	7700	2700	1000	0	0
N463	Marrickville	23200	10900	3200	900	0	0
N458	Mascot	8500	7600	2000	300	0	0
N463	Mascot	8500	8500	3100	0	0	0
N458	Matraville	8800	0	0	0	0	0
N463	Matraville	8800	0	0	0	0	0

Study	Suburb		Contours (ANEF)				
	Name	Population	>=20	>=25	>=30	>=35	>=40
N458	Newtown	13500	6600	0	0	0	0
N463	Newtown	13500	6400	0	0	0	0
N458	Pagewood	3000	0	0	0	0	0
N463	Pagewood	3000	0	0	0	0	0
N458	Petersham	7400	4900	1700	0	0	0
N463	Petersham	7400	6900	1800	0	0	0
N458	Randwick	25800	3000	0	0	0	0
N458	Rockdale	14000	5300	100	0	0	0
N458	Rodd Point	1200	0	0	0	0	0
N463	Rodd Point	1200	0	0	0	0	0
N458	Rosebery	7400	400	0	0	0	0
N463	Rosebery	7400	3200	0	0	0	0
N458	Russell Lea	5100	200	0	0	0	0
N463	Russell Lea	5100	100	0	0	0	0
N458	South Coogee	5400	0	0	0	0	0
N458	St Peters	2600	2600	500	100	0	0
N463	St Peters	2600	2600	500	100	0	0
N458	Stanmore	7100	5800	2900	400	0	0
N463	Stanmore	7100	6000	2800	200	0	0
N458	Sydenham	1000	1000	1000	800	300	0
N463	Sydenham	1000	1000	1000	900	300	0
N458	Tempe	3200	3000	1200	200	100	0
N463	Tempe	3200	3200	1600	300	100	0
N463	Wolli Creek	2700	0	0	0	0	0

Table B2 Comparison of Total Estimated Population within each ANEI Contour

Study	Total Suburb Population	Contours (ANEF)				
		>=20	>=25	>=30	>=35	>=40
N458	282900	86000	18700	3100	400	0
N463	196700	74800	18200	2600	400	0

Notes

1. Contour and Suburb population counts have been rounded up to the nearest 100. Contour and Suburb population Totals are calculated using the non-rounded values. The Totals are then rounded up to the nearest 100.

2. Contour and Suburb population counts and Totals with values less than fifty are rounded down to zero.

3. A Contour may overlap a Suburb but have no population under the contour. This can occur because the population distribution within a Suburb is modelled to ensure that there is no significant population in parks, reserves and industrial areas.

Data and Methodology

Suburb and contour population counts are approximations based on Census District (CD) populations from Census and Suburb Boundary information from MapInfo Australia. Populations are calculated according to the proportion of the area of overlap of a suburb/contour on a CD to the CD total area. Some editing of CD boundaries and populations was performed to accurately reflect population distribution in critical areas (close to the airport or flight paths).

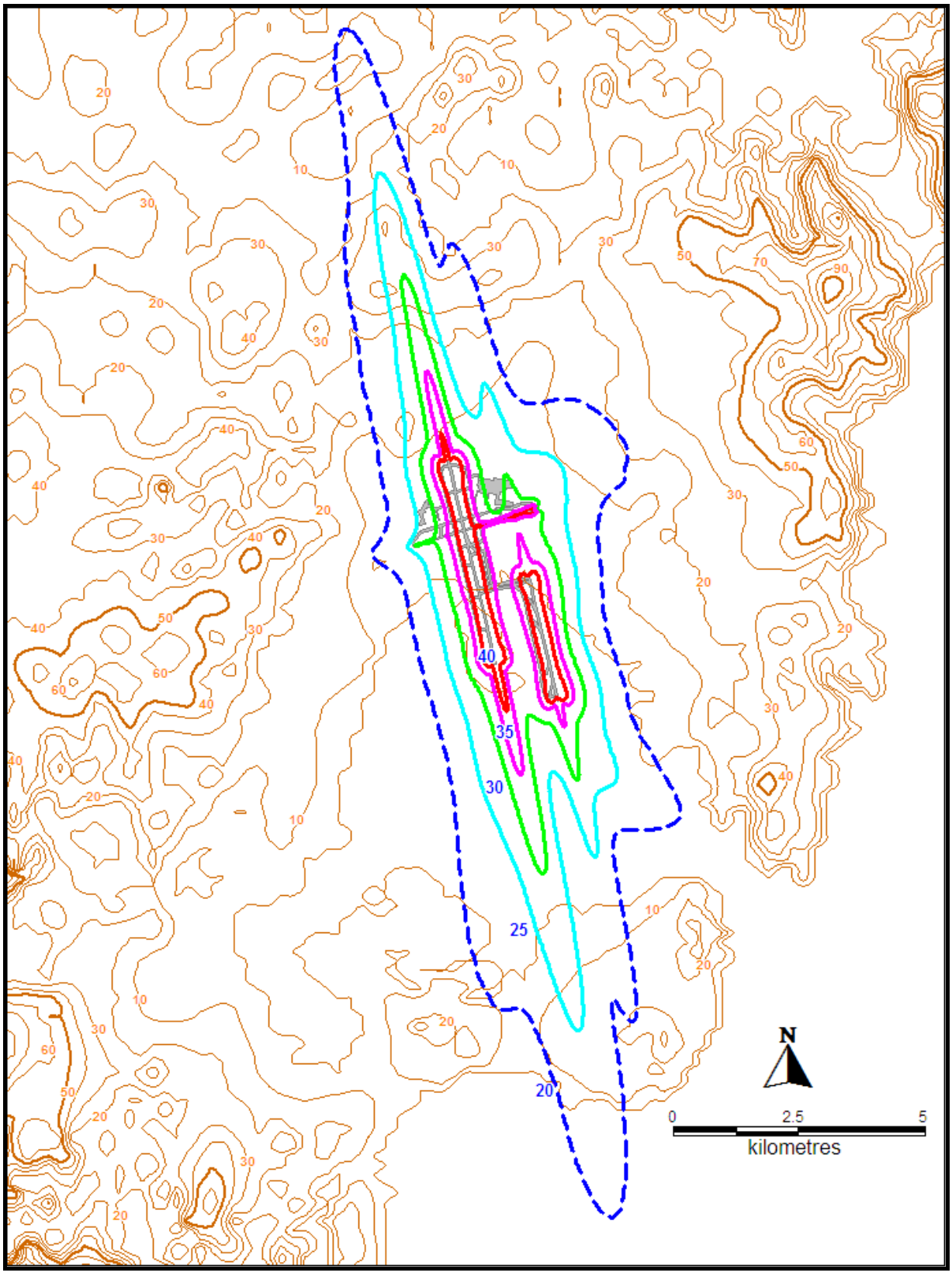
Attachment C

ANEI N463 Contours with INM Terrain Contours

Sydney Airport

1 April to 30 June 2009

Sydney Airport N463 (1 April – 30 June 2009) ANEI Contours with Terrain Data



Terrain contour height shown in metres.

Attachment D

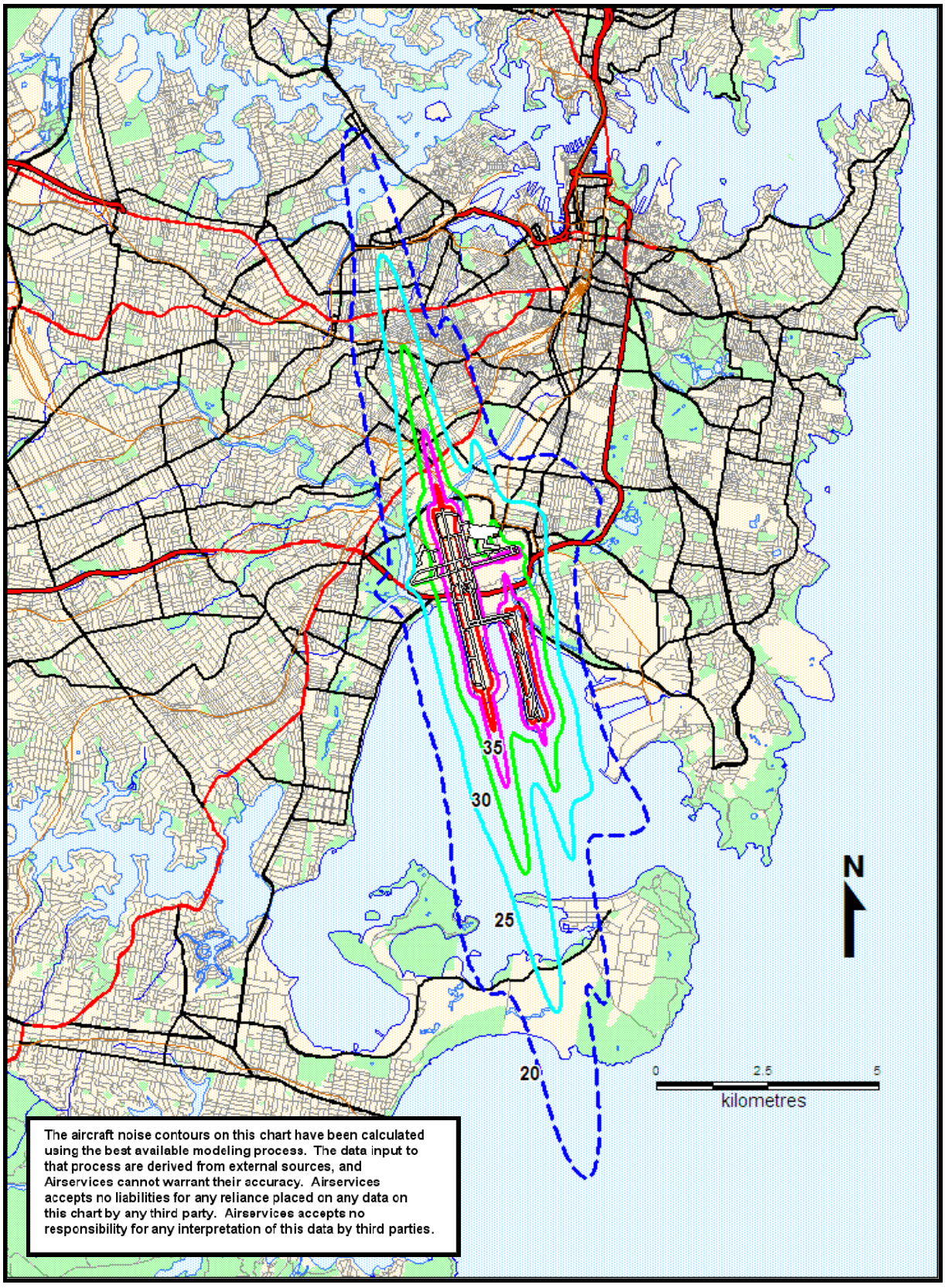
ANEI N463 Contours

Sydney Airport

1 April to 30 June 2009

The contours for ANEI N463 have been prepared using terrain data.

Sydney Airport N463 (1 April – 30 June 2009) ANEI Contours



ANEI contours modeled by INM 7.0b incorporating terrain data.

Attachment E

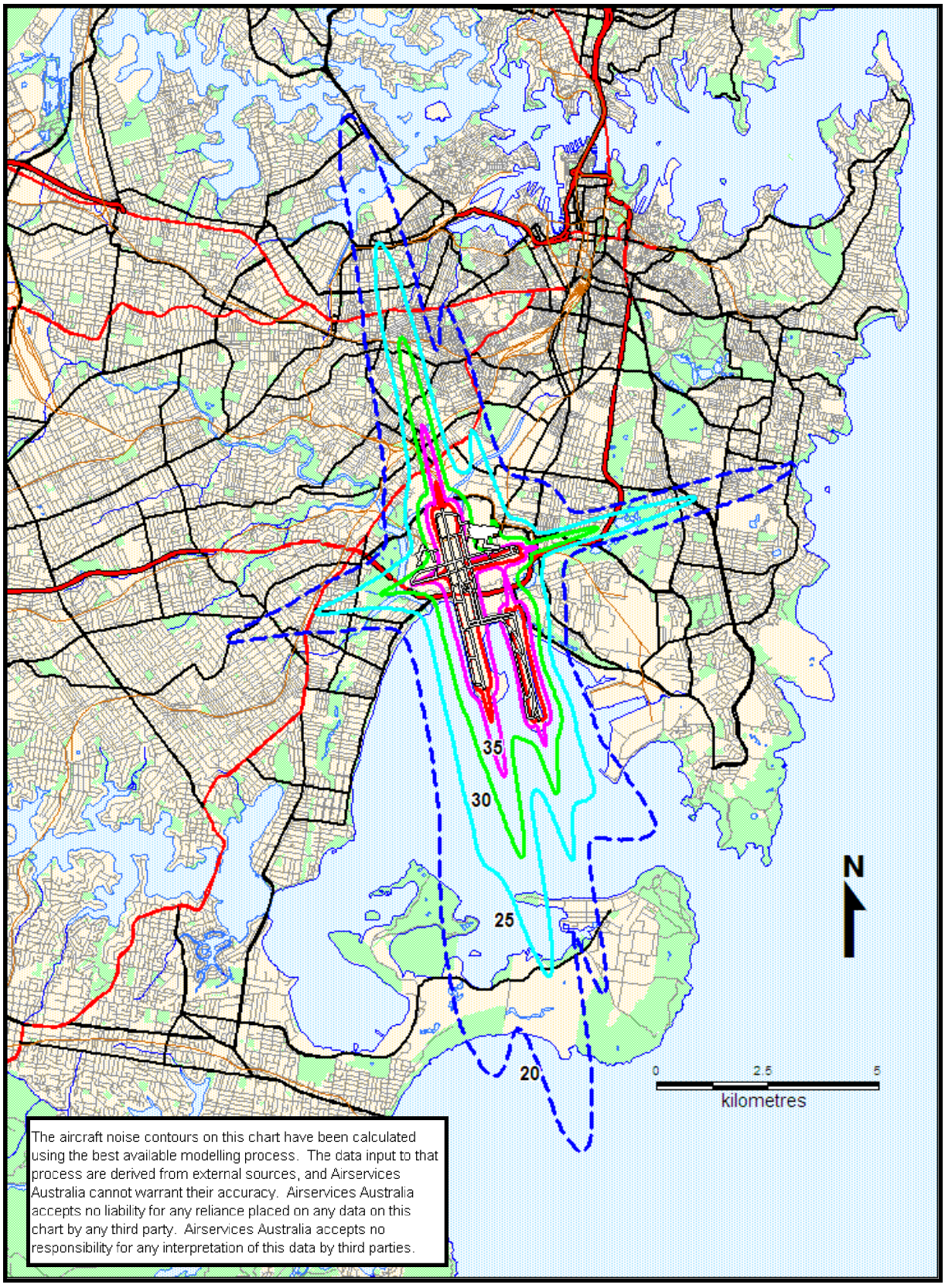
ANEI N458 Contours

Sydney Airport

1 April to 30 June 2008

The contours for ANEI N458 have been prepared using terrain data.

Sydney Airport N458 (1 April – 30 June 2008) ANEI Contours



ANEI contours modeled by INM 6.2a incorporating terrain data.

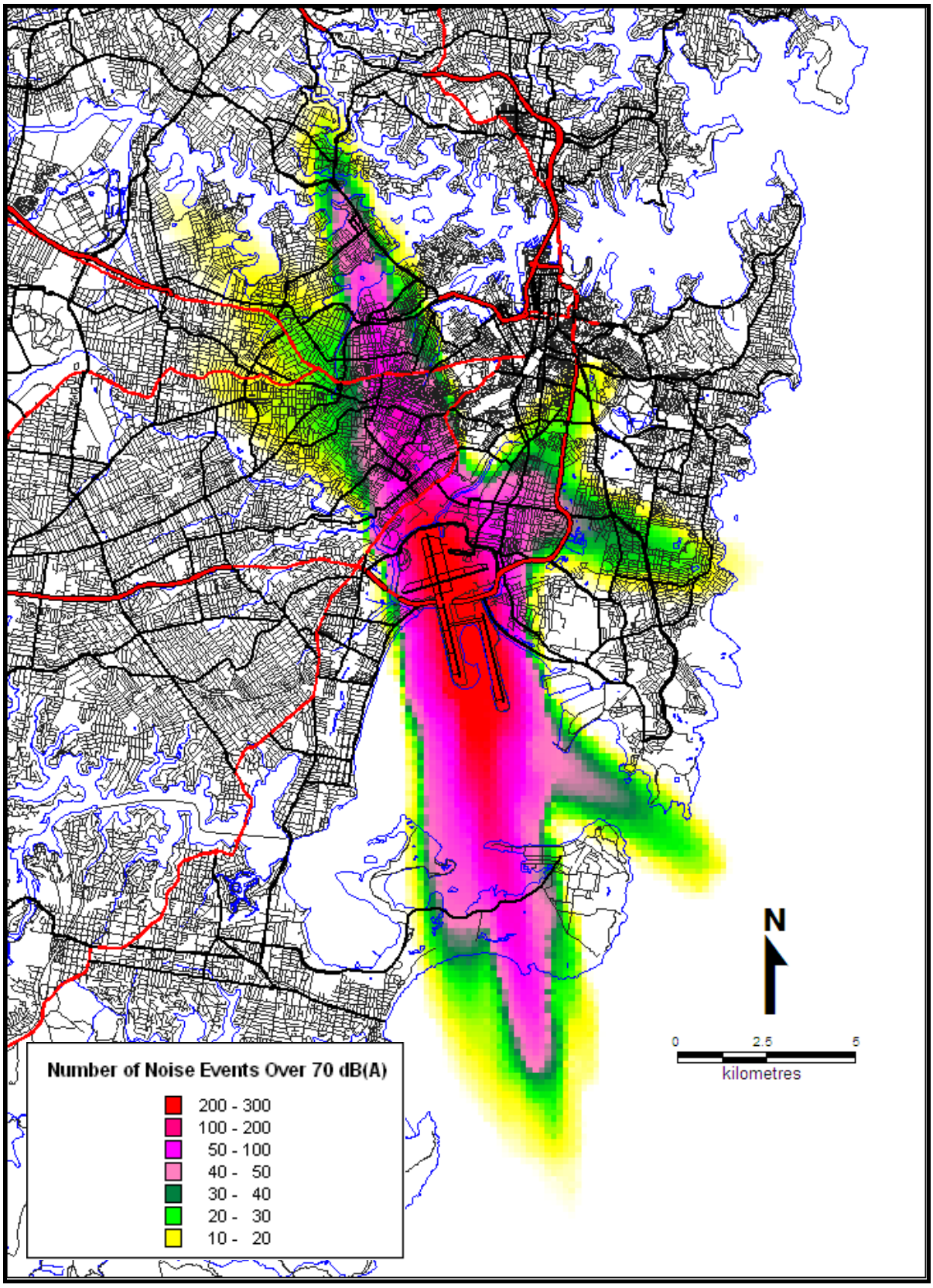
Attachment F

N463 N70 Chart

Sydney Airport

1 April to 30 June 2009

Sydney Airport N463 (1 April – 30 June 2009) N70 Chart



Daily average number of aircraft noise events louder than 70 db(A).

ATTACHMENT J

SYDNEY AIRPORT OPERATIONAL STATISTICS
December 2009

AIRSERVICES AUSTRALIA

Sydney Airport Operational Statistics December 2009

Produced by Environment and Climate Change

PREVIEW

Sydney Airport Operational Statistics Report Preview

December 2009

Total Runway Movements (excluding helicopter operations) (refer pages 5-10)

There was a total of 24,618 aircraft movements this month (daily average 794.13). Last month there were a total of 24,406 movements (daily average 813.53) and for the same month last year there were a total of 24,275 movements (daily average 783.06).

Mode Utilisation (refer pages 11 & 13)
Individual mode use in excess of 9 hours occurred on 29 days this month, Mode 9 on 11 days, Mode 10 on 17 days and Mode 15 on 1 day. Crossing runway modes (including Sodprops & Mode 15) were used for 17.18% of non Curfew hours.

Runway End Impact Long Term Operating Plan (LTOP) Targets (refer page 12)

LTOP targets - North 17% - South 55% - East 13% - West 15%

The two fundamental factors which influence the selection of a runway and therefore the LTOP targets are forecast or prevailing weather and traffic levels. In addition the SACL RESA works have had a direct impact on these percentages. This month's results are as follows:

North 34.69% - This result is above the LTOP target and above the previous month (33.05%).

South 50.94% - This result is below the LTOP target and below the previous month (50.95%).

East 12.42% - This result is below the LTOP target and below the previous month (13.85%).

West 1.93% - This result is below the LTOP target and below the previous month (2.16%).

16 Precision Runway Monitor (PRM) Operations (refer page 14)

This procedure was used on the 1 and 9 December for a total of 2 hours and 54 minutes (ATIS time).

Noise Enquiry Service (refer pages 15-20)

A total of 911 complaints, comments and enquiries were received as follows:

784 Sydney suburbs complaints from 182 complainants
44 Sydney suburbs comments and enquiries
83 non Sydney Airport or Sydney suburbs (NSW only) complaints, comments and enquiries

Noise Enquiry Service
Environment and Climate Change
Airservices Australia

telephone 1-800-802-584
facsimile (02) 9556-6641
e-mail community.relations@airservicesaustralia.com
internet www.airservicesaustralia.com

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This report is available on the Internet at Airservices Australia website at

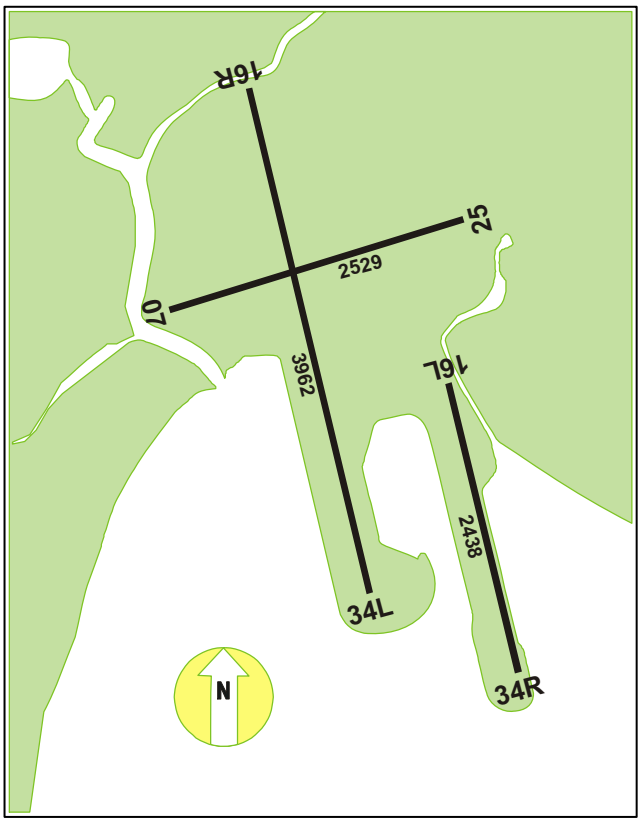
www.airservicesaustralia.com

click on "Projects & Services", "Reports & Statistics" ***then***

"Sydney Airport Operational Statistics".

* This information is produced using the TNIP software package developed by the Department of Infrastructure, Transport, Regional Development and Local Government.

Sydney Airport Runways

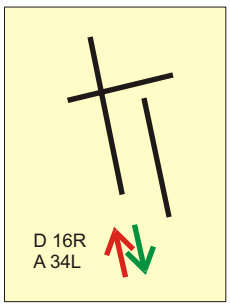


Runway numbers refer to the direction an aircraft is flying.

Runway 16R/34L	Main North-South runway
Runway 16L/34R	Parallel North-South runway.
Runway 07/25	East-West runway.
Runways 16L and 16R	Used by aircraft landing or taking off towards the South. (16=approx. 160 degrees magnetic bearing)
Runway 34L	Used by aircraft landing or taking off towards the North. (34=approx. 340 degrees magnetic bearing)
Runway 34R	Used by aircraft landing toward the north and taking off to the East.
Runway 07	Used by aircraft landing or taking off towards the East. (07=approx. 070 degrees magnetic bearing)
Runway 25	Used by aircraft landing or taking off towards the West. (25=approx. 250 degrees magnetic bearing)
Movements over the North	=16L(arr) + 16R(arr) + 34L(dep)
Movements over the South	=16L(dep) + 16R(dep) + 34L(arr) + 34R(arr)
Movements over the East	=07(dep) + 25(arr) + 34R(dep)
Movements over the West	=07(arr) + 25(dep)

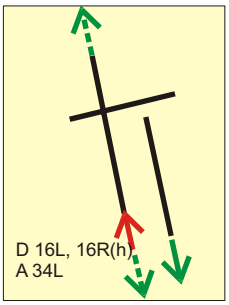
Runway Modes of Operation

Mode 1 - Curfew



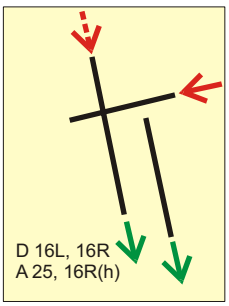
Departures to South
Arrivals from South

Sodprops



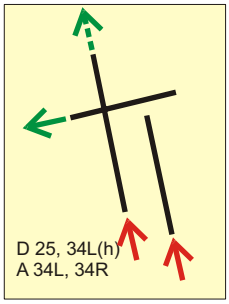
Departures to South
Arrivals from South

Mode 5



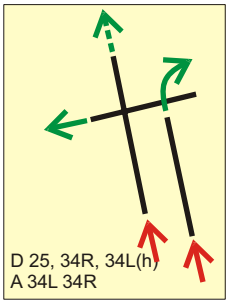
Departures to South
Arrivals from East

Mode 7



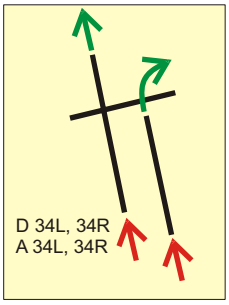
Departures to West
Arrivals from South

Mode 8



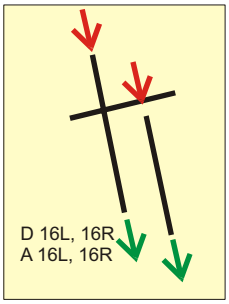
Departures to West,
East & North East
Arrivals from South

Mode 9



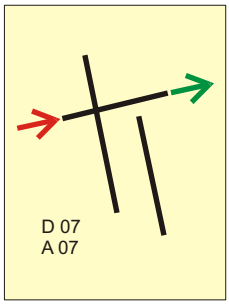
Departures to North & East
Arrivals from South

Mode 10



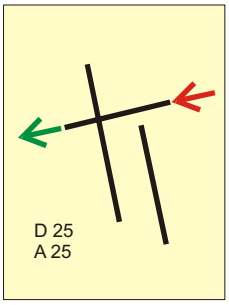
Departures to South
Arrivals from North

Mode 12



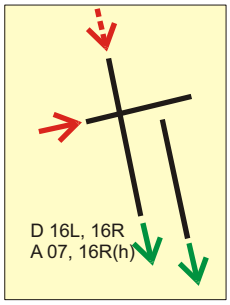
Departures to East
Arrivals from West

Mode 13



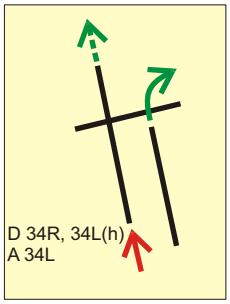
Departures to West
Arrivals from East

Mode 14a



Departures to South
Arrivals from West

Mode 15



Departures to East
Arrivals from South

Departure

Long Haul (h) Departure

Arrival

Long Haul (h) Arrival

Sydney Airport
Preferred Runway Selection

Effective from 21 May 2009 (TLI 09 0163; LOA 714 V5)

Monday to Friday

2300 to 0600	1.	**Curfew – Departures 16R / Arrivals 34L (Mode 1)**
0600 to 0700	1.	**SODPROPS** - Departures **16L** / Arrivals **34L**
	2.	Departures **16L&R** / Arrivals **34L** *(Shoulder Curfew)*. If traffic permits.
	3.	Departures **34R, 25 & 34L** / Arrivals **34L&R** *(Mode 8)*, *or* Departures **25** / Arrivals **34L&R** *(Mode 7)*, *or* Departures **16L&R** / Arrivals **25** *(Mode 5)*, *or* Departures **16L&R** / Arrivals **07** *(Mode 14A)*
	4.	Departures **34R** / Arrivals **34L** *(Mode 15)* **– refer Note 1 below.**
	5.	**34** *(Mode 9)* *or* **16** *(Mode 10)*
	6.	**07** *(Mode 12)* *or* **25** *(Mode 13)*
0700 to2245	1.	**SODPROPS** - Departures **16L** / Arrivals **34L**
	2.	Departures **16L&R** / Arrivals **07** *(Mode 14A), or* Departures **34R, 25 & 34L** / Arrivals **34L&R** *(Mode 8)*, *or* Departures **25** / Arrivals **34L&R** *(Mode 7)*, *or* Departures **16L&R** / Arrivals **25** *(Mode 5)*
	3.	Departures **34R** / Arrivals **34L** *(Mode 15)* **– refer Note 1 below.**
	4.	**34** *(Mode 9)* *or* **16** *(Mode 10)*
	5.	**07** *(Mode 12)* *or* **25** *(Mode 13)*
2245 to 2300	1.	**SODPROPS** - Departures **16L (Mandatory)** / Arrivals **34L**
	2.	Departures **16L&R (Mandatory)** / Arrivals **34L** *(Shoulder Curfew)* ***unless*** there would be significant delays to either departing or arriving aircraft ***or*** traffic complexity requires a variation *or* weather conditions preclude the use of 34L.
	3.	Departures **16L&R** / Arrivals **25** *(Mode 5)*, *or* Departures **16L&R** / Arrivals **07** *(Mode 14A)*
	4.	**16** *(Mode 10)*

Rwy 34 and Rwy 16 Parallel Runway operations should only be considered for use if required for traffic management purposes during the following hours:

0700 to 1100 Monday to Saturday
0800 to 1100 Sunday
1500 to 2000 Sunday to Friday

In order to take advantage of suitable traffic dispositions, variations to these times will occur.

20 knot crosswind and 5 knot downwind criteria apply to all dry runway conditions

This is not an operational document. It has been prepared for information purposes only and is subject to change without notice.

Note 1 – Mode 15 is a temporary mode of operations that is only approved for use during the RESA period and will cease on the completion of the RESA works (expected April 2010). Implementation of this Mode is for weekdays between the hours 0600 to 0700, 1230 to 1430 and after 2000, Saturday afternoons and Sunday morning 0600 to 0800 when conditions are suitable and traffic patterns permit.

Saturday and Sunday

2300 to 0600	1.	Curfew – Departures 16R / Arrivals 34L (Mode 1)
0600 to 0700 Saturday 0600 to 0800	1.	**SODPROPS** - Departures **16L** / Arrivals **34L**
	2.	Departures **16L&R** / Arrivals **34L** *(Shoulder Curfew)*. If traffic permits.
	3.	Departures **16L&R** / Arrivals **25** *(Mode 5)*, ***or*** Departures **16L&R** / Arrivals **07** *(Mode 14A)*, ***or*** Departures **34R, 25 & 34L** / Arrivals **34L&R** *(Mode 8)*, *or* Departures **25** / Arrivals **34L&R** *(Mode 7)*
	4.	Departures **34R** / Arrivals **34L** *(Mode 15)* – **refer Note 1 below.**
	5.	**34** *(Mode 9)* *or* **16** *(Mode 10)*
	6.	**07** *(Mode 12)* ***or*** **25** *(Mode 13)*
0700 to 2200 Saturday 0800 to 2200	*1.*	**SODPROPS** - Departures **16L** / Arrivals **34L**
	2.	Departures **16L&R** / Arrivals **07** *(Mode 14A)*, *or* Departures **34R, 25 & 34L** / Arrivals **34L&R** *(Mode 8)*, ***or*** Departures **25** / Arrivals **34L&R** *(Mode 7)*, ***or*** Departures **16L&R** / Arrivals **25** *(Mode 5)*
	3.	Departures **34R** / Arrivals **34L** *(Mode 15)* **– refer Note 1 below.**
	4.	**34** *(Mode 9)* *or* **16** *(Mode 10)*
	5.	**07** *(Mode 12)* *or* **25** *(Mode 13)*
2200 to 2245	*1.*	**SODPROPS -** Departures **16L (Mandatory)** / Arrivals **34L**
	2.	Departures **16L&R (Mandatory)** / Arrivals **34L** *(Shoulder Curfew) unless* there would be significant delays to either departing or arriving aircraft *or* traffic complexity requires a variation ***or*** weather conditions are not suitable.
	3.	Departures **16L&R** / Arrivals **25** *(Mode 5)*
	4.	Departures **16L&R** / Arrivals **07** *(Mode 14A)*
	5.	Departures **34R, 25 & 34L** / Arrivals **34L&R** *(Mode 8)*
	6.	Departures **25** / Arrivals **34L&R** *(Mode 7)*
	7.	**34** *(Mode 9)* *or* **16** *(Mode 10)*
	8.	**07** *(Mode 12)* *or* **25** *(Mode 13)*
2245 to 2300	*1.*	**SODPROPS** - Departures **16L (Mandatory)** / Arrivals **34L**
	2.	Departures **16L&R (Mandatory)** / Arrivals **34L** *(Shoulder Curfew) unless* there would be significant delays to either departing or arriving aircraft *or* traffic complexity requires a variation *or* weather conditions preclude the use of 34L.
	3.	Departures **16L&R** / Arrivals 25 *(Mode 5)*, *or* Departures **16L&R** / Arrivals 07 *(Mode 14A)*
	4.	**16** *(Mode 10)*

Runway Movement Summary - All Aircraft

Date	Runway 07			Runway 16 Left			Runway 16 Right			Runway 25			Runway 34 Left			Runway 34 Right			Unknown Runway			Day
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	
01-Dec-09	0	0	0	163	121	284	254	299	553	0	0	0	5	0	5	0	0	0	0	0	0	842
02-Dec-09	55	0	55	152	130	282	232	311	543	0	0	0	6	0	6	0	0	0	0	0	0	886
03-Dec-09	0	0	0	0	0	0	2	9	11	0	19	19	327	182	509	117	232	349	0	0	0	888
04-Dec-09	45	0	45	163	130	293	221	315	536	0	0	0	9	0	9	0	0	0	0	0	0	883
05-Dec-09	45	0	45	84	74	158	127	167	294	0	0	0	68	39	107	23	46	69	0	0	0	673
06-Dec-09	1	0	1	15	11	26	43	39	82	0	0	0	237	154	391	78	184	262	0	0	0	762
07-Dec-09	0	0	0	9	9	18	36	26	62	0	16	16	256	179	435	125	200	325	0	0	0	856
08-Dec-09	6	0	6	95	80	175	147	174	321	0	0	0	126	78	204	37	78	115	0	0	0	821
09-Dec-09	0	0	0	150	112	262	224	280	504	0	0	0	53	16	69	0	20	20	0	0	0	855
10-Dec-09	0	0	0	0	0	0	1	8	9	0	17	17	282	176	458	153	231	384	0	0	0	868
11-Dec-09	22	0	22	160	127	287	248	319	567	9	0	9	5	0	5	0	0	0	0	0	0	890
12-Dec-09	0	0	0	0	0	0	1	2	3	0	0	0	291	142	433	55	183	238	0	0	0	674
13-Dec-09	47	0	47	117	112	229	200	284	484	8	0	8	1	0	1	0	0	0	0	0	0	769
14-Dec-09	40	0	40	155	122	277	218	288	506	0	0	0	2	0	2	0	0	0	0	0	0	825
15-Dec-09	0	0	0	0	0	0	0	14	14	0	15	15	287	174	461	118	207	325	0	0	0	815
16-Dec-09	0	0	0	0	0	0	0	11	11	0	0	0	302	189	491	121	223	344	0	0	0	846
17-Dec-09	1	0	1	0	0	0	1	11	12	0	0	0	317	189	506	124	240	364	0	0	0	883
18-Dec-09	33	0	33	173	139	312	234	308	542	0	0	0	5	0	5	0	0	0	0	0	0	892
19-Dec-09	0	0	0	70	60	130	145	157	302	1	13	14	97	49	146	47	66	113	0	0	0	705
20-Dec-09	6	0	6	77	73	150	135	174	309	0	0	0	101	66	167	57	74	131	0	0	0	763
21-Dec-09	0	0	0	0	0	0	0	4	4	0	0	0	261	183	444	142	217	359	0	0	0	807
22-Dec-09	0	0	0	0	15	15	0	14	14	0	0	0	266	175	441	139	197	336	0	0	0	806
23-Dec-09	0	0	0	77	58	135	114	152	266	0	0	0	151	98	249	76	112	188	0	0	0	838
24-Dec-09	11	18	29	0	15	15	0	8	8	0	0	0	281	173	454	131	196	327	0	0	0	833
25-Dec-09	7	0	7	89	80	169	199	220	419	0	0	0	1	0	1	0	0	0	0	0	0	596
26-Dec-09	0	0	0	118	108	226	202	235	437	25	0	25	0	0	0	0	0	0	0	0	0	688
27-Dec-09	0	0	0	124	119	243	204	257	461	36	0	36	0	0	0	0	0	0	0	0	0	740
28-Dec-09	0	0	0	137	117	254	206	259	465	34	1	35	1	0	1	0	0	0	0	0	0	755
29-Dec-09	0	0	0	108	101	209	196	259	455	57	1	58	5	0	5	0	0	0	0	0	0	727
30-Dec-09	56	0	56	106	94	200	188	265	453	0	0	0	8	0	8	0	0	0	0	0	0	717
31-Dec-09	0	0	0	0	0	0	0	7	7	0	20	20	241	158	399	124	165	289	0	0	0	715
Total	**375**	**18**	**393**	**2342**	**2007**	**4349**	**3778**	**4876**	**8654**	**170**	**102**	**272**	**3992**	**2420**	**6412**	**1667**	**2871**	**4538**	**0**	**0**	**0**	**24618**

Runway Movement Summary – Jet Aircraft Only

Date	Runway 07			Runway 16 Left			Runway 16 Right			Runway 25			Runway 34 Left			Runway 34 Right			Unknown Runway			Day
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	
01-Dec-09	0	0	0	103	85	188	207	224	431	0	0	0	3	0	3	0	0	0	0	0	0	622
02-Dec-09	50	0	50	95	93	188	181	235	416	0	0	0	4	0	4	0	0	0	0	0	0	658
03-Dec-09	0	0	0	0	0	0	0	7	7	0	17	17	262	113	375	69	192	261	0	0	0	660
04-Dec-09	39	0	39	108	91	199	173	239	412	0	0	0	7	0	7	0	0	0	0	0	0	657
05-Dec-09	42	0	42	47	58	105	104	138	242	0	0	0	61	31	92	20	40	60	0	0	0	541
06-Dec-09	0	0	0	14	9	23	41	31	72	0	0	0	193	105	298	51	154	205	0	0	0	598
07-Dec-09	0	0	0	5	8	13	34	25	59	0	15	15	207	111	318	72	165	237	0	0	0	642
08-Dec-09	5	0	5	59	56	115	131	135	266	0	0	0	91	51	142	25	65	90	0	0	0	618
09-Dec-09	0	0	0	93	81	174	180	210	390	0	0	0	47	14	61	0	19	19	0	0	0	644
10-Dec-09	0	0	0	0	0	0	1	6	7	0	15	15	234	105	339	90	195	285	0	0	0	646
11-Dec-09	18	0	18	102	92	194	193	238	431	8	0	8	3	0	3	0	0	0	0	0	0	654
12-Dec-09	0	0	0	0	0	0	0	1	1	0	0	0	244	103	347	30	162	192	0	0	0	540
13-Dec-09	46	0	46	78	80	158	162	224	386	8	0	8	0	0	0	0	0	0	0	0	0	598
14-Dec-09	34	0	34	90	85	175	185	224	409	0	0	0	2	0	2	0	0	0	0	0	0	620
15-Dec-09	0	0	0	0	0	0	0	7	7	0	15	15	229	112	341	72	173	245	0	0	0	608
16-Dec-09	0	0	0	0	0	0	0	5	5	0	0	0	245	123	368	76	191	267	0	0	0	640
17-Dec-09	0	0	0	0	0	0	0	3	3	0	0	0	250	116	366	79	203	282	0	0	0	651
18-Dec-09	31	0	31	98	100	198	194	230	424	0	0	0	2	0	2	0	0	0	0	0	0	655
19-Dec-09	0	0	0	54	44	98	116	137	253	0	13	13	84	33	117	27	53	80	0	0	0	561
20-Dec-09	6	0	6	52	47	99	115	137	252	0	0	0	83	48	131	46	65	111	0	0	0	599
21-Dec-09	0	0	0	0	0	0	0	1	1	0	0	0	210	127	337	97	181	278	0	0	0	616
22-Dec-09	0	0	0	0	15	15	0	6	6	0	0	0	213	121	334	96	164	260	0	0	0	615
23-Dec-09	0	0	0	51	42	93	96	118	214	0	0	0	122	69	191	56	98	154	0	0	0	652
24-Dec-09	5	13	18	0	14	14	0	4	4	0	0	0	226	119	345	88	165	253	0	0	0	634
25-Dec-09	7	0	7	76	67	143	182	202	384	0	0	0	1	0	1	0	0	0	0	0	0	535
26-Dec-09	0	0	0	89	80	169	171	200	371	23	0	23	0	0	0	0	0	0	0	0	0	563
27-Dec-09	0	0	0	87	89	176	174	211	385	35	0	35	0	0	0	0	0	0	0	0	0	596
28-Dec-09	0	0	0	90	87	177	180	216	396	33	0	33	0	0	0	0	0	0	0	0	0	606
29-Dec-09	0	0	0	73	72	145	162	214	376	51	0	51	2	0	2	0	0	0	0	0	0	574
30-Dec-09	49	0	49	74	66	140	161	218	379	0	0	0	3	0	3	0	0	0	0	0	0	571
31-Dec-09	0	0	0	0	0	0	0	3	3	0	16	16	201	117	318	87	144	231	0	0	0	568
Total	**332**	**13**	**345**	**1538**	**1461**	**2999**	**3143**	**3849**	**6992**	**158**	**91**	**249**	**3229**	**1618**	**4847**	**1081**	**2429**	**3510**	**0**	**0**	**0**	**18942**

Runway Movement Summary – Non Jet Aircraft Only [1]

Date	Runway 07			Runway 16 Left			Runway 16 Right			Runway 25			Runway 34 Left			Runway 34 Right			Unknown Runway			Day
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	
01-Dec-09	0	0	0	60	36	96	47	75	122	0	0	0	2	0	2	0	0	0	0	0	0	220
02-Dec-09	5	0	5	57	37	94	51	76	127	0	0	0	2	0	2	0	0	0	0	0	0	228
03-Dec-09	0	0	0	0	0	0	2	2	4	0	2	2	65	69	134	48	40	88	0	0	0	228
04-Dec-09	6	0	6	55	39	94	48	76	124	0	0	0	2	0	2	0	0	0	0	0	0	226
05-Dec-09	3	0	3	37	16	53	23	29	52	0	0	0	7	8	15	3	6	9	0	0	0	132
06-Dec-09	1	0	1	1	2	3	2	8	10	0	0	0	44	49	93	27	30	57	0	0	0	164
07-Dec-09	0	0	0	4	1	5	2	1	3	0	1	1	49	68	117	53	35	88	0	0	0	214
08-Dec-09	1	0	1	36	24	60	16	39	55	0	0	0	35	27	62	12	13	25	0	0	0	203
09-Dec-09	0	0	0	57	31	88	44	70	114	0	0	0	6	2	8	0	1	1	0	0	0	211
10-Dec-09	0	0	0	0	0	0	0	2	2	0	2	2	48	71	119	63	36	99	0	0	0	222
11-Dec-09	4	0	4	58	35	93	55	81	136	1	0	1	2	0	2	0	0	0	0	0	0	236
12-Dec-09	0	0	0	0	0	0	1	1	2	0	0	0	47	39	86	25	21	46	0	0	0	134
13-Dec-09	1	0	1	39	32	71	38	60	98	0	0	0	1	0	1	0	0	0	0	0	0	171
14-Dec-09	6	0	6	65	37	102	33	64	97	0	0	0	0	0	0	0	0	0	0	0	0	205
15-Dec-09	0	0	0	0	0	0	0	7	7	0	0	0	58	62	120	46	34	80	0	0	0	207
16-Dec-09	0	0	0	0	0	0	0	6	6	0	0	0	57	66	123	45	32	77	0	0	0	206
17-Dec-09	1	0	1	0	0	0	1	8	9	0	0	0	67	73	140	45	37	82	0	0	0	232
18-Dec-09	2	0	2	75	39	114	40	78	118	0	0	0	3	0	3	0	0	0	0	0	0	237
19-Dec-09	0	0	0	16	16	32	29	20	49	1	0	1	13	16	29	20	13	33	0	0	0	144
20-Dec-09	0	0	0	25	26	51	20	37	57	0	0	0	18	18	36	11	9	20	0	0	0	164
21-Dec-09	0	0	0	0	0	0	0	3	3	0	0	0	51	56	107	45	36	81	0	0	0	191
22-Dec-09	0	0	0	0	0	0	0	8	8	0	0	0	53	54	107	43	33	76	0	0	0	191
23-Dec-09	0	0	0	26	16	42	18	34	52	0	0	0	29	29	58	20	14	34	0	0	0	186
24-Dec-09	6	5	11	0	1	1	0	4	4	0	0	0	55	54	109	43	31	74	0	0	0	199
25-Dec-09	0	0	0	13	13	26	17	18	35	0	0	0	0	0	0	0	0	0	0	0	0	61
26-Dec-09	0	0	0	29	28	57	31	35	66	2	0	2	0	0	0	0	0	0	0	0	0	125
27-Dec-09	0	0	0	37	30	67	30	46	76	1	0	1	0	0	0	0	0	0	0	0	0	144
28-Dec-09	0	0	0	47	30	77	26	43	69	1	1	2	1	0	1	0	0	0	0	0	0	149
29-Dec-09	0	0	0	35	29	64	34	45	79	6	1	7	3	0	3	0	0	0	0	0	0	153
30-Dec-09	7	0	7	32	28	60	27	47	74	0	0	0	5	0	5	0	0	0	0	0	0	146
31-Dec-09	0	0	0	0	0	0	0	4	4	0	4	4	40	41	81	37	21	58	0	0	0	147
Total	**43**	**5**	**48**	**804**	**546**	**1350**	**635**	**1027**	**1662**	**12**	**11**	**23**	**763**	**802**	**1565**	**586**	**442**	**1028**	**0**	**0**	**0**	**5676**

(1) Includes miscellaneous General Aviation aircraft - refer Noise And Flight Path Monitoring System Sydney Quarterly Report for more detail

Hourly Runway Movement Summary – All Movements

Date	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
01-Dec-09	5	4	1	2	3	1	32	60	68	66	59	51	40	34	46	48	45	56	72	61	31	24	28	5	842
02-Dec-09	2	3	1	3	3	1	30	62	65	66	57	56	46	34	55	52	54	64	75	55	31	39	27	5	886
03-Dec-09	2	2	2	2	1	2	36	60	69	67	54	55	46	44	49	50	45	65	76	57	35	37	29	3	888
04-Dec-09	5	2	0	3	1	1	34	61	68	68	56	58	48	43	51	46	51	61	69	57	45	34	20	1	883
05-Dec-09	0	1	0	0	0	1	25	45	56	55	57	55	44	39	44	45	37	39	40	30	26	23	11	0	673
06-Dec-09	0	1	1	2	0	0	24	40	48	43	48	40	46	39	45	55	49	57	73	55	37	34	24	1	762
07-Dec-09	1	1	0	0	1	0	35	60	63	67	66	63	45	41	50	56	49	51	67	54	31	29	23	3	856
08-Dec-09	4	1	2	2	2	0	37	56	62	64	62	53	34	42	51	40	46	50	65	57	35	26	28	2	821
09-Dec-09	1	1	1	3	2	1	38	56	62	69	54	56	43	38	48	48	50	57	65	62	37	37	23	3	855
10-Dec-09	5	1	3	2	2	0	36	55	66	65	59	59	49	33	50	44	51	57	72	55	40	29	31	4	868
11-Dec-09	5	2	1	2	2	1	32	66	68	61	63	48	50	37	57	57	50	64	73	62	36	38	13	2	890
12-Dec-09	1	0	1	0	2	0	27	47	60	52	56	51	47	34	44	36	41	41	35	38	25	21	15	0	674
13-Dec-09	1	1	0	0	0	0	22	37	50	50	51	44	50	36	53	49	51	61	71	55	34	35	17	1	769
14-Dec-09	0	0	0	0	0	0	30	57	62	61	62	55	50	30	51	47	51	53	65	54	33	34	26	4	825
15-Dec-09	7	3	1	4	2	0	32	60	65	63	60	51	40	41	43	41	47	45	64	54	27	29	29	7	815
16-Dec-09	4	3	0	3	2	1	29	56	61	62	63	56	41	37	49	44	57	54	66	51	35	36	32	4	846
17-Dec-09	4	2	3	2	2	2	35	66	64	60	55	54	47	48	46	48	51	62	70	57	41	32	29	3	883
18-Dec-09	4	3	2	3	3	1	35	57	57	63	64	55	51	40	53	55	58	52	69	66	39	35	25	2	892
19-Dec-09	0	3	1	0	0	0	22	54	66	60	57	54	47	33	48	38	38	43	43	28	26	29	14	1	705
20-Dec-09	1	1	0	0	1	0	20	32	46	49	48	44	51	41	47	53	49	51	73	59	34	37	24	2	763
21-Dec-09	1	1	0	1	0	0	31	58	62	59	56	59	50	32	52	45	48	49	63	47	32	33	25	3	807
22-Dec-09	4	5	1	4	1	3	30	56	62	57	61	45	45	36	48	37	51	49	65	49	35	30	26	6	806
23-Dec-09	3	2	1	5	0	0	31	51	63	63	56	47	53	39	46	52	49	56	66	53	36	32	29	5	838
24-Dec-09	2	2	3	4	1	0	30	59	59	62	52	57	47	38	46	55	48	66	62	40	45	31	23	1	833
25-Dec-09	0	1	0	1	2	0	28	41	41	53	43	39	36	32	38	32	35	44	39	28	23	28	11	1	596
26-Dec-09	2	0	0	0	1	0	28	40	58	56	51	54	46	40	49	47	35	47	44	29	30	21	10	0	688
27-Dec-09	0	1	1	1	0	0	21	33	49	53	50	47	50	40	53	46	49	55	61	46	31	33	20	0	740
28-Dec-09	0	3	0	0	1	0	29	47	58	59	55	54	51	36	49	42	42	53	53	45	32	28	18	0	755
29-Dec-09	1	1	0	0	0	0	31	50	57	59	49	46	42	35	40	39	37	57	53	36	32	32	23	7	727
30-Dec-09	4	2	1	1	1	1	31	46	64	53	20	50	38	32	40	44	43	56	58	44	33	29	21	5	717
31-Dec-09	4	1	1	1	2	2	32	47	48	56	47	54	41	38	43	43	47	46	55	38	27	22	19	1	715
Total	**73**	**54**	**28**	**51**	**38**	**18**	**933**	**1615**	**1847**	**1841**	**1691**	**1610**	**1414**	**1162**	**1484**	**1434**	**1454**	**1661**	**1922**	**1522**	**1034**	**957**	**693**	**82**	**24618**
Avg.	**2.35**	**1.74**	**0.90**	**1.65**	**1.23**	**0.58**	**30.10**	**52.10**	**59.58**	**59.39**	**54.55**	**51.94**	**45.61**	**37.48**	**47.87**	**46.26**	**46.90**	**53.58**	**62.00**	**49.10**	**33.35**	**30.87**	**22.35**	**2.65**	**794.13**

Hourly Runway Movement Summary – Arrivals

Date	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
01-Dec-09	1	1	1	2	0	1	15	36	39	31	29	26	19	19	21	20	23	29	38	19	19	18	13	2	422
02-Dec-09	1	1	1	2	0	1	10	38	36	33	29	27	19	20	31	19	26	34	33	24	20	25	13	2	445
03-Dec-09	0	1	2	1	0	1	14	39	38	30	25	30	17	22	31	14	24	39	34	22	22	27	11	2	446
04-Dec-09	0	1	0	2	0	1	15	36	42	29	29	26	19	21	32	15	26	30	31	27	23	21	11	1	438
05-Dec-09	0	0	0	0	0	0	12	31	28	25	25	29	19	21	29	15	23	21	20	15	17	12	5	0	347
06-Dec-09	0	1	1	0	0	0	13	26	20	23	23	14	21	17	23	21	24	35	37	21	24	17	12	1	374
07-Dec-09	1	1	0	0	0	0	16	32	35	38	28	32	15	21	32	18	28	27	28	23	18	20	11	2	426
08-Dec-09	0	0	2	1	1	0	16	33	37	34	29	22	15	23	27	12	23	28	32	23	21	18	14	0	411
09-Dec-09	0	0	1	2	0	1	17	32	36	31	29	28	20	16	25	18	24	30	29	31	21	23	12	1	427
10-Dec-09	1	0	3	1	1	0	16	31	39	29	30	33	20	15	30	15	24	31	34	26	20	21	13	3	436
11-Dec-09	1	1	1	1	1	0	12	43	39	27	31	21	22	19	34	21	25	37	32	25	20	23	7	1	444
12-Dec-09	0	0	0	0	2	0	12	35	30	23	27	22	22	18	27	15	19	26	16	20	13	14	6	0	347
13-Dec-09	0	1	0	0	0	0	12	22	20	24	26	19	18	17	31	17	21	37	37	22	19	22	8	0	373
14-Dec-09	0	0	0	0	0	0	13	31	35	32	33	26	18	17	30	16	26	30	31	20	19	23	13	2	415
15-Dec-09	2	0	1	3	1	0	14	34	39	30	30	25	19	22	22	12	25	25	32	17	15	21	13	3	405
16-Dec-09	0	2	0	2	1	0	14	36	34	30	31	26	20	18	30	14	26	32	28	17	24	23	13	2	423
17-Dec-09	1	0	1	1	1	2	14	42	34	25	31	28	18	23	23	21	26	38	33	20	24	21	14	2	443
18-Dec-09	2	0	1	2	1	1	12	35	34	31	32	28	17	23	27	25	25	30	32	34	20	21	12	0	445
19-Dec-09	0	2	0	0	0	0	8	38	35	23	30	26	21	17	28	16	18	24	22	14	14	20	3	1	360
20-Dec-09	1	0	0	0	1	0	8	19	23	19	24	22	22	19	28	20	24	32	35	26	18	23	12	0	376
21-Dec-09	0	1	0	1	0	0	11	36	34	29	31	28	17	17	32	18	24	24	26	19	21	23	10	1	403
22-Dec-09	1	2	0	3	1	1	11	37	34	28	29	23	19	18	28	13	21	28	34	17	22	22	11	2	405
23-Dec-09	1	1	0	3	0	0	11	29	35	31	27	22	24	19	28	22	21	32	32	22	22	21	13	2	418
24-Dec-09	0	0	3	2	0	0	11	39	31	25	27	27	20	19	28	20	25	36	33	15	30	20	12	0	423
25-Dec-09	0	1	0	1	0	0	12	29	19	24	18	18	17	19	20	8	21	26	15	14	14	15	5	0	296
26-Dec-09	1	0	0	0	1	0	14	26	27	22	21	28	18	21	29	19	18	28	23	15	18	15	1	0	345
27-Dec-09	0	1	0	1	0	0	11	20	23	21	22	22	22	18	29	17	25	30	33	22	17	19	11	0	364
28-Dec-09	0	1	0	0	1	0	12	27	32	25	29	24	23	17	29	13	23	30	26	22	19	18	7	0	378
29-Dec-09	1	1	0	0	0	0	12	30	30	25	26	22	21	16	22	12	25	29	21	16	23	21	8	5	366
30-Dec-09	0	1	1	0	1	1	12	30	33	25	12	23	19	13	23	14	22	31	29	18	19	18	9	4	358
31-Dec-09	0	1	1	1	1	1	12	32	23	23	23	26	20	21	24	15	24	26	31	20	18	12	10	0	365
Total	**15**	**22**	**20**	**32**	**15**	**11**	**392**	**1004**	**994**	**845**	**836**	**773**	**601**	**586**	**853**	**515**	**729**	**935**	**917**	**646**	**614**	**617**	**313**	**39**	**12324**
Avg.	**0.48**	**0.71**	**0.65**	**1.03**	**0.48**	**0.35**	**12.65**	**32.39**	**32.06**	**27.26**	**26.97**	**24.94**	**19.39**	**18.90**	**27.52**	**16.61**	**23.52**	**30.16**	**29.58**	**20.84**	**19.81**	**19.90**	**10.10**	**1.26**	**397.55**

Hourly Runway Movement Summary – Departures

Date	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	Total
01-Dec-09	4	3	0	0	3	0	17	24	29	35	30	25	21	15	25	28	22	27	34	42	12	6	15	3	420
02-Dec-09	1	2	0	1	3	0	20	24	29	33	28	29	27	14	24	33	28	30	42	31	11	14	14	3	441
03-Dec-09	2	1	0	1	1	1	22	21	31	37	29	25	29	22	18	36	21	26	42	35	13	10	18	1	442
04-Dec-09	5	1	0	1	1	0	19	25	26	39	27	32	29	22	19	31	25	31	38	30	22	13	9	0	445
05-Dec-09	0	1	0	0	0	1	13	14	28	30	32	26	25	18	15	30	14	18	20	15	9	11	6	0	326
06-Dec-09	0	0	0	2	0	0	11	14	28	20	25	26	25	22	22	34	25	22	36	34	13	17	12	0	388
07-Dec-09	0	0	0	0	1	0	19	28	28	29	38	31	30	20	18	38	21	24	39	31	13	9	12	1	430
08-Dec-09	4	1	0	1	1	0	21	23	25	30	33	31	19	19	24	28	23	22	33	34	14	8	14	2	410
09-Dec-09	1	1	0	1	2	0	21	24	26	38	25	28	23	22	23	30	26	27	36	31	16	14	11	2	428
10-Dec-09	4	1	0	1	1	0	20	24	27	36	29	26	29	18	20	29	27	26	38	29	20	8	18	1	432
11-Dec-09	4	1	0	1	1	1	20	23	29	34	32	27	28	18	23	36	25	27	41	37	16	15	6	1	446
12-Dec-09	1	0	1	0	0	0	15	12	30	29	29	29	25	16	17	21	22	15	19	18	12	7	9	0	327
13-Dec-09	1	0	0	0	0	0	10	15	30	26	25	25	32	19	22	32	30	24	34	33	15	13	9	1	396
14-Dec-09	0	0	0	0	0	0	17	26	27	29	29	29	32	13	21	31	25	23	34	34	14	11	13	2	410
15-Dec-09	5	3	0	1	1	0	18	26	26	33	30	26	21	19	21	29	22	20	32	37	12	8	16	4	410
16-Dec-09	4	1	0	1	1	1	15	20	27	32	32	30	21	19	19	30	31	22	38	34	11	13	19	2	423
17-Dec-09	3	2	2	1	1	0	21	24	30	35	24	26	29	25	23	27	25	24	37	37	17	11	15	1	440
18-Dec-09	2	3	1	1	2	0	23	22	23	32	32	27	34	17	26	30	33	22	37	32	19	14	13	2	447
19-Dec-09	0	1	1	0	0	0	14	16	31	37	27	28	26	16	20	22	20	19	21	14	12	9	11	0	345
20-Dec-09	0	1	0	0	0	0	12	13	23	30	24	22	29	22	19	33	25	19	38	33	16	14	12	2	387
21-Dec-09	1	0	0	0	0	0	20	22	28	30	25	31	33	15	20	27	24	25	37	28	11	10	15	2	404
22-Dec-09	3	3	1	1	0	2	19	19	28	29	32	22	26	18	20	24	30	21	31	32	13	8	15	4	401
23-Dec-09	2	1	1	2	0	0	20	22	28	32	29	25	29	20	18	30	28	24	34	31	14	11	16	3	420
24-Dec-09	2	2	0	2	1	0	19	20	28	37	25	30	27	19	18	35	23	30	29	25	15	11	11	1	410
25-Dec-09	0	0	0	0	2	0	16	12	22	29	25	21	19	13	18	24	14	18	24	14	9	13	6	1	300
26-Dec-09	1	0	0	0	0	0	14	14	31	34	30	26	28	19	20	28	17	19	21	14	12	6	9	0	343
27-Dec-09	0	0	1	0	0	0	10	13	26	32	28	25	28	22	24	29	24	25	28	24	14	14	9	0	376
28-Dec-09	0	2	0	0	0	0	17	20	26	34	26	30	28	19	20	29	19	23	27	23	13	10	11	0	377
29-Dec-09	0	0	0	0	0	0	19	20	27	34	23	24	21	19	18	27	12	28	32	20	9	11	15	2	361
30-Dec-09	4	1	0	1	0	0	19	16	31	28	8	27	19	19	17	30	21	25	29	26	14	11	12	1	359
31-Dec-09	4	0	0	0	1	1	20	15	25	33	24	28	21	17	19	28	23	20	24	18	9	10	9	1	350
Total	**58**	**32**	**8**	**19**	**23**	**7**	**541**	**611**	**853**	**996**	**855**	**837**	**813**	**576**	**631**	**919**	**725**	**726**	**1005**	**876**	**420**	**340**	**380**	**43**	**12294**
Avg.	**1.87**	**1.03**	**0.26**	**0.61**	**0.74**	**0.23**	**17.45**	**19.71**	**27.52**	**32.13**	**27.58**	**27.00**	**26.23**	**18.58**	**20.35**	**29.65**	**23.39**	**23.42**	**32.42**	**28.26**	**13.55**	**10.97**	**12.26**	**1.39**	**396.58**

Mode Utilisation Summary (Total Hours by Day)

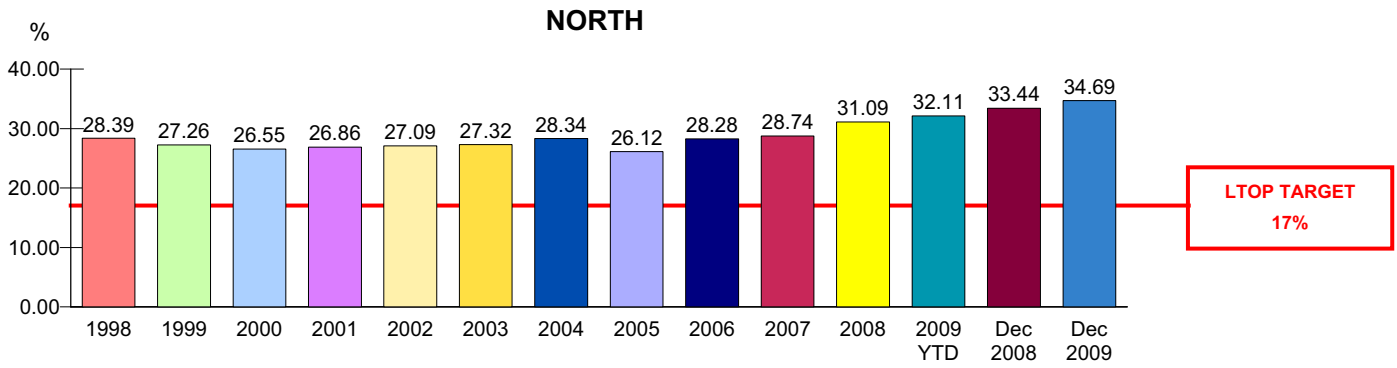
Date	Curfew	16/34	Sod props	Mode 5 16/25	Mode 7 25/34	Mode 8 25/34	Mode 9 34	Mode 10 16	Mode 12 07	Mode 13 25	Mode14a 16/07	Mode 15 34R/34L	Other
01-Dec-09	07:00	-	-	-	-	-	-	16:59	-	-	-	-	-
02-Dec-09	07:00	00:15	-	-	-	-	-	14:02	-	-	02:41	-	-
03-Dec-09	07:00	00:26	-	-	00:59	-	11:11	-	-	-	-	04:21	-
04-Dec-09	07:00	00:28	-	-	00:13	-	-	14:00	-	-	02:17	-	-
05-Dec-09	07:00	00:28	00:56	-	-	-	04:04	08:03	-	-	03:26	-	-
06-Dec-09	07:00	00:14	-	-	-	-	13:53	02:51	-	-	-	-	-
07-Dec-09	07:00	00:16	-	-	00:54	-	13:19	02:28	-	-	-	-	-
08-Dec-09	07:00	00:11	01:14	-	-	-	05:08	09:12	-	-	00:20	00:52	-
09-Dec-09	07:00	00:19	-	-	-	-	-	14:27	-	-	-	02:12	-
10-Dec-09	07:00	00:10	-	-	00:54	-	15:54	-	-	-	-	-	-
11-Dec-09	07:00	00:17	-	00:49	-	-	-	14:36	-	-	01:15	-	-
12-Dec-09	07:00	00:22	-	-	-	-	05:22	-	-	-	-	11:14	-
13-Dec-09	07:00	00:27	-	00:43	-	-	-	13:11	-	-	02:36	-	-
14-Dec-09	07:00	-	-	-	-	-	-	14:25	-	-	02:34	-	-
15-Dec-09	07:00	00:07	-	-	00:56	-	11:38	-	-	-	-	04:17	-
16-Dec-09	07:00	00:16	-	-	-	-	12:23	-	-	-	-	04:19	-
17-Dec-09	07:00	00:15	-	-	-	-	14:09	-	-	-	-	02:33	-
18-Dec-09	07:00	00:20	-	-	-	-	-	15:00	-	-	01:38	-	-
19-Dec-09	07:00	00:22	-	-	00:54	-	04:28	11:13	-	-	-	-	-
20-Dec-09	07:00	00:12	-	-	-	-	06:14	09:47	-	-	00:45	-	-
21-Dec-09	07:00	00:01	-	-	-	-	16:14	-	-	-	-	00:43	-
22-Dec-09	07:00	00:14	01:00	-	-	-	15:44	-	-	-	-	-	-
23-Dec-09	07:00	00:17	-	-	-	-	08:10	07:39	-	-	-	00:51	-
24-Dec-09	07:00	00:17	00:52	-	-	-	13:23	-	00:46	-	-	01:40	-
25-Dec-09	07:00	00:52	-	-	-	-	-	15:27	-	-	00:39	-	-
26-Dec-09	07:00	00:45	-	01:58	-	-	-	14:15	-	-	-	-	-
27-Dec-09	07:00	00:15	-	02:45	-	-	-	13:58	-	-	-	-	-
28-Dec-09	07:00	00:30	-	03:05	-	-	-	13:23	-	-	-	-	-
29-Dec-09	07:00	00:24	-	03:39	-	-	-	12:55	-	-	-	-	-
30-Dec-09	07:00	00:26	-	-	-	-	-	13:22	-	-	03:10	-	-
31-Dec-09	07:00	00:24	-	-	01:02	-	13:40	-	-	-	-	01:51	-
Total	**217:00**	**10:18**	**4:03**	**13:02**	**5:55**	**00:00**	**185:04**	**251:23**	**0:46**	**00:00**	**21:26**	**34:57**	**00:00**
% Used		**1.96%**	**0.77%**	**2.47%**	**1.12%**	**0.00%**	**35.12%**	**47.70%**	**0.15%**	**0.00%**	**0.00%**	**6.63%**	**4.07%**

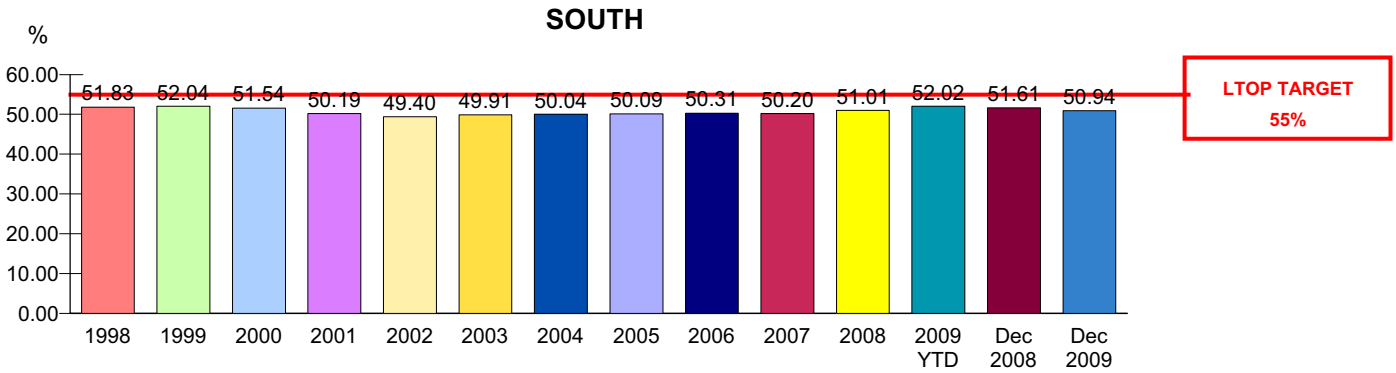
Cumulative Mode Utilisation from 1 January 2009

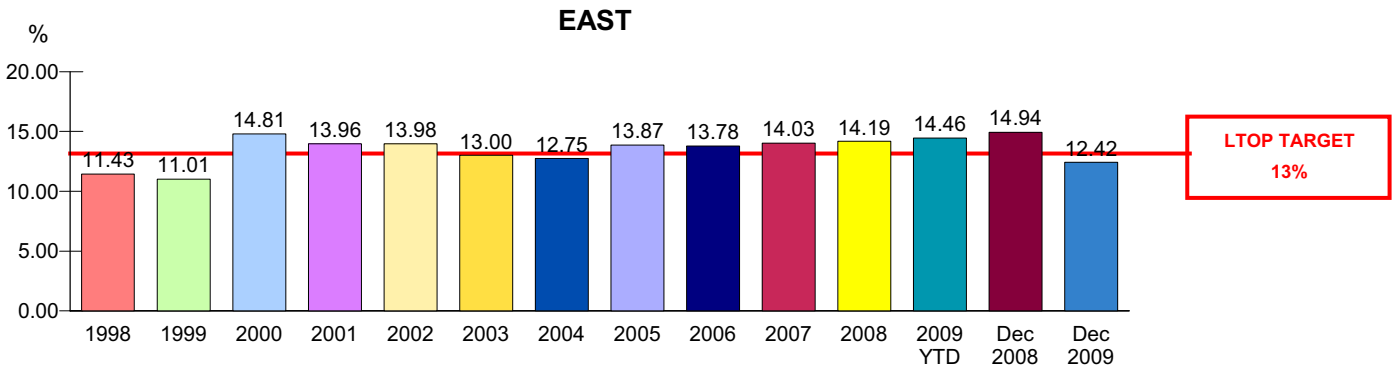
Time	**2.25%**	**6.45%**	**0.65%**	**2.23%**	**0.00%**	**39.23%**	**38.78%**	**0.01%**	**1.07%**	**0.71%**	**8.62%**	**0.00%**
Movements	**0.35%**	**4.95%**	**0.44%**	**1.64%**	**0.00%**	**44.22%**	**40.39%**	**0.01%**	**0.99%**	**0.48%**	**6.53%**	**0.00%**

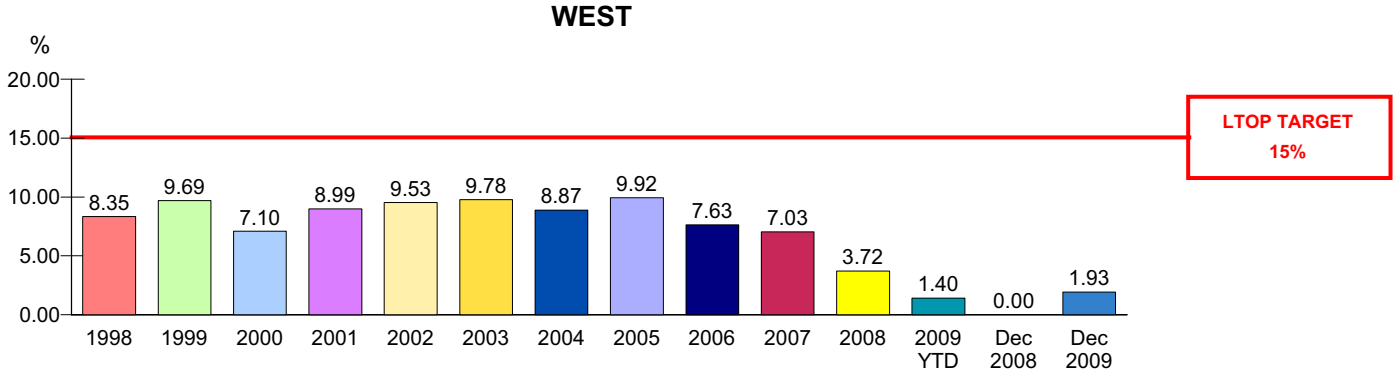
Runway End Impact to 31 December 2009

Includes comparisons with annual figures for 1998 to 2008, 2009 Year to Date, current month this year and corresponding month last year.

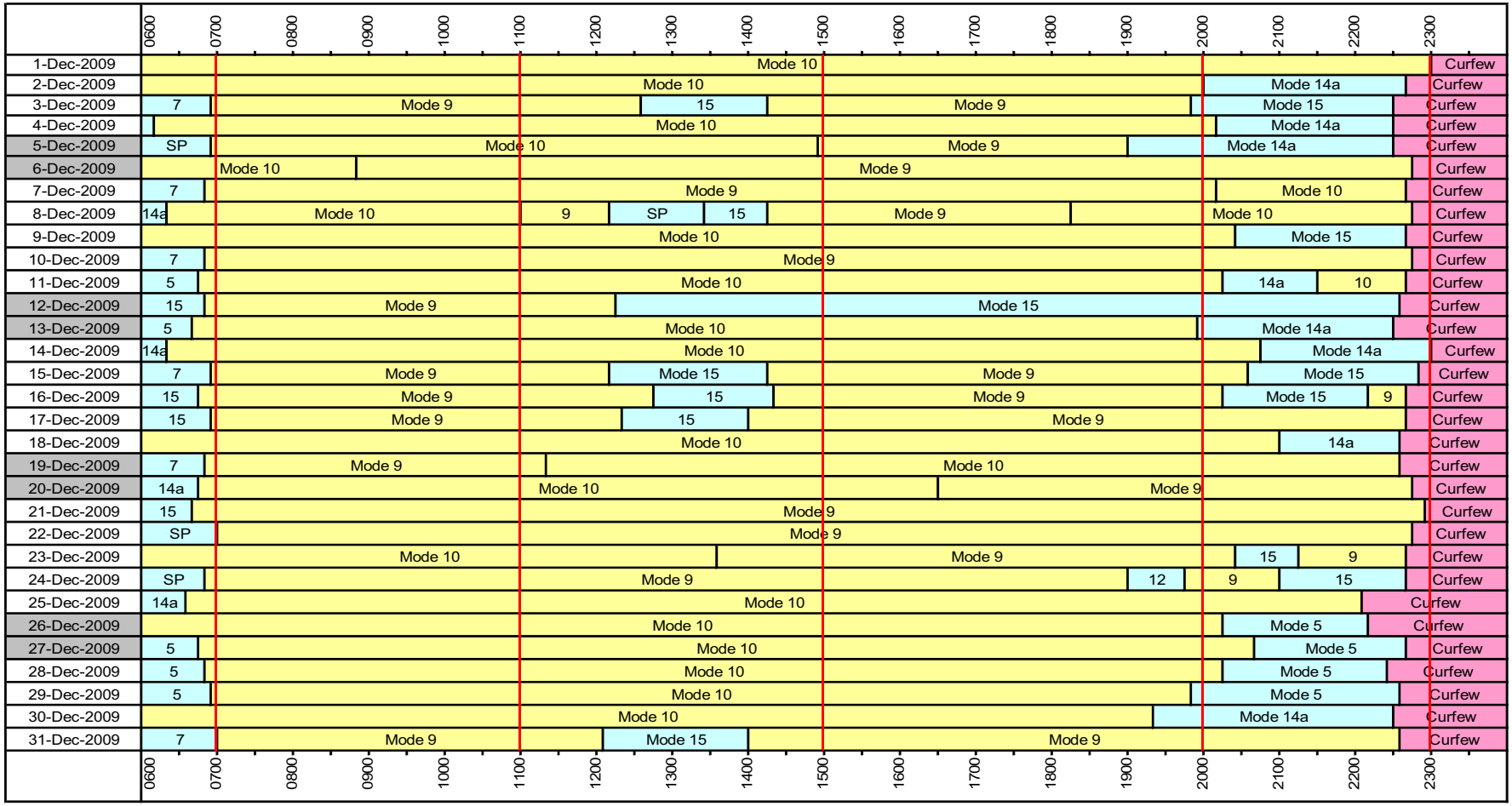








Sydney Airport - Daily Mode Usage



Weekend

Curfew Mode — CURFEW: Dep 16R Arr 34L

Parallel Modes — M9: Dep 34L+R Arr 34L+R M10: Dep 16L+R Arr 16L+R

Crossing Modes — SODPROPS (or SP): Dep 16L Arr 34L M5: Dep 16L+R Arr 25 M7: Dep 25 Arr 34L+R M8: Dep 25 34R Arr 34L+R M12: Dep 07 Arr 07 M13: Dep 25 Arr 25

M14A: Dep 16L+R Arr 07 M15: Dep 34R Arr 34L

Precision Runway Monitor (PRM) Operations

In June 2002 at Sydney Airport, Airservices Australia commenced operation of the Precision Runway Monitor (PRM), a highly accurate radar system, to monitor landing operations arriving from the North. PRM landings from the South have been operating since 1999.
The PRM supplements the existing Instrument Landing System (ILS), and is only used by Air Traffic Control during poor weather conditions thereby reducing air traffic delays due to weather.

The PRM operation involves two changes in procedure for arrivals from the North (Runway 16)

- Aircraft make their final turn to line up with the runways about 5-10km further north of the airport than during ILS operation.
- Within this extended area aircraft may fly at a fixed altitude of 3000ft (under ILS operation 3000-4000ft).

Airservices Australia conducted a 6 month Noise Monitoring Program from June 2002 until December 2002, which included regular reporting to Environment Australia and the community, to meet the requirements of the Minister for the Environment and Heritage.

Portable Noise Monitors, which were installed in suburbs affected by PRM changes, have since been removed with the cessation of the Noise Monitoring Program.

Nevertheless Airservices Australia Noise Enquiry Service continues to collect daily statistical data relating to PRM operations on Runway 16 and associated issues. Below is a summary of data collected for **December 2009**:

Days on which Runway 16 PRM was used and hours of usage (ATIS time)

Date	PRM		Hours of PRM operation
	Start Time	End Time	
01 Dec 2009	7:00	7:56	0:56
09 Dec 2009	6:42	8:40	1:58

Number of Runway 16 arrivals during PRM operations and their runway assignment

Date	Number of arrivals on Runway 16 during PRM	Runway assignment	
		16L	16R
01 Dec 2009	32	15	19
09 Dec 2009	64	27	38

Complaints and complainants by suburb, specifically mentioning PRM operations

Suburb	Number of complaints	Number of complainants
Glenorie	1	1
Hornsby	1	1
Kenthurst	2	1

Noise Enquiry Service

The Noise Enquiry Service is a function of Airservices Australia located at Sydney Airport. For more information visit the website at:

www.airservicesaustralia.com

The practices of the Service comply with the requirements of:

The Privacy Act 1988 (Commonwealth)

www.privacy.gov.aus

The Telecommunications Act 1997 (Commonwealth)

www.acma.gov.au

The responsibilities of the Service include the recording of complaints, comments and enquiries regarding aircraft operations and noise for flights within Australia.

The Service is available **from 9 am to 5 pm, Monday to Friday** Australian Eastern Standard Time / Eastern Daylight Saving Time. Outside of these hours Voice Mail is used to record these calls. The Service can be contacted by:

telephone	1-800-802-584
facsimile	(02) 9556-6641
e-mail	community.relations@airservicesaustralia.com

In addition complaints can be lodged via the internet at:

www.airservicesaustralia.com/ncm

Complaints received are entered directly into a computer database. Any personal information collected is protected and will not be passed onto any unrelated parties. Statistical information generated from the computer database is produced for this Report, and is also made available to the Sydney Airport Community Forum (SACF). For more information visit the website at:

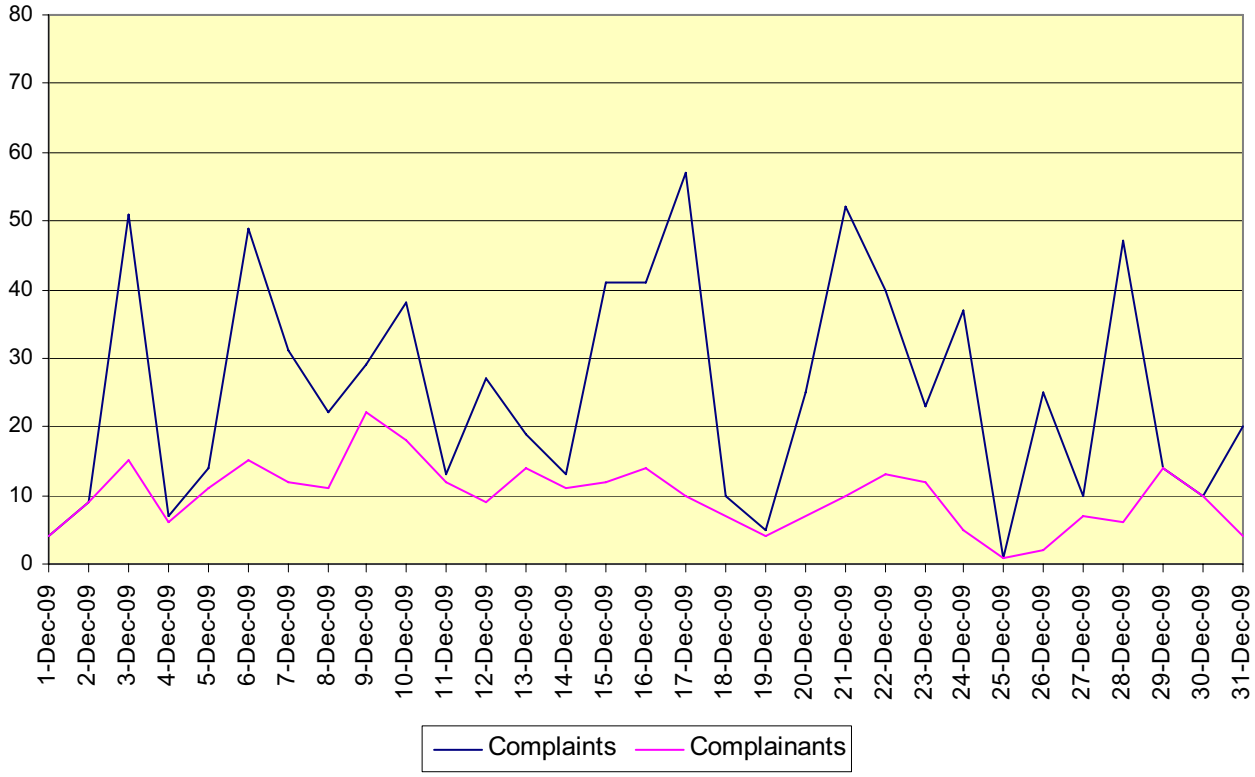
www.sacf.infrastructure.gov.au

Summary of Section Activity – December 2009

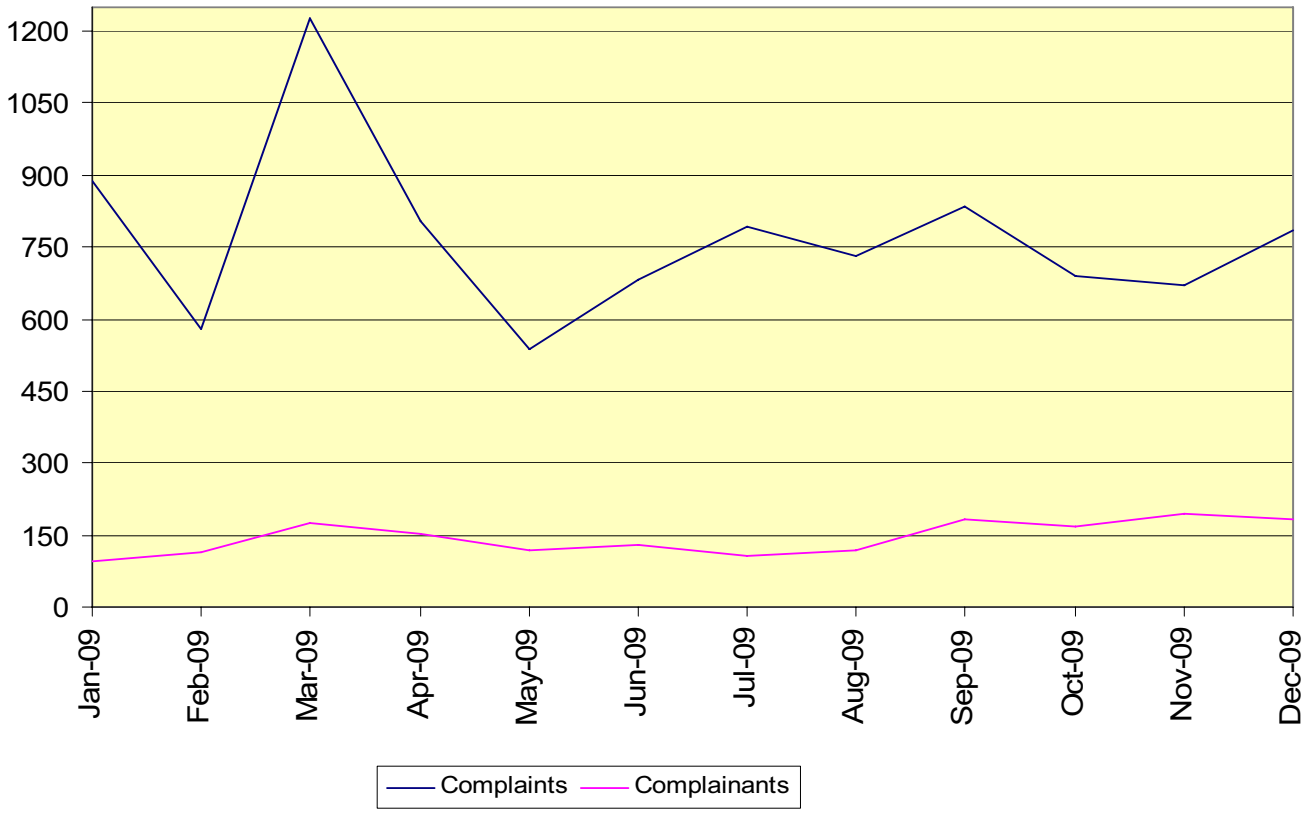
- Sydney Suburbs Complaints
  - By phone 290
  - By correspondence 19
  - By internet 251
  - By e-mail 222
  - By WebTrak 2
- Sydney Suburbs Complaints – suburb not specified 6
- Sydney Suburbs Comments and Enquiries 44
- Other than Sydney Suburbs or Sydney Airport (NSW Only) Complaints 72
- Other than Sydney Suburbs or Sydney Airport (NSW Only) Comments and Enquiries 11
- Callback / Information Requests (NSW Only) 391

Complaints Graphs

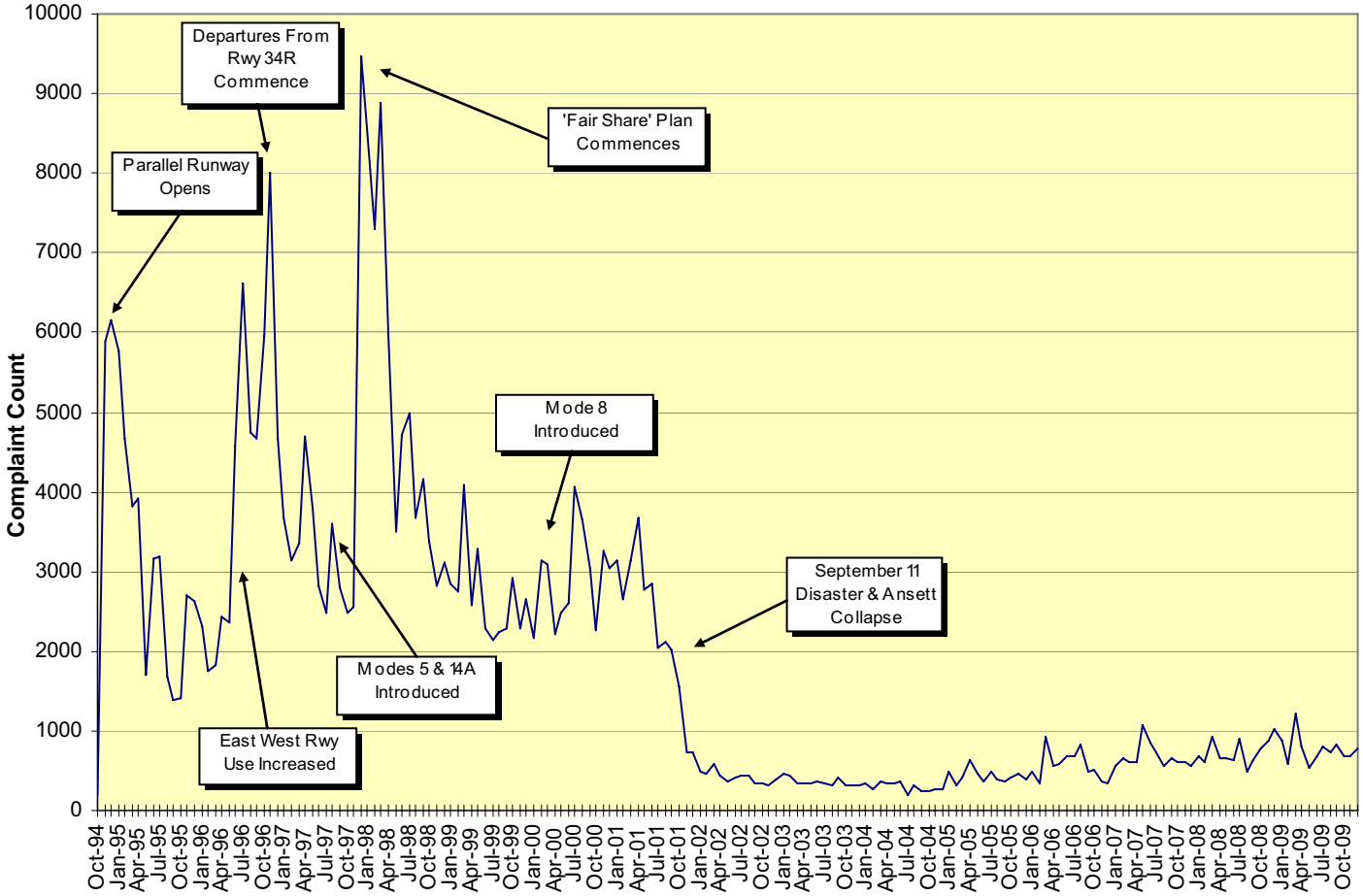
Complaints vs Complainants – 1 December to 31 December 2009



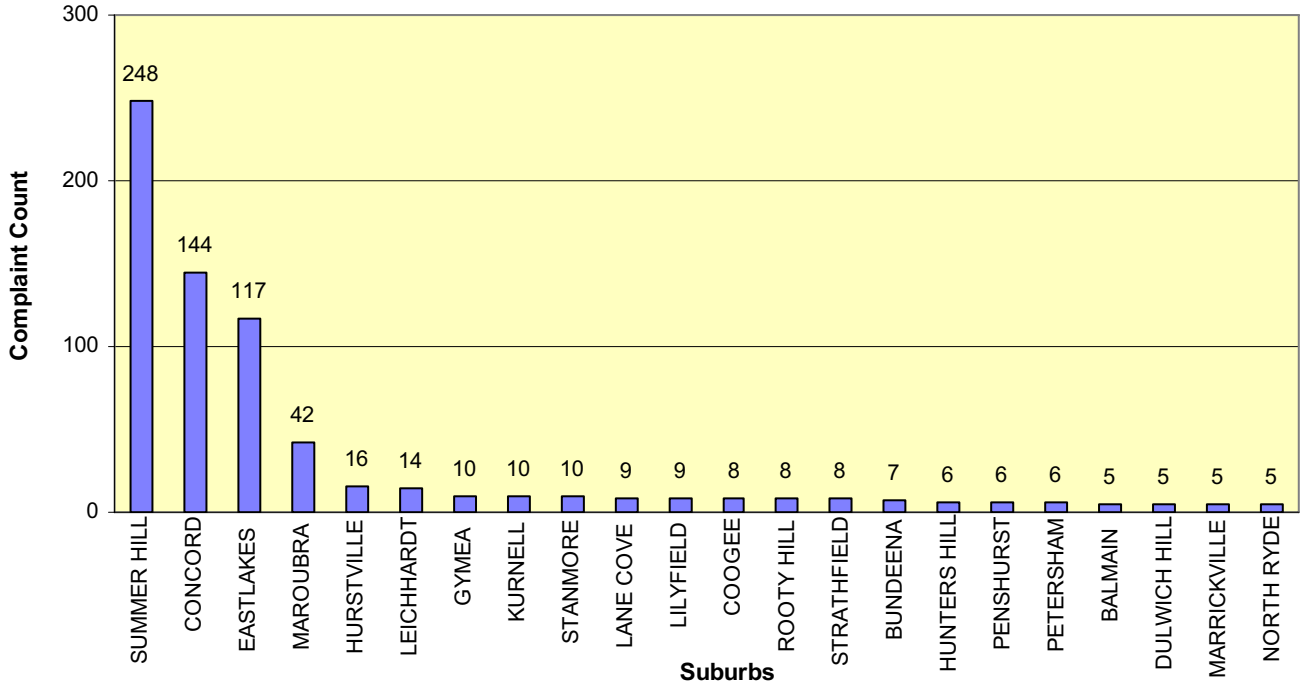
Complaints vs Complainants – Monthly



Complaints History

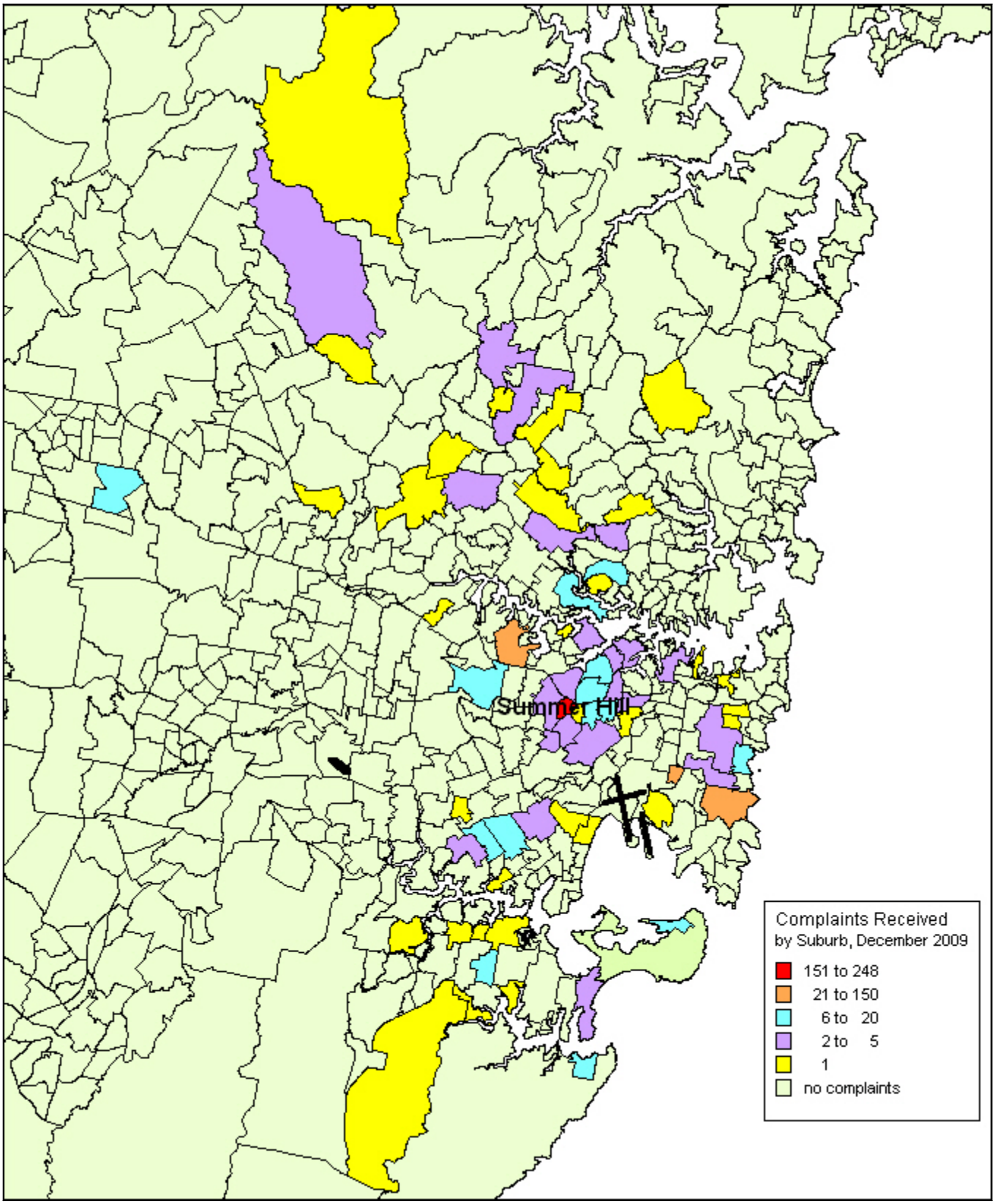


Top Complaint Suburbs – 1 December to 31 December 2009



Complaint Density by Suburb

1 December to 31 December 2009



Recorded Complaints vs Complainants, by Suburb

1 December to 31 December 2009

SUBURB	*COMPLAINTS*	*COMPLAINANTS*	*SUBURB*	*COMPLAINTS*	*COMPLAINANTS*
Not Specified	6	5	Kenthurst	2	1
Annandale	2	2	Kingsford	3	3
Ashfield	3	1	Kurnell	10	5
Balmain	5	4	Lane Cove	9	6
Bangor	1	1	Leichhardt	14	12
Beecroft	1	1	Lewisham	1	1
Belrose	1	1	Lilyfield	9	8
Bexley	3	3	Macquarie Park	1	1
Bondi Junction	1	1	Maroubra	42	8
Botany	1	1	Marrickville	5	5
Brighton-Le-Sands	1	1	Mortdale	4	4
Bundeena	7	3	Narwee	1	1
Camperdown	3	1	Newington	1	1
Carlingford	1	1	Newtown	1	1
Chatswood West	2	2	Normanhurst	1	1
Chiswick	1	1	North Ryde	5	4
Concord	144	5	Penshurst	6	3
Connells Point	1	1	Petersham	6	4
Coogee	8	6	Potts Point	1	1
Cronulla	3	3	Queens Park	1	1
Double Bay	1	1	Randwick	3	2
Drummoyne	4	3	Riverview	1	1
Dulwich Hill	5	3	Rockdale	1	1
Eastlakes	117	2	Rooty Hill	8	1
Epping	3	3	Roseville	1	1
Glenhaven	1	1	Rozelle	2	2
Glenorie	1	1	Stanmore	10	6
Grays Point	1	1	Strathfield	8	3
Gymea	10	3	Summer Hill	248	5
Haberfield	3	3	Sydney	2	2
Hornsby	2	2	Sylvania	1	1
Hunters Hill	6	6	Turramurra	1	1
Hurlstone Park	2	1	Wahroonga	3	1
Hurstville	16	5	West Pymble	1	1
Jannali	1	1	Winston Hills	1	1
Kareela	1	1	Yowie Bay	1	1

Total Complaints	**784**	**Total Complainants**	**182**

Recorded Complaints vs Complainants, by Locations/Airports Other than Sydney (NSW Only)

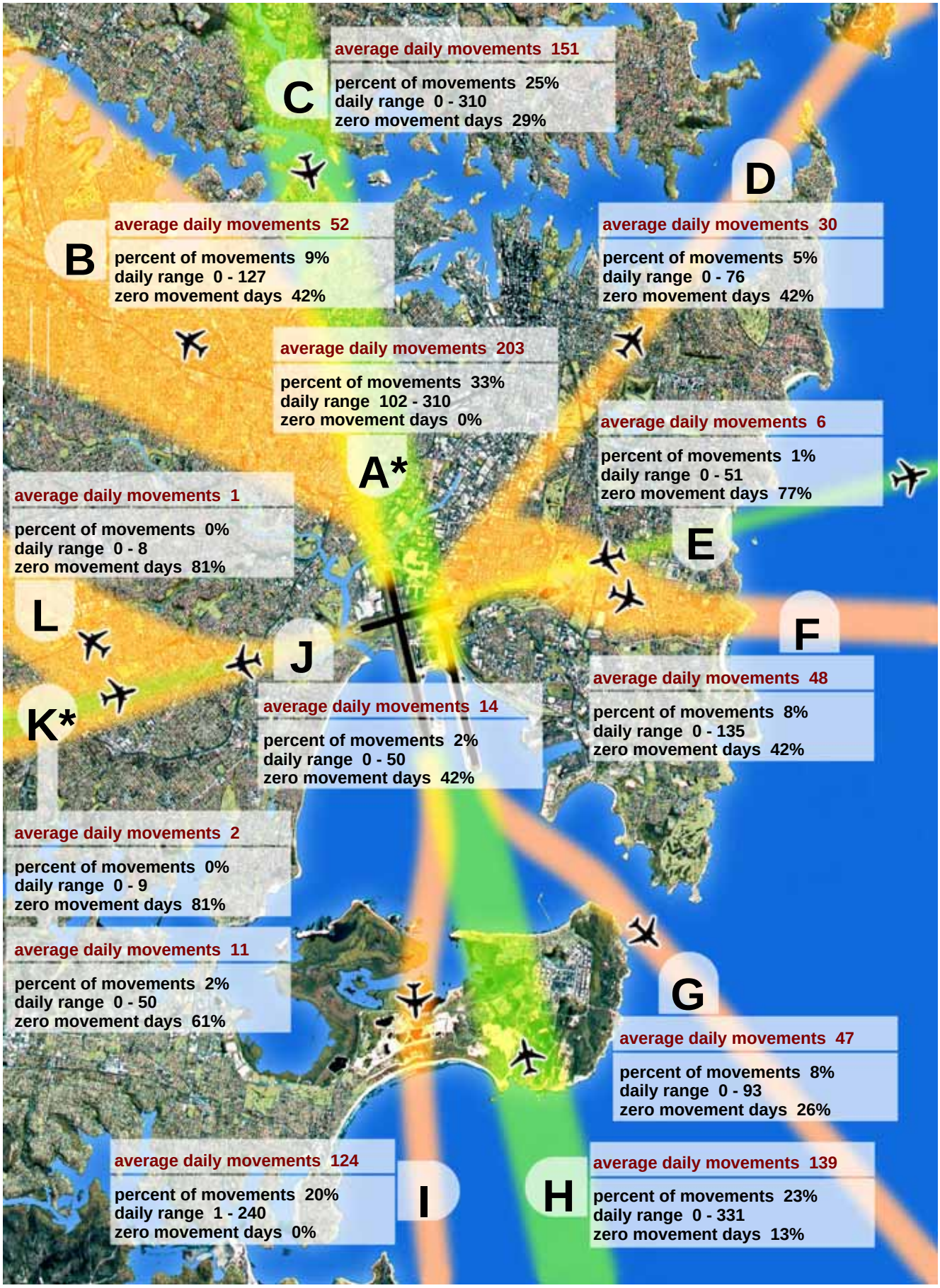
1 December to 31 December 2009

SUBURB	*COMPLAINTS*	*COMPLAINANTS*	*SUBURB*	*COMPLAINTS*	*COMPLAINANTS*
Albury	1	1	Leumeah	1	1
Bankstown	19	15	Neutral Bay	1	1
Bermagui	1	1	Rooty Hill	3	1
Blaxland	1	1	Schofields	1	1
Camden	34	11	St George Hospital	1	1
Cammeray	1	1	Temora	1	1
Castle Hill	1	1	Tyagarah	1	1
Concord	1	1	Westmead Hospital	1	1
Holsworthy	1	1	Woodford	1	1
Kings Park	1	1			

Total Complaints	**72**	**Total Complainants**	**43**

Sydney Airport : Jet Flight Path Movements

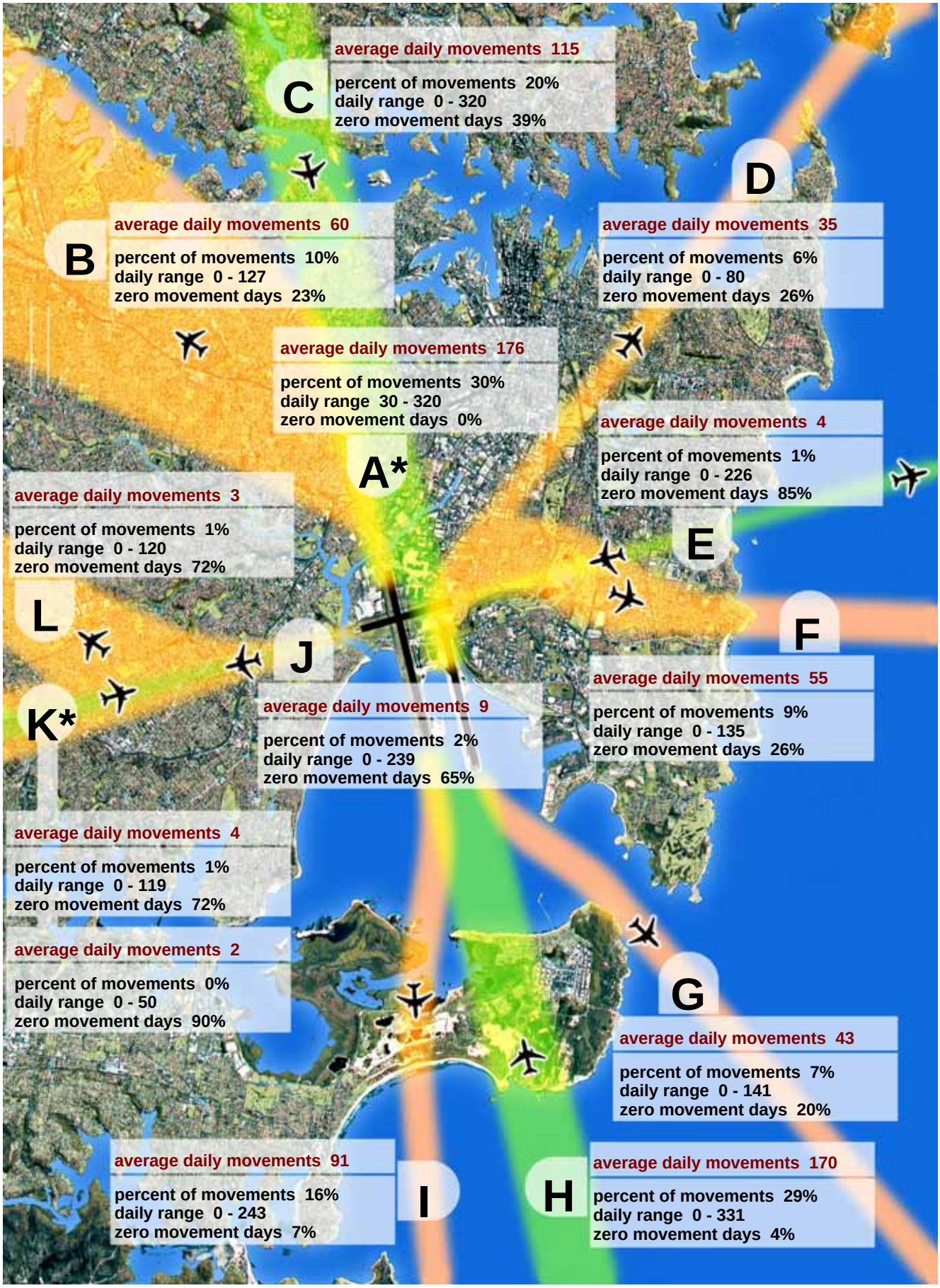
1 Dec 2009 to 31 Dec 2009, All Jets



Note : Track A is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).*

Sydney Airport : Jet Flight Path Movements

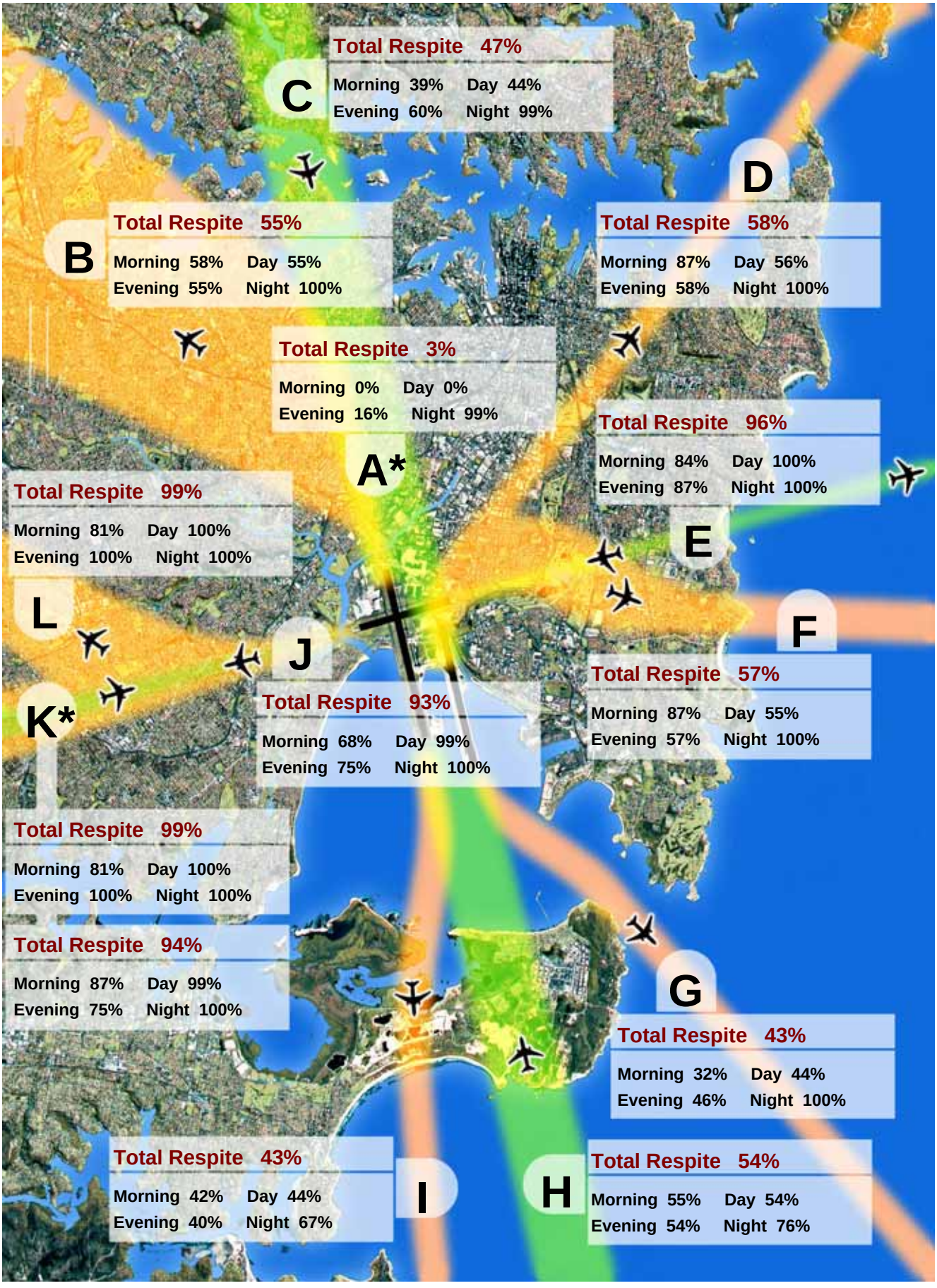
1 Jan 2009 to 31 Dec 2009, All Jets



Note : Track A is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).*

Sydney Airport : Jet Aircraft Respite (R60)

1 Dec 2009 to 31 Dec 2009, All Jets



Note : Track A is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).*

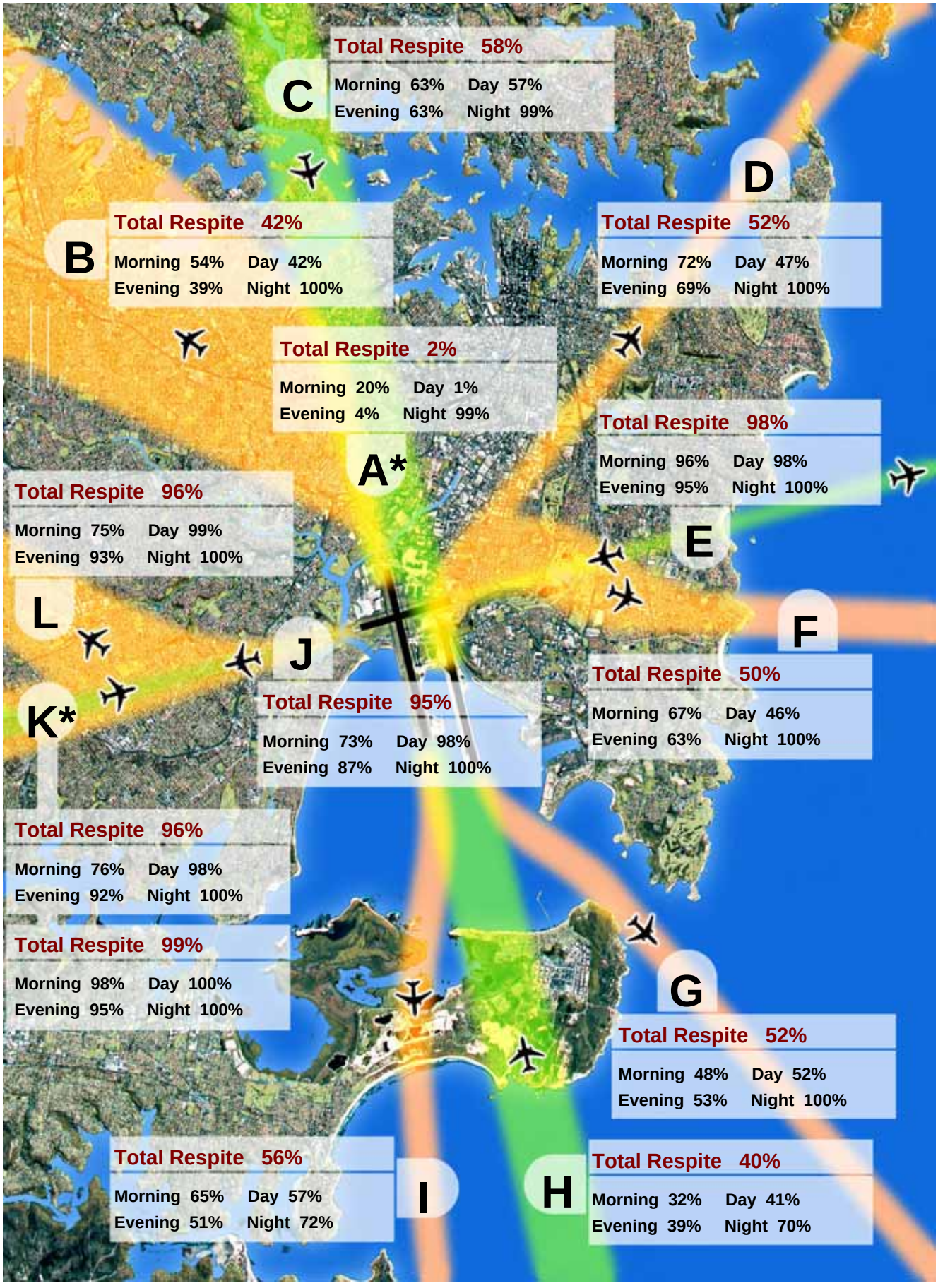
A respite interval is a 60 minute period when there are no jet movements (R60).

Morning: 06:00 to 07:00 Day: 07:00 to 20:00 Evening: 20:00 to 23:00 Night: 23:00 to 06:00

Total Respite: 06:00 to 23:00

Sydney Airport : Jet Aircraft Respite (R60)

1 Jan 2009 to 31 Dec 2009, All Jets



Note : Track A is Tracks B and C combined. Track K* shows departures (top box) and arrivals (bottom box).*

A respite interval is a 60 minute period when there are no jet movements (R60).

Morning: 06:00 to 07:00 Day: 07:00 to 20:00 Evening: 20:00 to 23:00 Night: 23:00 to 06:00

Total Respite: 06:00 to 23:00

Sydney Airport - Jet Flight Path Movements (Explanation)

January 2009 to December 2009

The flight path bands depicted in the diagram are indicative only and are used to illustrate how the noise is being shared. Some flight tracks will be outside the bands indicated.

- The diagram shows only jet flight tracks and movements. Propeller flight tracks and movements are not shown.
- Percentages and average daily movement numbers have been rounded.
- The information presented in the movements and respite summary statistics sheets is derived from preliminary Aviation Data Processor data and is subject to change.

	Description	Notes
A	**Inner north** Arrivals from and departures to the north (L16L, L16R, D34L)	
B	**North-west** Departures off runway 34L	Area mainly gets overflights (departures) from Mode 9. Due to seasonal changes in wind patterns the highest use of this Mode was in June 2009.
C	**North shore** Arrivals from the north on runways 16L and 16R	Area mainly gets overflights (arrivals) from Mode 10. Due to seasonal changes in wind patterns the highest use of this Mode was in February 2009.
D	**North-east** Departures off runway 34R to the north-east	Area gets overflights (departures) from Modes 9 & 15. Due to seasonal changes in wind patterns the highest use of Mode 9 was in June 2009 and Mode 15 in January 2009.
E	**East** - Coogee Arrivals on runway 25 and departures from runway 07	Area mainly gets overflights (arrivals) from Mode 5. Due to seasonal changes in wind patterns the highest use of this Mode was in December 2009.
F	**East** - Maroubra Departures from runway 34R that turn hard east	Area gets overflights (departures) from Modes 9 & 15. Due to seasonal changes in wind patterns the highest use of Mode 9 was in June 2009 and Mode 15 in January 2009.
G	**South** - Botany Bay Heads Departures from runway 16L	
H	**South** - Kurnell Peninsula Arrivals on runways 34L and 34R	Area gets overflights (arrivals) from Modes 9 & 7. Due to seasonal changes in wind patterns the highest use of Mode 9 was in June 2009 and Mode 7 was in July 2009.
I	**South** - Kurnell Sand Hills Departures from runway 16R	
J, K & L	**West** Arrivals on runway 07 and departures from runway 25	Area mainly gets overflights from Modes 7 & 8 (departures) and Mode 14A (arrivals). Due to seasonal changes in wind patterns the highest use of Mode 7 was in July 2009, Mode 14A in November 2009 & Mode 8 has not been used during the past 12 months.

Sydney Airport - Jet Aircraft Respite (R60) (Explanation)

Respite

The respite figures in the map are based on the concept of a **respite hour** being a **whole clock hour** where there are **no aircraft movements**.

Total Respite takes into account all 7 days of the week and is based on the total number of clock hours during the period 6am to 11pm, for the period **January 2009 to December 2009**, during which there were no movements.

Morning Respite is based on the above criteria for the period 6am to 7am for all 7 days of the week.

Day Respite is based on the above criteria for the period 7am to 8pm for all 7 days of the week.

Evening Respite is based on the above criteria for the period 8pm to 11pm for all 7 days of the week.

Curfew (Night) is based on the above criteria for the period 11pm to 6am for all 7 days of the week.

The percentage figure for a category of respite refers to the proportion of the total possible number of respite hours for that category for the date period. For example, the Jet Aircraft Respite Hours map (for the last rolling year) shows that **flight path D has Total Respite hours of 52%.** This means that over the period **January 2009** to **December 2009 for 52%** of the total clock hours between 6am and 11pm there were no movements on that flight path.

Notes

- Propeller movements have not been taken into account.
- The information presented in the map is derived from the NFPMS data and is subject to change.
- The flight path bands depicted in the map are indicative only and are used to illustrate the extent of respite in different areas. Some jet movements will be outside the bands indicated.

Measured Daily N70 Values

Description

Airservices Australia maintains and operates a Noise and Flight path Monitoring System (NFPMS) at all the major Australian airports. The Environment Services Branch at Airservices Australia's head office located in Canberra regularly reports on aircraft flight paths and noise for each major Airport. The data appearing here is a summary of the N70 noise data for Sydney Airport for December 2009.

Figure 1. NMT sites about Sydney Airport and the daily N70 values for the month of December 2009

The measured daily N70 value is the average daily number of aircraft noise events whose maximum noise level (LAmax) equals or exceeds 70dBA.

The daily N70 values for the various NMTs and their positions in Sydney are displayed in Figure 1. The total number of Correlated Noise Events (CNE) and the number of days each NMT was operational during December 2009 along with the Daily N70 values for the three months up to and including December are given in Table 1.

Location	***CNE Dec***	***Operational Days Dec***	***N70 Dec***	***N70 Nov***	***N70 Oct***
Threshold rwy 34	*7,760*	31.0	250	267	262
Penshurst	*474*	31.0	13	14	5
Bexley	*501*	30.9	15	17	11
Sydenham	*5,419*	31.0	175	173	182
Johnston St.Annandale	*2,704*	31.0	71	64	78
Church St. St Peters	*3,449*	31.0	99	97	106
Leichhardt PEMU 36	*3,467*	30.9	106	95	117
Eastlakes	*1,590*	31.0	49	49	51
Coogee	*338*	31.0	7	6	13
Kurnell	*1,925*	31.0	51	62	55
Croydon	*425*	30.9	11	12	12
Hunters Hill	*1,630*	13.1	75	63	68

Table 1 Results for each Noise Monitoring Terminal for the three months up to and including December 2009.

The N70 values for December 2009 have also been calculated for six different periods:

- Morning N70 value (AM), correlated noise events between 6:00am and 7:00am.
- Evening N70 value (PM), between 8:00pm and 11:00pm.
- Daytime N70 value (Day), between 7:00am and 8:00pm
- Night N70 value (Night), between 11:00pm and 6:00am
- Weekend Day N70 value (WE_D), between 6:00am and 11:00pm Saturday and Sunday.
- Weekend Night N70 value (WE_N), between midnight Friday to 6:00am
- Saturday, 11:00pm Saturday to 6:00am Sunday and 11:00pm to midnight on Sunday

These results are contained in Table 2.

Runway 34L			
AM	12	PM	30
Day	194	Night	12
WE_D	235	WE_N	3

Penshurst			
AM	2	PM	10
Day	1	Night	0
WE_D	13	WE_N	0

Bexley			
AM	4	PM	10
Day	1	Night	0
WE_D	14	WE_N	0

Eastlakes			
AM	2	PM	8
Day	42	Night	0
WE_D	40	WE_N	0

Coogee			
AM	1	PM	3
Day	2	Night	0
WE_D	10	WE_N	0

Sydenham			
AM	6	PM	16
Day	153	Night	1
WE_D	170	WE_N	1

Leichhardt PEMU36			
AM	5	PM	9
Day	93	Night	0
WE_D	102	WE_N	1

Kurnell			
AM	0	PM	4
Day	53	Night	0
WE_D	32	WE_N	0

Annandale			
AM	1	PM	3
Day	67	Night	0
WE_D	71	WE_N	0

St Peters			
AM	1	PM	8
Day	90	Night	0
WE_D	99	WE_N	0

Croydon			
AM	0	PM	2
Day	9	Night	0
WE_D	11	WE_N	0

Hunters Hill			
AM	3	PM	4
Day	55	Night	0
WE_D	102	WE_N	1

Table 2. N70 values for the different periods of the day.

Due to normal maintenance activities and occasional upgrading of the system any one NMT may not have been operational for the entire sample period. As a result the average at each NMT is performed only for the period in which the NMT was operating; this ensures the daily N 70 figure is not influenced by NMT downtime.