



AIRSERVICES AUSTRALIA

Environmental Services

**Review
of
Canberra Airport
Noise Abatement Procedures**

August 2011

Disclaimer

This report contains a summary of data collected from external and internal sources and Airservices Australia cannot warrant their accuracy of the data input derived from external sources. Airservices Australia does not accept any liability for any reliance placed on any data in this report by any third party and Airservices Australia accepts no liability for any interpretation of this data by third parties

Airservices Australia

Head Office 25 Constitution Avenue
Canberra City ACT 2601
Australia

GPO Box 367
Canberra ACT 2601

Phone 02 6268 4111
Fax 02 6268 5683

CONTENTS

Figures	iv
Tables	v
1 Executive Summary	7
2 Introduction	9
2.1 Legislative Framework	9
2.2 Role of Airservices Australia	10
3 Methodology	12
3.1 ICAO Balanced Approach	12
3.2 Night Operations	12
4 Current Noise Distribution	13
4.1 Noise Monitoring Data	15
4.2 Complaints Data	17
4.3 Community Impact	20
5 Demography and Land Use	20
5.1 Historical	20
5.2 Future Growth Projections	22
6 Current Noise Abatement Procedures	26
6.1 Historical and Legal Foundation	26
6.2 Noise Abatement Framework	26
6.3 Preferred Runways	27
6.3.1 Jet Aircraft	28
6.3.2 Turboprop Aircraft	29
6.3.3 Piston Engined Aircraft	30
6.3.4 Weather factors	30
6.3.5 Level of Compliance	31
6.4 Preferred Flight Paths	32
6.5 Canberra Airport Noise Abatement Areas (NAAs)	33
6.5.1 Jet Aircraft	34
6.5.1.1 Jet Arrivals	34
6.5.1.2 Jet Departures	42
6.5.2 Turboprop Aircraft	50
6.5.2.1 Turboprop Arrivals	50
6.5.2.2 Turboprop Departures	56
6.5.3 Piston Engined Aircraft	62
6.5.3.1 Piston Engined Arrivals	62
6.5.3.2 Piston Engined Departures	62
6.5.4 Levels of Compliance	63
6.5.4.1 Jet Non-compliance with NAAs	63
6.5.4.2 Turboprop Non-compliance with NAAs	64
7 Compliance with Noise Abatement Procedures	65
7.1 Preferred Runways	65
7.2 Preferred Flight Paths	69
7.3 Noise Abatement Areas	69
8 Effectiveness of Noise Abatement Procedures	69
8.1 Preferred Runways	69
8.2 Preferred Flight Paths	70
8.3 Noise Abatement Areas	71
9 Forecast Growth	71
9.1 Traffic Levels	71
9.2 Traffic Levels 11pm to 6am	72

9.3	Aircraft Types	73
9.4	Impact on Effectiveness of NAPs	73
10	Options	74
10.1	Preferred Runways.....	74
10.2	Preferred Flight Paths.....	77
10.3	Noise Abatement Areas.....	77
10.4	Night Operations.....	78
10.5	Other Restrictions.....	78
10.5.1	Curfews	79
10.5.2	Movement Caps	81
10.5.3	Restrictions on Aircraft Types.....	81
10.6	Concentration vs Sharing	81
10.7	New Technology	82
10.8	Noise Monitoring.....	83
10.9	Proposed Action	83

Figures

Figure 1	Noise Abatement Areas	11
Figure 2	Arrival Flight Paths.....	14
Figure 3	Departure Flight Paths.....	15
Figure 4	Complaint Density Map 2009.....	19
Figure 5	Complaints & Complainants – Monthly	20
Figure 6	ACT Government Eastern Broadacre Plan.....	23
Figure 7	Development of Gungahlin	24
Figure 8	Future Residential Areas in Queanbeyan City Council	25
Figure 9	All Qantas Jet Arrivals 2009.....	34
Figure 10	Qantas Jet Arrivals Overflying NAA	35
Figure 11	Qantas Jet Arrivals Requiring Investigation	35
Figure 12	All Virgin Blue Jet Arrivals 2009.....	36
Figure 13	Virgin Blue Jet Arrivals Overflying NAA	37
Figure 14	Virgin Blue Jet Arrivals Requiring Investigation	37
Figure 15	All Military Jet Arrivals 2009.....	38
Figure 16	Military Jet Arrivals Overflying NAA	39
Figure 17	Military Jet Arrivals Requiring Investigation	39
Figure 18	All Other Jet Arrivals 2009	40
Figure 19	Other Jet Arrivals Overflying NAA.....	41
Figure 20	Other Jet Arrivals Requiring Investigation.....	41
Figure 21	All Qantas Jet Departures 2009.....	42
Figure 22	Qantas Jet Departures NAA	43
Figure 23	Qantas Jet Departures Requiring Investigation	43
Figure 24	All Virgin Blue Jet Departures 2009	45
Figure 25	Virgin Blue Jet Departures Requiring Investigation.....	45
Figure 26	All Military Jet Departures 2009.....	47
Figure 27	Military Jet Departures Requiring Investigation.....	47
Figure 28	All Other Jet Departures 2009	48
Figure 29	Other Jet Departures Overflying NAA.....	49
Figure 30	Other Jet Departures Requiring Investigation	49
Figure 31	All Qantas Link Turboprop Arrivals 2009	50
Figure 32	Qantas Link Turboprop Arrivals Overflying NAA.....	51
Figure 33	Qantas Link Turboprop Arrivals Requiring Investigation	51
Figure 34	All Brindabella Turboprop Arrivals 2009.....	52

Figure 35	Brindabella Turboprop Arrivals Overflying NAA	53
Figure 36	Brindabella Turboprop Arrivals Requiring Investigation	53
Figure 37	Other Turboprop Arrivals Requiring Investigation	54
Figure 38	Other Turboprop Arrivals Overflying NAAs	55
Figure 39	Other Turboprop Arrivals Requiring Investigation	55
Figure 40	All Qantas Link Turboprop Departures 2009.....	56
Figure 41	Qantas Link Turboprop Departures Overflying NAA	57
Figure 42	Qantas Link Turboprop Departures Requiring Investigation	57
Figure 43	All Brindabella Turboprop Departures 2009.....	58
Figure 44	Brindabella Turboprop Departures Overflying NAA	59
Figure 45	Brindabella Turboprop Departures Requiring Investigation	59
Figure 46	Other Turboprop Departures.....	60
Figure 47	Other Turboprop Departures Overflying NAAs	61
Figure 48	Other Turboprop Departures Requiring Investigation	61
Figure 49	Piston engined arrivals 2009.....	62
Figure 50	Piston Engined Departures 2009	63
Figure 51	Terrain Between Hackett and Extended Runway Centreline	75
Figure 52	Height of Terrain and Arrivals and Departures.....	76

Tables

Table 1	N60 to N80 values for the Hackett and Jerrabomberra 2009.....	16
Table 2	Aircraft Noise Complaints 2009.....	18
Table 3	All Aircraft Operations	28
Table 4	Jet Aircraft Operations	29
Table 5	Turboprop Operations.....	29
Table 6	Piston Engined Operations	30
Table 7	Compliance with Preferred Runways	32
Table 8	Altitude Colour Key	33
Table 9	Qantas Jet Arrivals Requiring Investigation	36
Table 10	Virgin Blue Jet Arrivals Requiring Investigation.....	38
Table 11	Military Jet Arrivals Requiring Investigation.....	40
Table 12	Other Jet Arrivals Requiring Investigation	42
Table 13	Qantas Jet Departures Requiring Investigation.....	44
Table 14	Virgin Blue Jet Departures Requiring Investigation.....	46
Table 15	Military Jet Departures Requiring Investigation.....	48
Table 16	Other Jet Departures Requiring Investigation	50
Table 17	Qantas Link Turboprop Arrivals Requiring Investigation	52
Table 18	Brindabella Turboprop Arrivals Requiring Investigation	54
Table 19	Brindabella Turboprop Arrivals Requiring Investigation	56
Table 20	Qantas Link Turboprop Departures Requiring Investigation	58
Table 21	Brindabella Turboprop Departures Requiring Investigation.....	60
Table 22	Other Turboprop Departures Requiring Investigation	62
Table 23	Jets – Non-compliance with NAAs	64
Table 24	Turboprops – Non-compliance with NAAs	65
Table 25	Level of Usage of Preferred Runways by All Operations	66
Table 26	Level of Usage of Preferred Runways by Jets	66
Table 27	Level of Usage of Preferred Runways by Turboprops	66
Table 28	Usage of Preferred Runways on Sample Days by Jets & Turboprops.....	67
Table 29	Usage of Preferred Runways on Sample Days by Jets	67
Table 30	Usage of Preferred Runways on Sample Days by Turboprops.....	67
Table 31	Compliance with Preferred Runways on Sample Days.....	68

Table 32 Aircraft Movement Growth Forecasts.....	71
Table 33 Aircraft Movement Growth %	72
Table 34 Aircraft Movement Growth % 11pm-6am	72
Table 35 All Aircraft Movements 2009	73
Table 36 Forecast night movements as a proportion of all 2009 movements	73
Table 37 Measured Noise Levels B737-800 (dB(A)) – mean maximum levels	75
Table 38 Forecast growth of night operations.....	80
Table 39 Sydney Airport curfew movements	80

1 Executive Summary

Canberra Airport has Noise Abatement Procedures (NAPs) made up of Preferred Runways, Preferred Flight Paths and Noise Abatement Areas (NAAs). As directed by the Minister for Transport, Airservices Australia has undertaken a review of the NAPs. This has been based on 2009 operations. The review includes determining compliance levels of operations with the NAPs, as well as considering the effectiveness of the NAPs and options for making them more effective.

The review found that the communities around Canberra Airport are well served by a range of NAP components that are effective and have high levels of compliance. As a result of the NAPs, noise impacts compare very favourably with other Australian capital city airports, and there are few opportunities to improve outcomes.

The analysis demonstrated that the level of compliance with Canberra and Queanbeyan Noise Abatement Areas (NAAs) is very high. While there were a small number of apparent incidents of non-compliance with the NAAs, many could be explained as being caused by adverse weather conditions, such as thunderstorms in the area which mean normal flight paths cannot be followed, or are very minor where an aircraft tracks into an NAA by a few hundred metres or fails to reach the required altitude on climb by a few hundred feet, which are likely to be due to navigational tolerances. The levels of compliance were found to be 99.9% of jet arrivals and departures. For turboprop arrivals it was 99.8% and for turboprop departures it was 99.9%.

The analysis found that the level of compliance with the preferred runways is high for all periods except night arrivals. While the use of the preferred runways was variable, the weather conditions, particularly the wind conditions, often prevent the application of the preferred runways. The levels of compliance in the day period were found to be 100% of jet arrivals and 97% of jet departures. For turboprop arrivals it was 99% and for turboprop departures it was 98%. The levels of compliance in the night period when an air traffic control (ATC) service was provided were found to be 34% of jet arrivals and 85% of jet departures. For turboprop arrivals it was 29% and for turboprop departures it was 86%.

The low levels of compliance for night arrivals were not unexpected. The preferred mode of operation at night is opposite direction traffic, which is often not practical for traffic management and is weather dependent. In addition, the preferred arrival runway, Runway 17, does not have a precision approach aid. Terrain to the northwest of the airport precludes the installation of an Instrument Landing System (ILS) due to required navigational tolerance standards. However, the NAPs result in a higher level of use of Runway 17 at night than during the day, which has environmental benefits.

Although high levels of compliance at night are not always achievable, landings from the north have the best noise outcome, so Airservices Australia retains Runway 17 as the highest priority for landings at night to ensure it is used as much as possible. When there is no ATC service, noise abatement relies upon the cooperation of the aviation industry. Airservices Australia proposes to monitor and report on compliance with NAPs at night outside air traffic control tower hours and will follow non-compliance issues up with industry to encourage improved performance where possible.

The NAPs are very effective for protecting most of the residential areas around the airport from high levels of aircraft noise. While the NAAs don't cover all residential areas, the flight paths are designed to protect residential areas both inside and outside the NAAs wherever possible. Arrival and departure procedures are subject to change and any change undergoes environmental assessment to ensure that environmental impacts are considered. Some areas cannot be avoided or are affected by the proximity of flight paths, but new technology has enabled some flight paths to be designed to reduce noise levels in these areas.

The forecast levels of growth for the airport are not expected to affect the levels of compliance with the NAPs, although they will result in a higher environmental impact on the areas already experiencing noise impacts. This may be partially offset by the benefits of new technology such as redesigned flight paths.

Changes to the NAPs, and other measures such as restrictions on aircraft types, movement caps and curfews have been addressed in this report. However, the types of restrictions considered are largely matters for government policy.

New technologies in aircraft navigation offer opportunities to improve noise impacts around airports by offering flexibility of design of flight paths. Some of these opportunities have begun to have a positive effect upon Canberra Airport operations, and these opportunities will be greater in the future when most aircraft are equipped to make use of them.

Any operating restrictions which might be introduced in the future to reduce the environmental impacts of growth in operations should be tailored to target noisier aircraft and those not equipped with the technology to use flight paths designed to reduce noise impacts.

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

Airservices Australia will continue to monitor noise impacts of Canberra Airport through the use of permanent and temporary noise monitors. Improved ways of communicating that information to the community are being investigated.

2 Introduction

2.1 Legislative Framework

Airservices Australia is governed by the Air Services Act (1995), which defines its functions. Functions include:

- providing services and facilities for purposes relating to the safety, regularity or efficiency of air navigation (Section 8 (1)(a))
- promoting and fostering civil aviation (Section 8 (1)(b))
- carrying out activities to protect the environment from the effects of, and the effects associated with, the operation of:
 - (i) Commonwealth jurisdiction aircraft, whether in or outside Australia; or
 - (ii) other aircraft outside Australia (Section 8 (1)(d))

When performing its functions, Airservices Australia must:

- regard the safety of air navigation as the most important consideration (Section 9 (1))
- perform its functions in a manner that ensures that, as far as is practicable, the environment is protected from:
 - (a) the effects of the operation and use of aircraft (Section 9 (2)(a))

This means that Airservices Australia has a number of obligations. In terms of operations at Canberra Airport, it provides Air Traffic Control (ATC) services to safely and expeditiously process aircraft traffic, and while doing so must minimise the impact of that traffic on the environment.

As a Commonwealth Government owned Authority, Airservices Australia also has legislative obligations under the Environment Protection and Biodiversity Conservation Act 1999, which defines “the environment” to include:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b) or (c).

Airservices Australia has developed Noise Abatement Procedures (NAPs) at major Australian airports to contribute to the fulfilment of its functions under the Air Services Act. These have been developed on a case by case basis, in response to the local conditions, including the demographic profile of the area in which each airport is situated.

NAPs are consistent with ICAO guidelines, which govern aviation at member countries around the world. General provisions of NAPs in the Manual of Air Traffic Services include:

- NAPs normally apply to all jet-propelled aircraft and other aircraft having a maximum take-off weight (MTOW) exceeding 5,700 kg (Section 11.1.1), which is consistent with international practice.
- Where NAPs are prescribed, and ATC traffic management permits, the runway nomination provisions will be applied. Notwithstanding this, noise abatement will not be a determining factor in runway selection under the following circumstances (unless required by Noise Abatement legislation);
 - (a) in conditions of low cloud, thunderstorms and/or poor visibility;
 - (b) for runway conditions that are completely dry:
 - 1) when the crosswind component, including gusts, exceeds 20 knots
 - 2) when the downwind component, including gusts, exceeds 5 knots
 - (c) for runway conditions that are not completely dry:
 - 1) when the crosswind component, including gusts, exceeds 20 knots
 - 2) when there is a downwind component;
 - (d) when wind shear has been reported;
 - (e) when, in the opinion of the pilot in command, safety would be prejudiced by runway conditions or any other operational consideration.
- Preferred flight paths for arriving and departing aircraft have been determined for particular locations, and may be varied by ATC for operational reasons, eg weather, traffic complexity.

These provisions mean that NAPs are not always applied, but are subject to weather and traffic considerations. These factors are taken into account in this Review. The aim of the compliance section of this Review is to determine whether NAPs have been applied to the maximum extent possible, and to identify any barriers to achieving a higher level of compliance, as per the Terms of Reference included in Appendix A.

2.2 Role of Airservices Australia

As noted in Section 2.1, Airservices Australia's functions include the promotion and fostering of civil aviation. It does not have the jurisdiction to protect the environment from the impact of aviation by reducing aviation activity.

Restrictions on aviation activity exist at some Australian airports in the form of movement caps (Sydney) and curfews (Sydney, Adelaide, Essendon and Gold Coast) that are enacted by Commonwealth Government legislation. Whilst such measures are outside Airservices Australia's jurisdiction, they are considered in this review, including their implications.

Canberra Airport has Noise Abatement Procedures (NAPs) made up of Preferred Runways, Noise Abatement Areas (NAAs) and a network of arrival and departure procedures which have undergone environmental assessment prior to implementation.

Following a request from Canberra Airport, Airservices Australia undertook a review of compliance with NAPs of night operations in 2008.

There are two NAAs as shown as shaded areas in Figure 1, one covering most of Canberra and one over most of Queanbeyan.

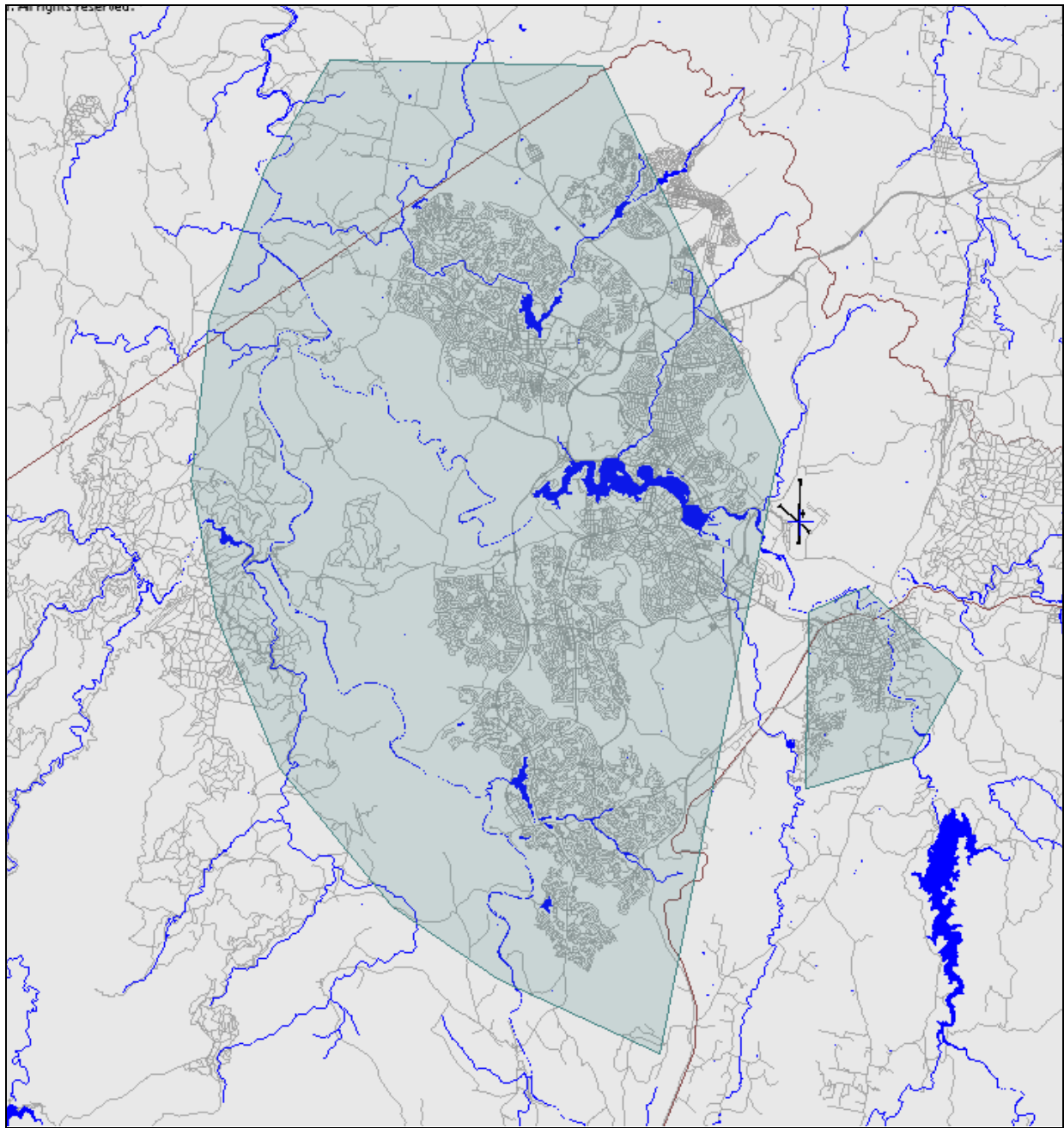


Figure 1 Noise Abatement Areas

Compliance with NAPs is not expected to achieve 100%, because they are not mandatory for all aircraft types, and do not apply in adverse meteorological or traffic conditions.

The requirement to follow the noise abatement flight paths shall be subject to a specific ATC clearance or instruction, and may be varied by ATC for operational reasons, eg weather, traffic complexity.

Aircraft operating outside tower hours of operation must comply with relevant noise abatement procedures only where they do not conflict with circuit direction requirements. Tower hours are approximately 5.30am to 11pm.

Tower hours of operation are determined jointly by Airservices Australia and the Civil Aviation Safety Authority (CASA) Office of Airspace Regulation (OAR) in order to maintain

safety. This is determined through studies of the level of aircraft movements and potential safety risk at an airport.

3 Methodology

3.1 ICAO Balanced Approach

The International Civil Aviation Organization (ICAO) promotes a “Balanced Approach” to manage the effects of noise emissions at airports. This approach should be transparent and individually adjusted to each airport. After assessing the noise situation at an airport, including the identification of the noise problem and definition of noise objectives, the Balanced Approach is characterised by these four key parts:

- Reducing noise at source, eg by applying ICAO noise certification standards and quieter aircraft fleets;
- Planning and managing land-use, using planning, mitigating and financial instruments. Some measures include comprehensive land-use planning for the future development, noise zoning around airports, insulation schemes, easement acquisition, or noise surcharges for airlines operating louder aircraft;
- Developing noise abatement operational procedures, such as noise preferential routes or runway utilisation schemes, noise mitigating approach and departure procedures, or the limitation of engine run-ups and APU-usage on ground; and
- Implementing operating restrictions like movement caps, noise quotas or complete bans on aircraft operations.

ICAO states that operating restrictions should be a last resort in the management of aircraft noise, and only after fully assessing the benefits of the first three key areas.

Airservices Australia is responsible for the development and implementation of NAPs, however these are developed in collaboration with the airport owners, airline operators, general aviation sector and the community affected by operations at the airport. This Review focuses primarily on NAPs for this reason, however the other parts of the ICAO Balanced Approach are also addressed.

3.2 Night Operations

When considering the impact of aviation on the environment, the time of day of operations is relevant. This is because:

- the community has higher expectations of noise control at night
- other noise sources are restricted at night
- current NAPs have different requirements for night periods.

There is no consistent definition of “night” in general NAPs. The current Canberra NAPs segregate the period 8pm to 7am. However, different periods are applied to NAPs at other airports. Those with more restrictive constraints such as curfews generally apply them to the period 11pm to 6am.

Accordingly, this review considers 3 time periods in its analyses:

- Day 7am to 8pm
- Night 8pm to 7am, divided into:

- More sensitive – 11pm to 6am – referred to as “Inner Night” in this report.
- Less sensitive – 8pm to 11pm and 6am to 7am – referred to as “Outer Night” in this report.

4 Current Noise Distribution

While noise is an inevitable consequence of an airport, and is largely concentrated to the areas immediately beyond the ends of each runway, the distribution of noise is affected by the design of flight paths and selection of runways. Airservices Australia has control of these elements, but is constrained in how much it can change these by a number of factors, namely:

- Aircraft performance
- Operational and safety considerations
- System complexity
- Weather factors
- Topography
- Local demographics.

The existing flight path arrival and departure networks are shown in the figures below, but it should be noted that these are indicative and there is a spread of tracks around the lines shown. The extent of the spread of tracks depends on the design of the procedure and the navigational techniques employed.

Actual tracks are provided in Section 6.5 of this report.

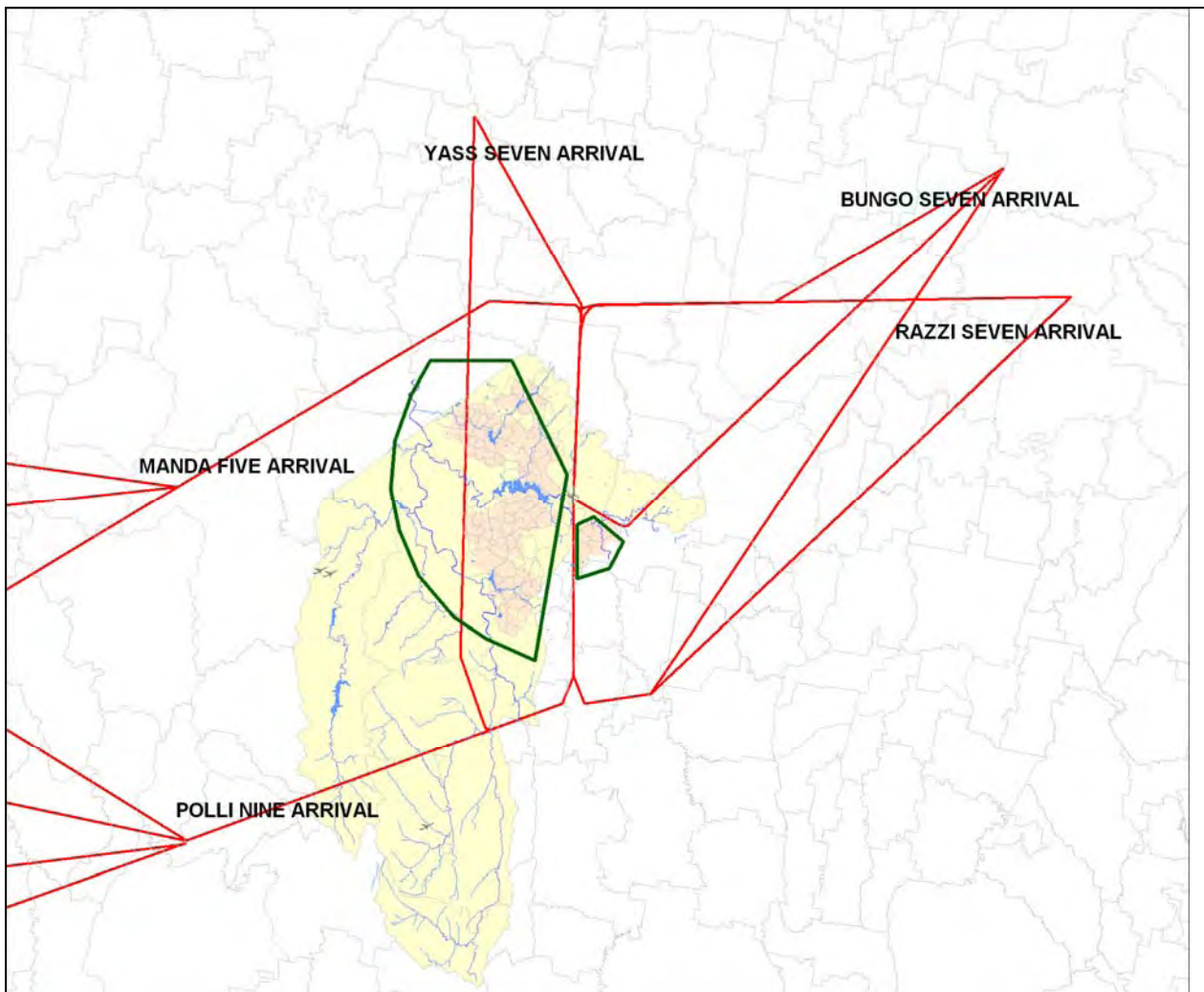


Figure 2 Arrival Flight Paths

Arrival routes are named after to a waypoint on the route (eg BUNGO) and a version number for the procedure (eg SEVEN). The published procedures are included in Appendix C.

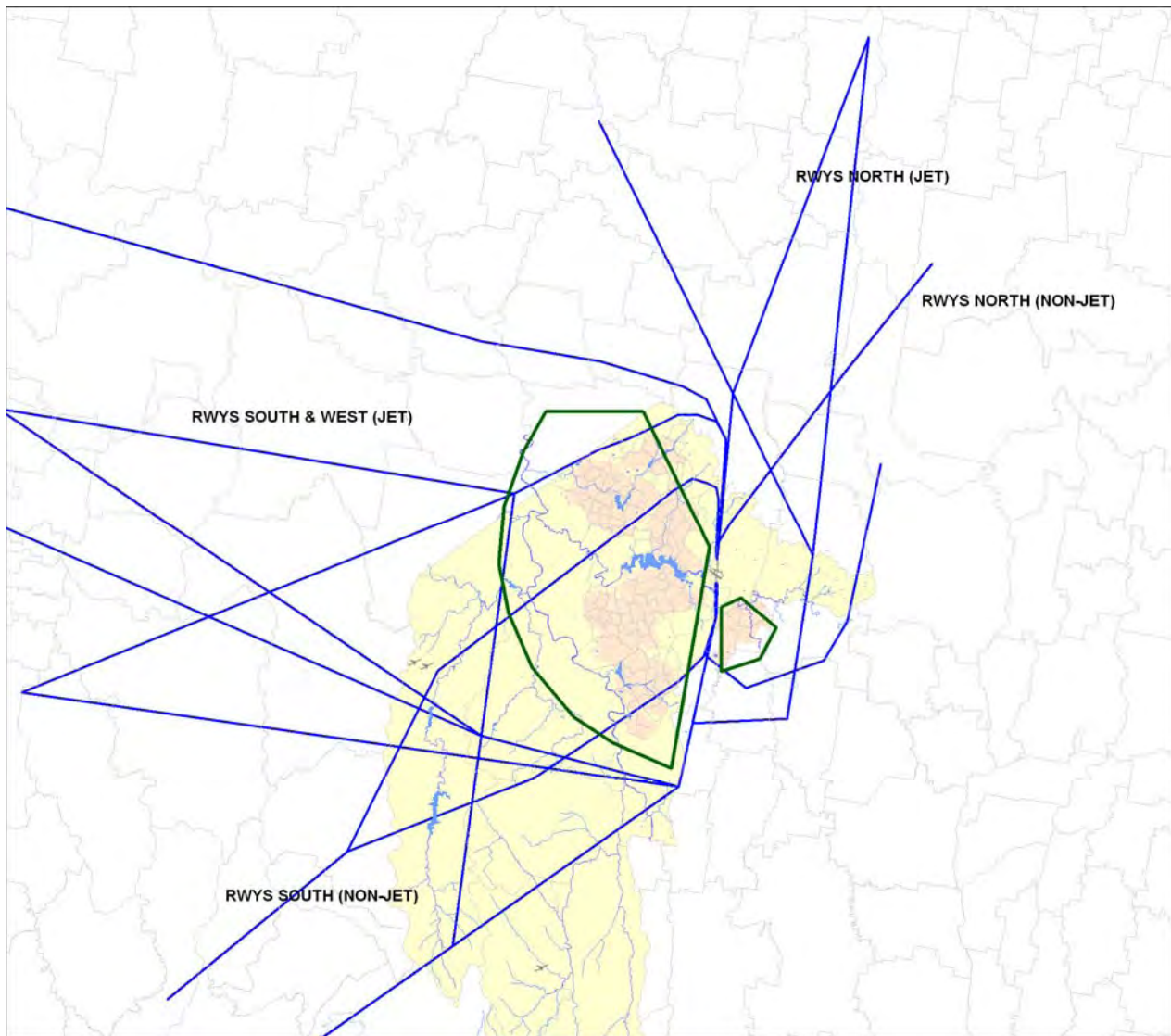


Figure 3 Departure Flight Paths

Departure routes are named after to a waypoint on the route (eg CULIN) and a version number for the procedure (eg SEVEN). The published procedures are included in Appendix C, and grouped by direction (eg NORTH) and jet or non-jet, as shown in Figure 3.

4.1 Noise Monitoring Data

The impact from aircraft noise is dependant on both the loudness and the frequency of noise events. The frequency of noise events can be measured by the number of aircraft noise events which exceed a threshold noise level per day.

There is no legislated standard that aircraft noise must meet, either in how loud operations are or how many operations there are, although individual aircraft must meet noise certification requirements for their type. Rather, the Department of Infrastructure supports a policy of “Describing Aircraft Noise” so that the community is aware of it and makes informed decisions about where they live. They use thresholds of 60dB(A) and 70dB(A) – the lower value used for regional airports and the higher for major airports – to describe

aircraft noise. The aircraft noise is described by reporting the number of times the threshold is equalled or exceeded.

The number of aircraft noise events equal to or greater than 60dB(A) per day is referred to as the N60. The number of aircraft noise events equal to or greater than 65dB(A) per day is referred to as the N65 and so on.

Airservices Australia monitors aircraft noise using a network of permanent and portable (temporary) noise monitors. There is a permanent monitor at Jerrabomberra and during 2009 Airservices Australia installed a portable monitor at Hackett to collect data. This information is reported in Airservices Australia's Noise and Flight Path Monitoring System (NFPMS) quarterly reports which are available on the Airservices Australia website at <http://www.airservicesaustralia.com/projectsservices/reports/nfpms/default.asp>.

Table 1 shows the N60, N65, N70 and N80 values for Hackett and Jerrabomberra for operations in 2009. The night time figures are shown in brackets.

	EMU location	Monitoring days	N60	N65	N70	N80
Quarter 1 2009	Jerrabomberra	89.5	63.4(1.5)	53.0(1.0)	34.1(0.4)	0.2(0.0)
	Hackett	90	20.6(0.0)	5.4(0.0)	1.6(0.0)	0.2(0.0)
Quarter 2 2009	Jerrabomberra	91	66.7(1.6)	58.6(1.5)	38.9(0.7)	0.3(0.0)
	Hackett	91	24.7(0.0)	5.4(0.0)	1.5(0.0)	0.1(0.0)
Quarter 3 2009	Jerrabomberra	92	66.6(1.5)	61.1(1.3)	46.4(0.8)	0.3(0.0)
	Hackett	91.9	26.2(0.0)	5.8(0.0)	1.4(0.0)	0.1(0.0)
Quarter 4 2009	Jerrabomberra	91.9	61.4(1.6)	53.6(1.4)	35.9(0.5)	0.3(0.0)
	Hackett	82.4	20.5(0.0)	5.0(0.0)	1.3(0.0)	0.1(0.0)

Table 1 N60 to N80 values for the Hackett and Jerrabomberra 2009

As stated in the NFPMS quarterly reports, there was some evidence of non-aircraft noise corrupting the aircraft correlated noise events at Hackett and the results for the Hackett site in Table 1 should be considered as an over-estimate of the true value. The low night-time N60-N80 values result from the low movement numbers during the night hours 11pm to 6am.

70 dB(A) is the noise threshold that is used in NFPMS quarterly reports for all airports in Australia where the system is established and 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).

However, considering the background levels and the summary in Table 1, a more appropriate threshold for reporting noise at Hackett and Jerrabomberra may be 60dB(A) for summer and 65dB(A) for winter during the daytime, and 50dB(A) for summer and 55dB(A) for winter during the night time, as these better reflect World Health Organisation (WHO) guidelines for community noise.

The data in Table 1 indicates that during 2009 the number of times during the day-time hours (6:00-23:00) that aircraft noise is noticeable indoors at Hackett would be 5-6 in winter (N65), and 20-26 during summer (N60). The number of times during the day-time hours (6:00-23:00) that aircraft noise is noticeable at Jerrabomberra would be 53-61 in winter (N65), and 61-67 during summer (N60).

4.2 Complaints Data

The following table summarises complaint data for the year 2009 relating to Canberra Airport. Full details are contained in Appendix C.

Suburb	Complaints	Complainants
Not Specified	8	6
Acton	1	1
Amaroo	1	1
Bungendore	2	2
Campbell	6	5
Canberra	2	2
Carwoola	2	2
Chisholm	1	1
Downer	4	2
Dunlop	1	1
Flynn	1	1
Forde	10	1
Fraser	2	1
Fyshwick	1	1
Griffith	95	1
Hackett	87	3
Hawker	1	1
Hughes	1	1
Jerrabomberra	30	15
Kaleen	3	2
Kambah	1	1
Karabar	2	1
Murrumbateman	1	1
Narrabundah	2	2
Nicholls	3	1
Queanbeyan	11	7
Queanbeyan East	1	1
Red Hill	1	1
Richardson	1	1
Turner	1	1
Wamboin	2	2
Wanniassa	9	2
Watson	2	2
Yarralumla	1	1
Total	297	80

Table 2 Aircraft Noise Complaints 2009

The following map shows the distribution of complaints relative to the location of the airport.

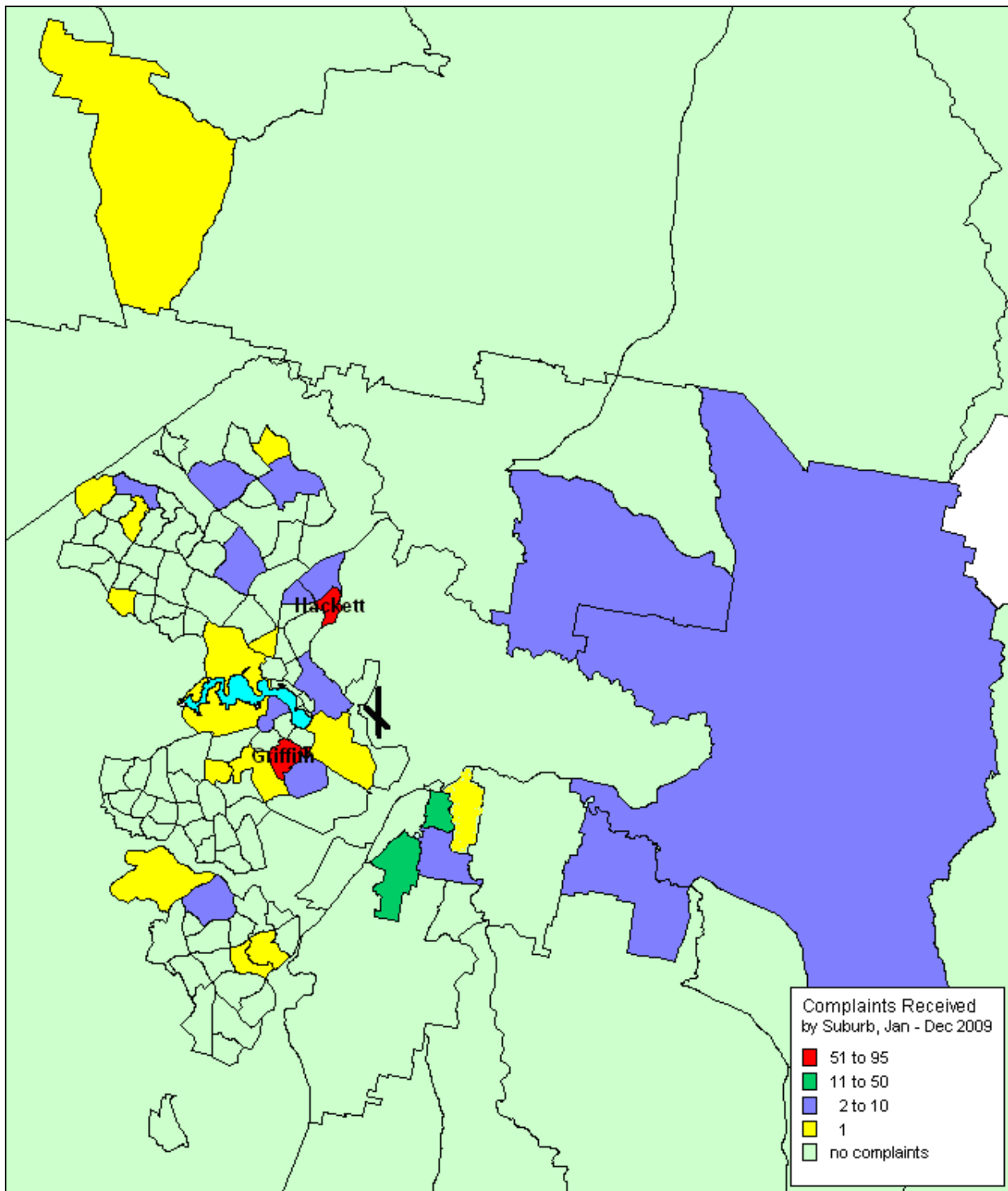


Figure 4 Complaint Density Map 2009

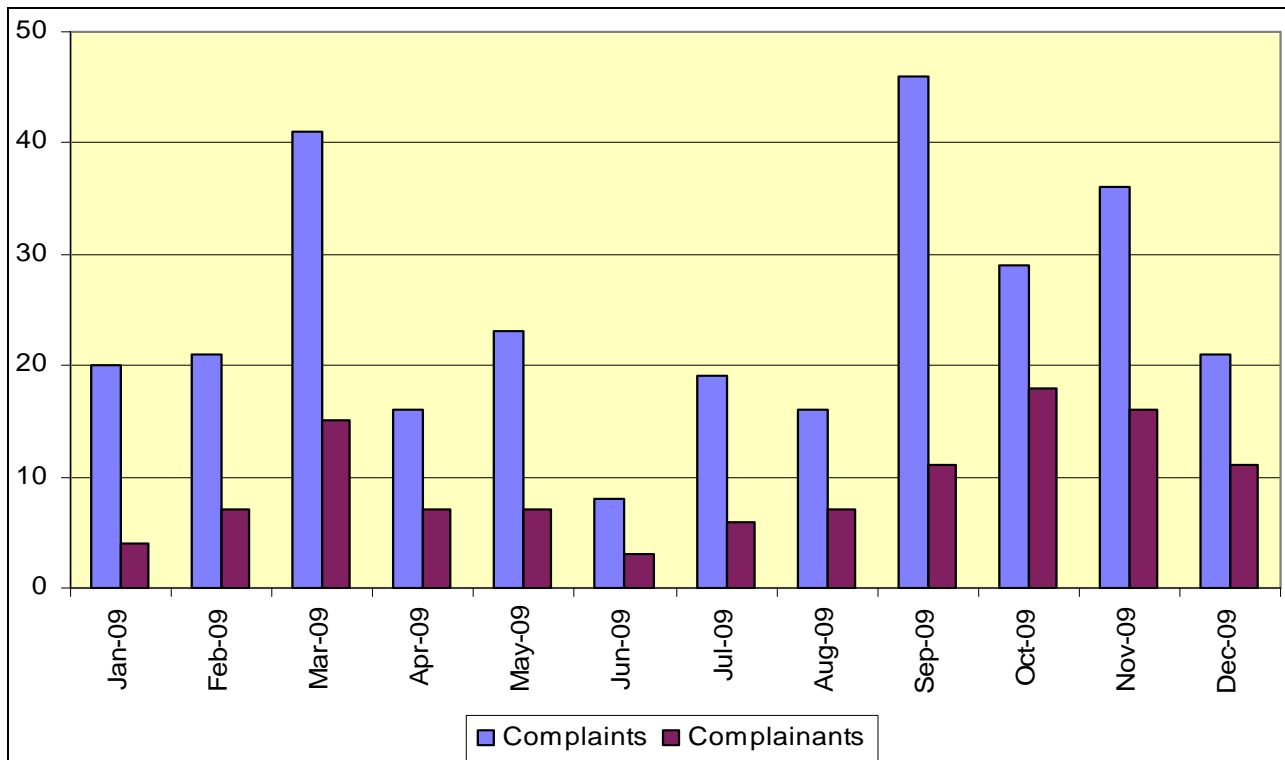


Figure 5 Complaints & Complainants – Monthly

4.3 Community Impact

Due to the design and application of the NAPs, there is very little overflight of urban residential areas around Canberra Airport, however, there is still some impact on residential areas from flight paths adjacent to residential areas. Noise complaints reflect some of that impact.

Noise levels and numbers of flights experienced by residents near Canberra Airport are not regulated by any government standards. Airservices Australia attempts to minimise the impact through its NAPs, but has no basis upon which to determine whether those impacts are acceptable or excessive.

5 Demography and Land Use

5.1 Historical

Aviation activities associated with an airport have an environmental impact on the areas around the airport. The extent of this impact varies according to many factors, such as the number of movements and the aircraft types using the airport, but it also depends on the location of residential development around the airport. Generally noise levels decrease as the distance from the airport increases (as aircraft are higher) but other factors such as the design of flight paths, terrain and background noise levels will also influence the impact of aircraft operations on a specific geographical location.

Land use planning to limit residential development around airports is a key element of the ICAO Balanced Approach to Aircraft Noise Management. Although Canberra Airport is in the ACT, its noise impacts extend into NSW. Effective land use planning around Canberra Airport relies upon cooperation between the ACT Government, the NSW Government and local governments – mainly Queanbeyan City Council and Palerang Council, and to a lesser extent Yass Valley Council and Cooma-Monaro Council.

Canberra Airport is leased from the Commonwealth Government by a private company, and regulated by the Commonwealth *Airports Act (1996)*. One of the requirements of the Act is to produce a Master Plan every five years, and to produce an Australian Noise Exposure Forecast (ANEF) to indicate the airport's projected future noise impacts. The contours of the ANEF are adopted by local, state and territory governments as the basis for resolving land use planning issues around airports.

The ANEF forms part of *Australian Standard AS2021 Acoustics – Aircraft noise intrusions – Building siting and construction*. AS2021, together with the relevant ANEF charts provides guidelines for determining:

- whether the extent of aircraft noise intrusion makes building sites 'acceptable', 'unacceptable' or 'conditionally acceptable' for the types of activity to be, or being, undertaken;
- for 'conditionally acceptable' sites, the extent of noise reduction required to provide acceptable noise levels indoors for the types of activity to be, or being, undertaken; and
- the type of building construction necessary to provide a given noise reduction, provided that external windows and doors are closed.

AS2021 is concerned with land use planning and building treatments in the vicinity of an airport. The objective is to provide guidance to regional and local authorities, organisations, communities and others associated with urban and regional planning and building development on the siting and construction of new buildings against aircraft noise intrusion and on the acoustical adequacy of existing buildings in areas near aerodromes. The Standard, and associated ANEF chart, is not intended to be applied for the purposes of assessing the effects of noise from aircraft. It should also be noted that the effects of noise from aircraft are not confined to areas where the noise exposure exceeds 20 ANEF and may occur at or below 20.

It is Airservices Australia's experience that the ANEF chart does not reflect the actual impact of likely noise or the area of community concerns, particularly in relation to night time noise. The system also does not provide easily understood, comprehensive noise information that would enable future communities to make informed choices about the aircraft noise impacts and the quality of life to be experienced in the area.

However, it is not only new residential development which results in conflicts between airport users and the surrounding communities. Existing areas can be affected by changes to flight paths, changes to the way aircraft navigate, changes in the types of aircraft flown on existing routes and increasing traffic levels. Areas which may have been only lightly affected by aircraft noise at one time could become more heavily affected years or decades later. Offsetting these effects are the improvements in noise levels from individual

aircraft as modern aircraft replace older types, although this is a slow process, as aircraft are expensive assets with long lives.

Of all these potential changes, Airservices Australia is responsible for assessing the environmental impacts of changes to operational procedures which result in changes to flight paths. In determining whether there is likely to be a significant impact, existing residential development is taken into account, and where it is known, future residential development.

5.2 Future Growth Projections

Population growth rates have been high in both the ACT and in neighbouring NSW local government areas, resulting in the establishment of new residential areas, and proposals for further residential expansion.

To the north of the airport, the areas most affected by noise from aircraft using Canberra Airport are part of the ACT. Future planning for these areas is addressed in the ACT Government's Eastern Broadacre Planning Project.

The areas to the north of the airport are Areas A (Mount Majura), B (Majura Valley North) and C (Majura Valley South) in the following map.

Current land uses in these areas are rural grazing, horse agistment, community uses, sporting and recreation.

The Plan identifies possible future land uses as warehousing, storage/archival, security and defence support, freight, transport related, manufacturing and component assembly, broadacre.

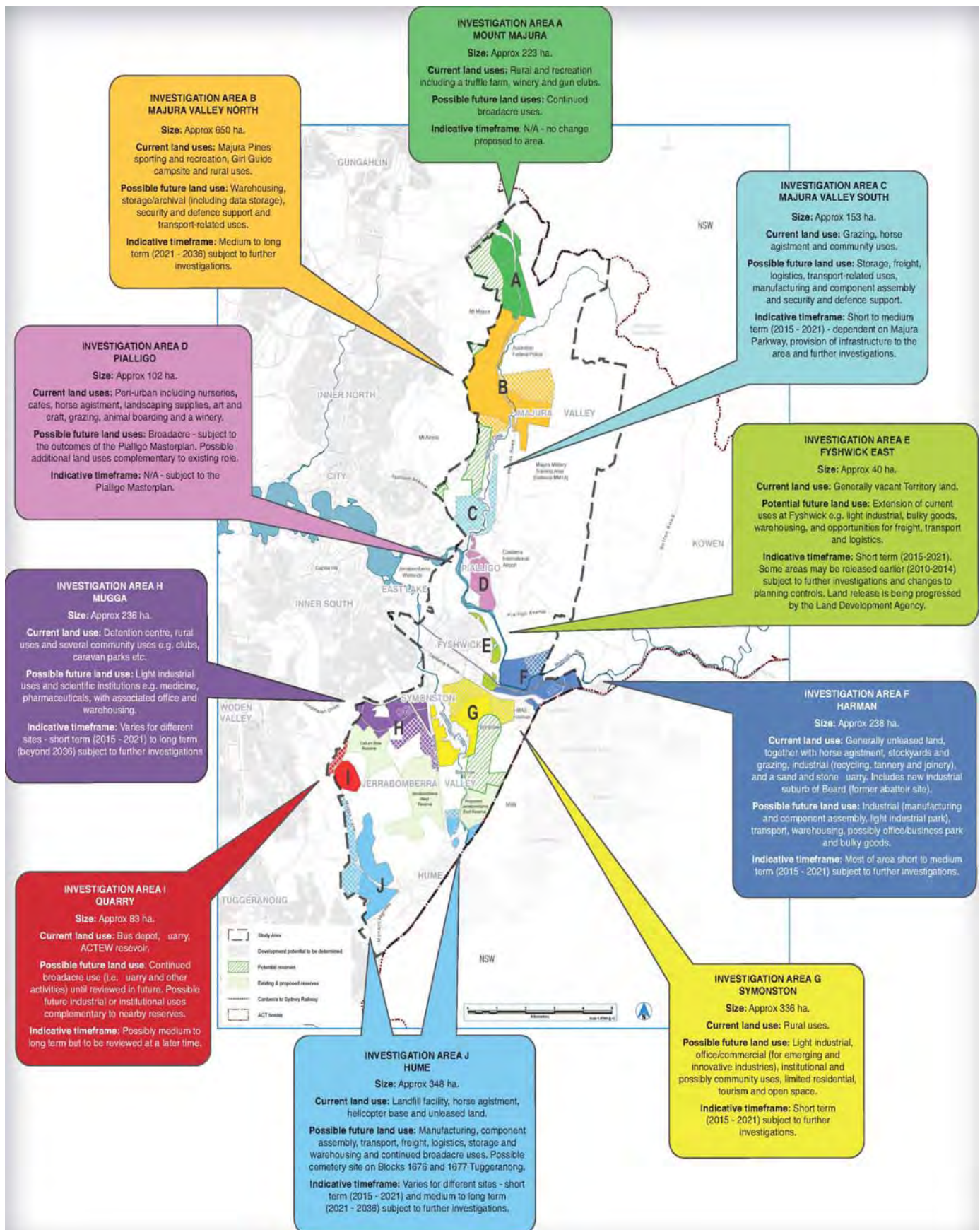


Figure 6 ACT Government Eastern Broadacre Plan
(Source: ACT Planning and Land Authority)

The future development of Gungahlin is shown in the following Territory Plan map of Gungahlin and Hall. Projections indicate the population of Gungahlin district will approach 50,000 persons by 2014. The ACT Planning and Land Authority indicates a predicted increase in demand for retail space, and community facilities such as libraries.

Large numbers of jets overfly Gungahlin between 7,000 and 10,000 feet above ground level, which is above the height requirements of the NAA.

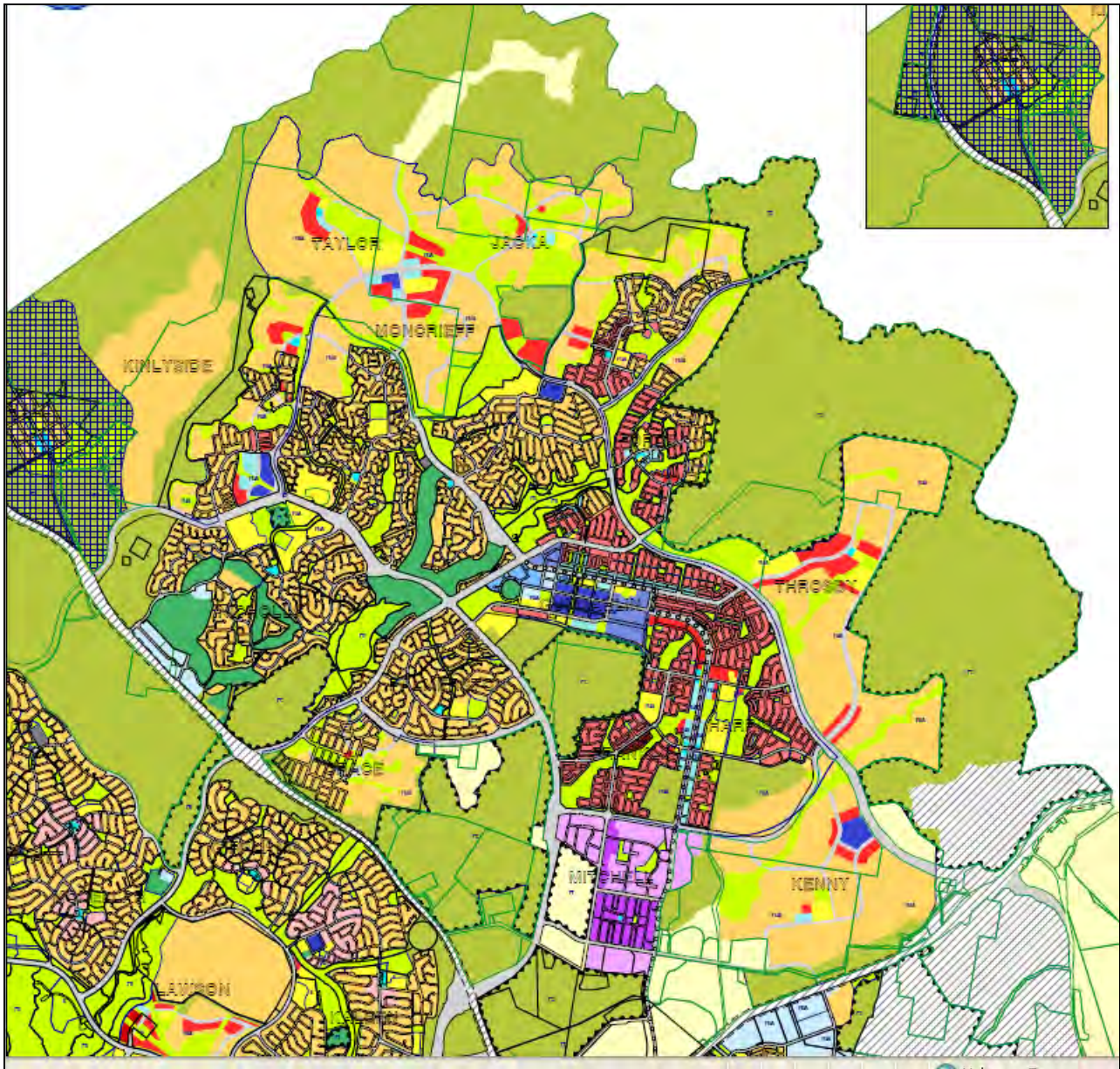


Figure 7 Development of Gungahlin
(Source: ACT Planning and Land Authority)

To the south of the airport, areas most affected by aircraft noise are part of NSW, in the local government area of Queanbeyan City Council. The population of this area is growing rapidly and the Council has approved a residential development, Tralee, that will be affected by aircraft noise. The development of this area is currently subject to planning processes.

Tralee is shown on the following map. It is not directly in line with the north-south runway, however Runway 17 departures turn right of runway centreline shortly after take-off, which takes them away from Jerrabomberra, but will mean that they overfly the Tralee development area. Queanbeyan City Council indicates a projected average population growth for the Tralee and Environs areas of 14.42% for the 2006 to 2031 period, taking the total population of Tralee and Environs from 349 persons in 2006 to a predicted total of 10,123 persons in 2031. (Reference - www.qcc.nsw.gov.au).

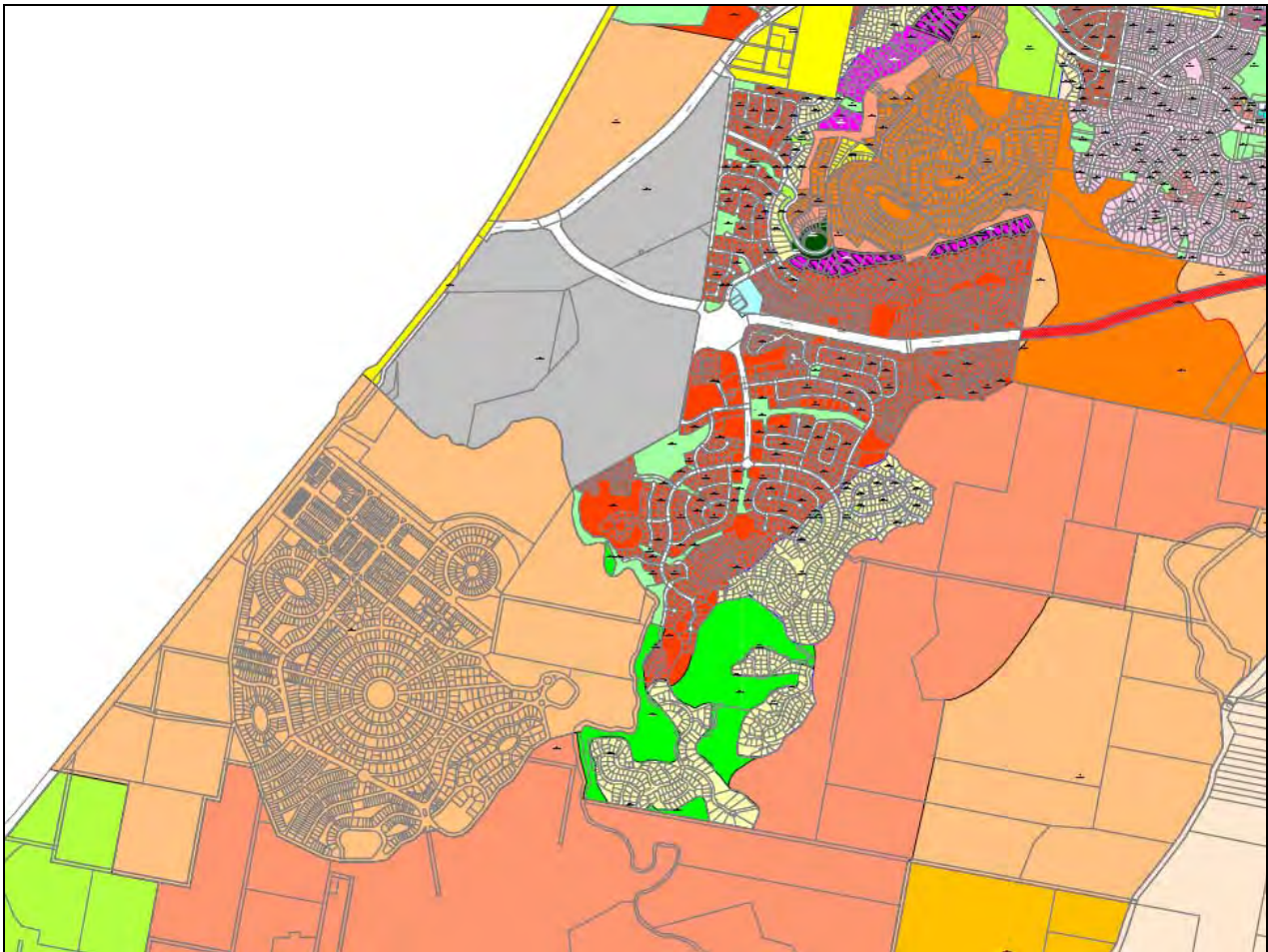


Figure 8 Future Residential Areas in Queanbeyan City Council
(Source: Queanbeyan City Council)

The NSW Department of Planning review of the Queanbeyan City Council Residential and Economic Strategy 2031 – Addendum report dated December 2008 (www.planning.nsw.gov.au/plansforaction/pdf/qbyn_res_econ_strategy_2031_addendum_report_dec08.pdf) states that the revised Queanbeyan Residential and Economic Strategy 2031 Map identifies a spatial allocation of 10,000 new dwellings to be provided in at least two releases at Googong and South Jerrabomberra. In relation to the South Jerrabomberra area, this includes the Tralee and Environs areas, the review states that there is potential for up to 4,685 dwellings. When combined with the 5,500 lots to be developed at Googong, this fulfils the requirement to cater for the target of 10,000 dwellings over the next 25 years. The development also foresees infrastructure development such as a secondary school.

6 Current Noise Abatement Procedures

6.1 Historical and Legal Foundation

The published noise abatement procedures are available on the Airservices Australia website, at the following link.

<http://www.airservices.gov.au/publications/current/dap/AeroProcChartsTOC.htm#C> (see Canberra, Noise Abatement Procedures, pages 1-4).

NAPs are only applied when it is safe to do so, that is when weather and traffic conditions allow. The applicability of NAPs is shown on the Airservices Australia website, at the following link:

http://www.airservices.gov.au/publications/current/aip/enr/1_5_7-39.pdf (see part 11).

NAPs influence where aircraft will fly by nominating noise preferred runways and by designing Standard Instrument Departures (SIDs) and Standard Arrival Routes (STARs) to reduce noise impacts on residential communities. NAPs are subject to limitations, namely

- Weather constraints
- Traffic management constraints.

Weather constraints such as windshear and wind velocity have a major impact on selection of noise preferred runways, as ATC cannot nominate a runway if it will result in more than 5 knots of downwind (tailwind) or any downwind if the runway is not completely dry, or more than 20 knots of crosswind. In some cases such as opposite direction runway use, noise preferred runways are only possible for a small proportion of the time. Severe weather, such as thunderstorms, also affects use of preferred flight paths and noise abatement areas, as severe weather must be avoided to ensure the safety of the aircraft.

Traffic management constraints mean that Airservices Australia applies NAPs where possible, but that if traffic levels are high, and the NAPs would cause or add to excess delays for flights, then NAPs are not applied.

6.2 Noise Abatement Framework

Noise abatement procedures develop over time and are specific to the needs of individual locations. Typically they are a combination of preferred runways and preferred flight paths, but where the local geography and/or demography allow, noise abatement areas may have been introduced.

Preferred runways are of most benefit where there is a large water body or unpopulated area near the airport and where particular runway usage enables flights to overfly these areas rather than populated areas, when the wind conditions are suitable.

Preferred flight paths usually take the form of Standard Instrument Departures (SIDs) and Standard Arrivals (STARs). The NAPs will specify if aircraft are required to track via the SID or STAR in order to meet noise abatement requirements.

Noise Abatement Areas are only implemented at a small number of Australian airports. Most capital city airports have considerable built up area around them, so it is not possible to design flight paths which do not overfly any residential areas. Canberra Airport has associated NAAs, which were established by Airservices Australia in 1994 and extended to their current form in 1996.

6.3 Preferred Runways

Movement data for the 12 month period from 1 January 2009 to 31 December 2009 was analysed to determine the level of usage of each runway for arrivals and departures. This was also carried out for jet aircraft, turbo-prop aircraft and piston-engined aircraft, and broken down “Day”, “Inner Night” and “Outer Night”, which are defined as:

- Day 7am to 8pm
- Night 8pm to 7am, divided into:
 - More sensitive – 11pm to 6am – referred to as “Inner Night” in the tables in this report.
 - Less sensitive – 8pm to 11pm and 6am to 7am – referred to as “Outer Night” in the tables in this report.

Air Traffic Control (ATC) is generally active from 6am to 11pm, ie for the Day period and the “Outer Night” period. During the “Inner Night” period of 11pm to 6am, there is no ATC at the airport, so pilots decide which runways they will use, communicating with other aircraft that may be in the vicinity to ensure safe separation is maintained. They are required to consider noise abatement, but will also be influenced by the weather and the availability of precision approach facilities on Runway 35.

During the Day hours from 7am to 8pm, the preferred runway for landings is either Runway 35, 17 or 30 and for departures is Runway 35. Table 1 shows that 98% of arrivals and 78% of departures have been on the preferred runways.

During the “Night” hours after 8pm and before 7am, the preferred runway for landings is Runway 17, and for departures is Runway 35. Table 1 shows that 27% of arrivals and 83% of departures have been on the preferred runways.

During the Outer Night hours of 8pm to 11pm and 6am to 7am, Table 1 shows that 24% of arrivals and 83% of departures have been on the preferred runways.

During the Inner Night hours of 11pm to 6am, Table 1 shows that 37% of arrivals and 80% of departures have been on the preferred runways.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	27,678		4,837		906		3,931		22,841	
12	509	2%	20	0%	4	0%	16	0%	489	2%
17	4,668	17%	1,299	27%	339	37%	960	24%	3,369	15%
30	2,955	11%	258	5%	65	7%	193	5%	2,697	12%
35	19,546	71%	3,260	67%	498	55%	2,762	70%	16,286	71%
DEP	27,839		4,515		188		4,327		23,324	
12	941	3%	116	3%	10	5%	106	2%	825	4%
17	3,977	14%	631	14%	26	14%	605	14%	3,346	14%
30	972	3%	18	0%	1	1%	17	0%	954	4%
35	21,949	79%	3,750	83%	151	80%	3,599	83%	18,199	78%
Total	55,517		9,352		1,094		8,258		46,165	

Table 3 All Aircraft Operations

Note: percentage figures in the tables in this report are rounded to nearest whole number.

There is a high level of use of the preferred runways during the Day period, and a high level of use of the preferred runway for departures during the Night periods, but a low level of use of the preferred runway for arrivals during the Night periods.

However, as preferred runways are not applicable if the weather conditions are not suitable, then the actual level of compliance must factor in the weather. This is done in section 6.3.5.

Use of preferred runways has been calculated for jet, turboprop and piston-engined aircraft, and also divided into Day, Night, Inner Night and Outer Night periods.

6.3.1 Jet Aircraft

During the Day hours from 7am to 8pm, the preferred runway for landings is either Runway 35, 17 or 30 and for departures is Runway 35. Table 2 shows that 100% (rounded) of jet arrivals and 83% of jet departures have been on the preferred runways.

During the "Night" hours after 8pm and before 7am, the preferred runway for landings is Runway 17, and for departures is Runway 35. Table 2 shows that 27% of jet arrivals and 86% of jet departures have been on the preferred runways.

During the Outer Night hours of 8pm to 11pm and 6am to 7am, Table 2 shows that 25% of jet arrivals and 86% of jet departures have been on the preferred runways.

During the Inner Night hours of 11pm to 6am, Table 2 shows that 40% of jet arrivals and 76% of jet departures have been on the preferred runways.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	16,914		3,689		443		3,246		13,225	
12	1	0%	0	0%	0	0%	0	0%	1	0%
17	3,126	18%	986	27%	177	40%	809	25%	2,140	16%
30	13	0%	4	0%	0	0%	4	0%	9	0%
35	13,774	81%	2,699	73%	266	60%	2,433	75%	11,075	84%
DEP	16,995		3,132		55		3,077		13,863	
12	3	0%	1	0%	0	0%	1	0%	2	0%
17	2,760	16%	452	14%	13	24%	439	14%	2,308	17%
30	8	0%	0	0%	0	0%	0	0%	8	0%
35	14,224	84%	2,679	86%	42	76%	2,637	86%	11,545	83%
Total	33,909		6,821		498		6,323		27,088	

Table 4 Jet Aircraft Operations

There is a high level of use of the preferred runways by jets during the Day period, and a high level of use of the preferred runway for jet departures during the Night periods, but a low level of use of the preferred runway for jet arrivals during the Night periods.

6.3.2 Turboprop Aircraft

During the Day hours from 7am to 8pm, the preferred runway for landings is either Runway 35, 17 or 30 and for departures is Runway 35. Table 3 shows that 99% of turboprop arrivals and 82% of turboprop departures have been on the preferred runways.

During the "Night" hours after 8pm and before 7am, the preferred runway for landings is Runway 17, and for departures is Runway 35. Table 3 shows that 21% of turboprop arrivals and 82% of turboprop departures have been on the preferred runways.

During the Outer Night hours of 8pm to 11pm and 6am to 7am, Table 3 shows that 26% of turboprop arrivals and 82% of turboprop departures have been on the preferred runways.

During the Inner Night hours of 11pm to 6am, Table 3 shows that 13% of turboprop arrivals and 83% of turboprop departures have been on the preferred runways.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	7,249		743		269		474		6,506	
12	47	1%	4	1%	1	0%	3	1%	43	1%
17	1,188	16%	155	21%	34	13%	121	26%	1,033	16%
30	1,267	17%	96	13%	13	5%	83	18%	1,171	18%
35	4,747	65%	488	66%	221	82%	267	56%	4,259	65%
DEP	7,241		1,018		92		926		6,223	
12	88	1%	22	2%	5	5%	17	2%	66	1%
17	1,143	16%	155	15%	10	11%	145	16%	988	16%
30	63	1%	3	0%	1	1%	2	0%	60	1%
35	5,947	82%	838	82%	76	83%	762	82%	5,109	82%
Total	14,490		1,761		361		1,400		12,729	

Table 5 Turboprop Operations

There is a high level of use of the preferred runways by turboprops during the Day period, and a high level of use of the preferred runway for turboprop departures during the Night

periods, but a low level of use of the preferred runway for turboprop arrivals during the Night periods.

6.3.3 *Piston Engined Aircraft*

During the Day hours from 7am to 8pm, the preferred runway for landings is either Runway 35, 17 or 30 and for departures is Runway 35. Table 4 shows that 86% of piston arrivals and 48% of piston departures have been on the preferred runways.

During the “Night” hours after 8pm and before 7am, the preferred runway for landings is Runway 17, and for departures is Runway 35. Table 3 shows that 39% of piston arrivals and 64% of piston departures have been on the preferred runways.

During the Outer Night hours of 8pm to 11pm and 6am to 7am, Table 2 shows that 14% of piston arrivals and 62% of piston departures have been on the preferred runways.

During the Inner Night hours of 11pm to 6am, Table 2 shows that 66% of piston arrivals and 80% of piston departures have been on the preferred runways.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
A	3,515		405		194		211		3,110	
12	461	13%	16	4%	3	2%	13	6%	445	14%
17	354	10%	158	39%	128	66%	30	14%	196	6%
30	1,675	48%	158	39%	52	27%	106	50%	1,517	49%
35	1,025	29%	73	18%	11	6%	62	29%	952	31%
D	3,603		365		41		324		3,238	
12	850	24%	93	25%	5	12%	88	27%	757	23%
17	74	2%	24	7%	3	7%	21	6%	50	2%
30	901	25%	15	4%	0	0%	15	5%	886	27%
35	1,778	49%	233	64%	33	80%	200	62%	1,545	48%
Total	7,118		770		235		535		6,348	

Table 6 Piston Engined Operations

There is a high level of use of the preferred runways by piston engined aircraft for arrivals during the Day period but a low level for departures, and a medium level of use of the preferred runway for piston engined aircraft departures during the Night periods, but a low level of use of the preferred runway for piston engined aircraft arrivals during the Night periods.

However, it should be noted that all these piston aircraft are below 5,700kg MTOW, and as such are not required to comply with noise abatement procedures.

6.3.4 *Weather factors*

At night, the preferred runway system requires reciprocal runway operations for a high level of compliance for both arrivals and departures. However, weather constraints often mean that reciprocal operations are not possible. Preferred runways only apply if there is no more than 5 knots downwind (and none at all if the runway is not completely dry), and for reciprocal operations there would need to be no more than 5 knots of downwind on both Runway 17 and 35 simultaneously.

Another factor which constrains aircraft from using Runway 17 for arrivals is that it doesn't have an ILS (a high precision instrument landing system), so if there is a low cloud base or poor visibility then pilots will require Runway 35 to make an instrument landing. The difficult and high terrain to the north of the airport also results in some pilots preferring to conduct an ILS approach on Runway 35 at night regardless of the weather conditions.

ATIS (Airport Terminal Information Service) data is weather data broadcast by ATC to aircraft using the airport. It is only available for the period that ATC is available. The time indicated is the commencement of the period that the weather applies to and it continues until the next ATIS. They do not apply to fixed periods, but are updated when one or more of the weather elements changes. Only the wind element is shown in the tables in this report, although other weather data is also broadcast. The format is xxx/yy where xxx is wind direction and yy is wind speed in knots. Where significant crosswind (XW) or downwind (DW) exists the levels are included. Occasional gusts are indicated with "G". Variable (VRBL) and light and variable (LV) is shown where appropriate. If the runway is not completely dry that is indicated under "Condition".

6.3.5 *Level of Compliance*

The level of compliance differs from the level of use as it takes the weather conditions into account. Weather data is not in a format which enables compliance to be calculated automatically, so a limited sample is taken for the purpose of the analysis. To ensure that seasonal variations do not affect the results, one day per month was selected.

Appendix E shows the runways nominated and the corresponding winds quoted on the ATIS for selected number of days in 2009, as well as actual jet and turboprop movements by runway. The selected days were the first day of each month.

A comparison of the weather data to the actual movements by runway on the sample days was used to determine the level of compliance, and is summarised in the following table. Where the wind conditions produced excessive downwind which precluded application of the noise-preferred runways, the table shows "Wind" and if there were no movements for a particular period it shows "None".

	Jets				Turboprops			
	Day		Night - Outer		Day		Night - Outer	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
1 Jan 09	100%	100%	Wind	100%	100%	100%	Wind	None
1 Feb 09	100%	77%	0%	38%	100%	81%	0%	None
1 Mar 09	100%	97%	0%	100%	100%	95%	0%	None
1 Apr 09	100%	Wind	89%	Wind	100%	Wind	100%	100%
1 May 09	100%	100%	20%	100%	100%	100%	None	100%
1 Jun 09	100%	100%	0%	100%	91%	100%	0%	100%
1 Jul 09	100%	96%	Wind	100%	100%	100%	Wind	100%
1 Aug 09	100%	96%	0%	100%	100%	100%	0%	None
1 Sep 09	100%	100%	Wind	100%	100%	100%	None	100%
1 Oct 09	100%	100%	0%	100%	100%	100%	0%	100%
1 Nov 09	100%	100%	100%	100%	100%	100%	None	None
1 Dec 09	100%	Wind	100%	0%	95%	Wind	100%	0%
Average	100%	97%	34%	85%	99%	98%	29%	86%

Table 7 Compliance with Preferred Runways

Use of the preferred runways during the Day for arrivals by jet aircraft was high (100%) and for departures it was high (97%).

Use of the preferred runways during the Night – Outer for arrivals by jet aircraft was low (34%) and for departures it was high (85%).

Use of the preferred runways during the Day for arrivals by turboprop aircraft was high (99%) and for departures it was high (98%).

Use of the preferred runways during the Night – Outer for arrivals by turboprop aircraft was low (29%) and for departures it was high (86%).

Reciprocal operations were not nominated by ATC on any Night – Outer period sampled. As a result, while use of the preferred runway for departures was high, for arrivals it was low.

6.4 Preferred Flight Paths

SID and STAR design generally ensures aircraft follow preferred flight paths. In Canberra, the SIDs and STARs are designed around the requirements of the Noise Abatement Areas.

The current published SID and STAR procedures are included in Appendix C.

Figures 2 and 3 show the nominal routes of these procedures over the ground. However, actual tracking spreads over a wider area, especially where aircraft turn at an altitude rather than a fixed point, as different aircraft types will reach those altitudes at different distances from the airport. Radii of turns vary depending on the individual aircraft speeds and performance characteristics.

While aircraft following the SIDs and STARs will comply with the NAAs, it is also possible to comply with the NAAs without following the published route, by meeting the altitude requirements. ATC may vary the flight path of an arrival or departure for traffic

management purposes. Compliance with the SIDs and STARs is not a requirement of noise abatement provided the NAAs are not breached, therefore compliance with the NAAs themselves is analysed in detail in the next section.

6.5 Canberra Airport Noise Abatement Areas (NAAs)

NAAs associated with Canberra Airport do not apply to aircraft below 5,700 kg MTOW, or to the following aircraft:

- Aircraft with priorities in accordance with AIP ENR (aircraft emergencies, medical priorities, etc);
- Aircraft that need to enter the NAA to avoid hazardous weather;
- Aircraft that need to enter the NAA due to operational requirements;
- Circuit training aircraft;
- Aircraft that have made an unplanned missed approach and are reprocessed via a circuit; and
- Aircraft that require a departure on the reciprocal of the duty arrival runway, if avoiding the NAA would cause significant delay to aircraft operations.

The Noise and Flight Path Monitoring System (NFPMS) was used to produce track plot diagrams of all aircraft activity for a 12 month period from 1 January 2009 to 31 December 2009. These have been examined to ascertain the level of compliance with the Canberra and Queanbeyan NAAs. Aircraft comply by flying around the areas or by meeting altitude requirements, which are:

- 5,000 feet above ground level (AGL) for jet aircraft and
- 3,000 AGL for non-jet aircraft.

In addition, where there has been aircraft overflight of a NAA below the required altitude, the meteorological conditions at the time have been obtained where available. This comes from the Automatic Terminal Information Service (ATIS) which is automatically broadcast to pilots during air traffic control (ATC) hours of operation and updated whenever any element changes significantly. The ATIS also shows the ATC nominated runways in use.

Full ATIS records are included in Appendix E and the most relevant details shown in the tables in this section. Abbreviations are also shown in Appendix E.

In all the following track plots, the tracks are coloured by altitude according to the following:

Altitude Range		
(feet)		
	Above ground level	Above mean sea level
	AGL	AMSL
Red	below 3,000	below 5,000
Blue	3,000 to 5,000	5,000 to 7,000
Light Green	5,000 to 7,000	7,000 to 9,000
Dark Green	over 7,000	over 9,000

Table 8 Altitude Colour Key

The point at which a track changes from one colour to another is the point at which the aircraft is at the height shown. All heights shown in the diagrams are above ground level, and altitudes above sea level are approximately 2,000 feet more, although this depends on location due to terrain variations.

6.5.1 Jet Aircraft

The requirements of the Noise Abatement Procedures is for jets to be at a minimum height of 5,000 feet above ground level (AGL) if they overfly either of the designated Noise Abatement Areas (NAAs), which are shown in red on the track plots, one over Canberra and one over Queanbeyan.

6.5.1.1 Jet Arrivals

There were 16,914 jet arrivals in 2009, as follows:

- 7,869 Qantas jet arrivals
- 7,341 Virgin Blue jet arrivals
- 820 military jet arrivals
- 884 other jet arrivals.

6.5.1.1.1 Qantas Jet Arrivals

There were 7,869 Qantas jet arrivals in 2009, and of these, 54 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 9 movements that overflew residential areas that were neither a missed approach nor training circuit.

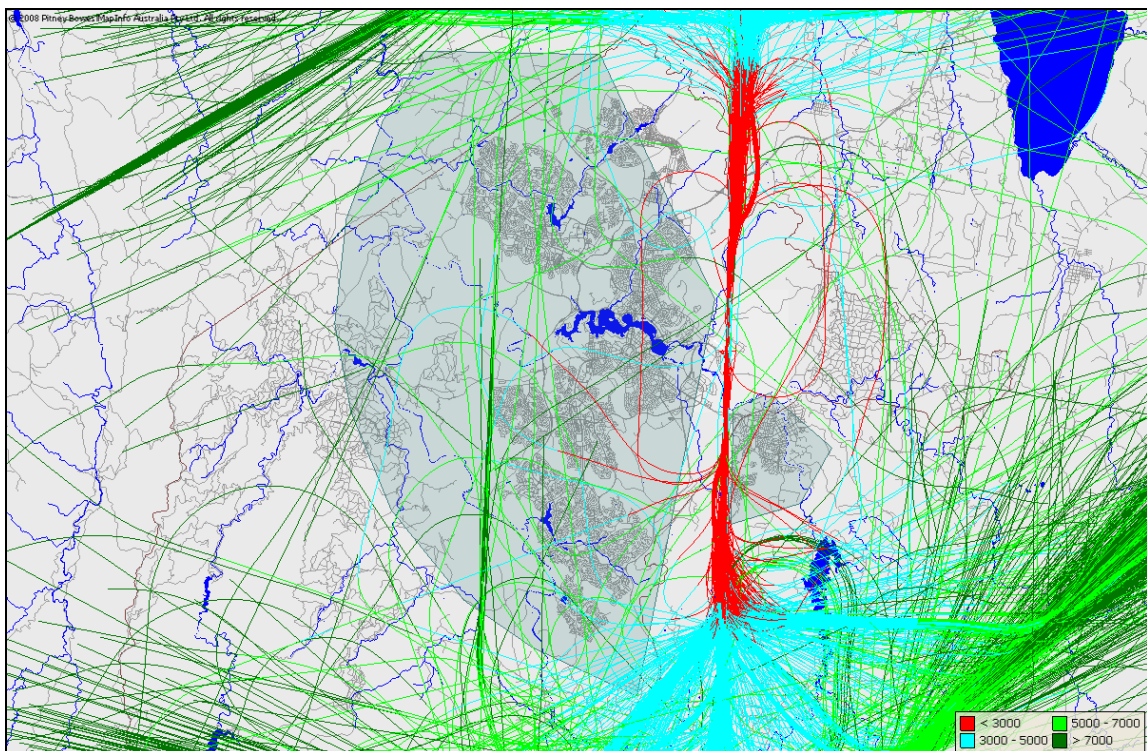


Figure 9 All Qantas Jet Arrivals 2009

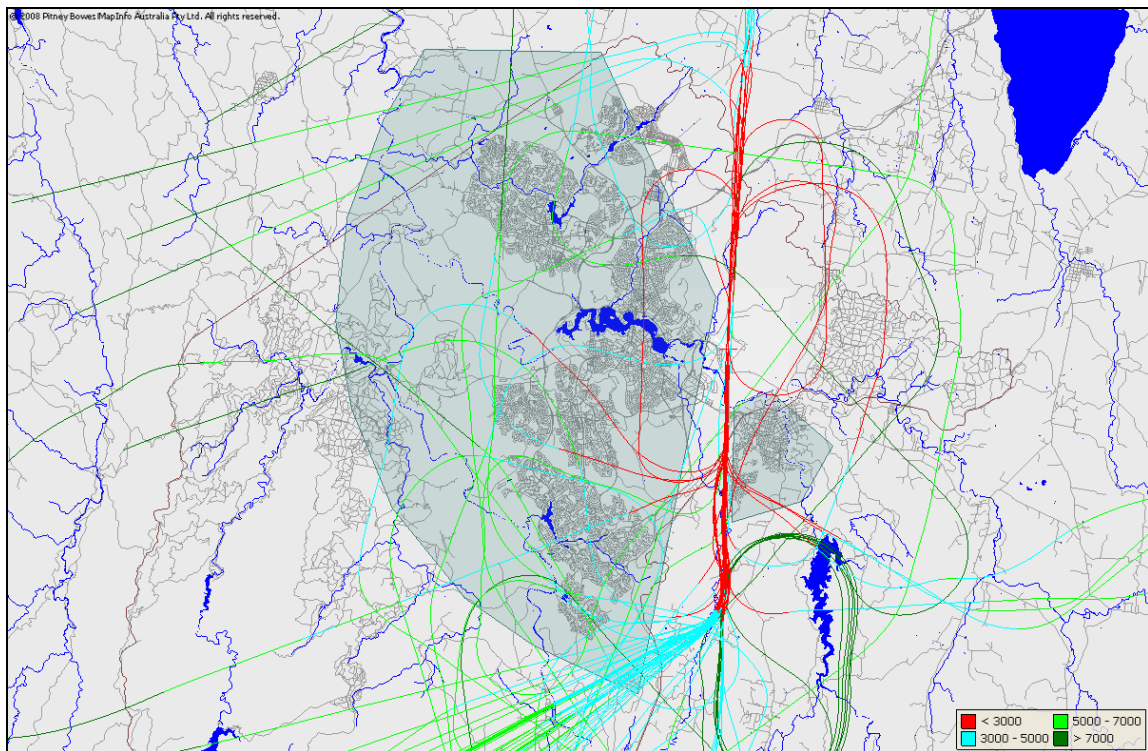


Figure 10 Qantas Jet Arrivals Overflying NAA

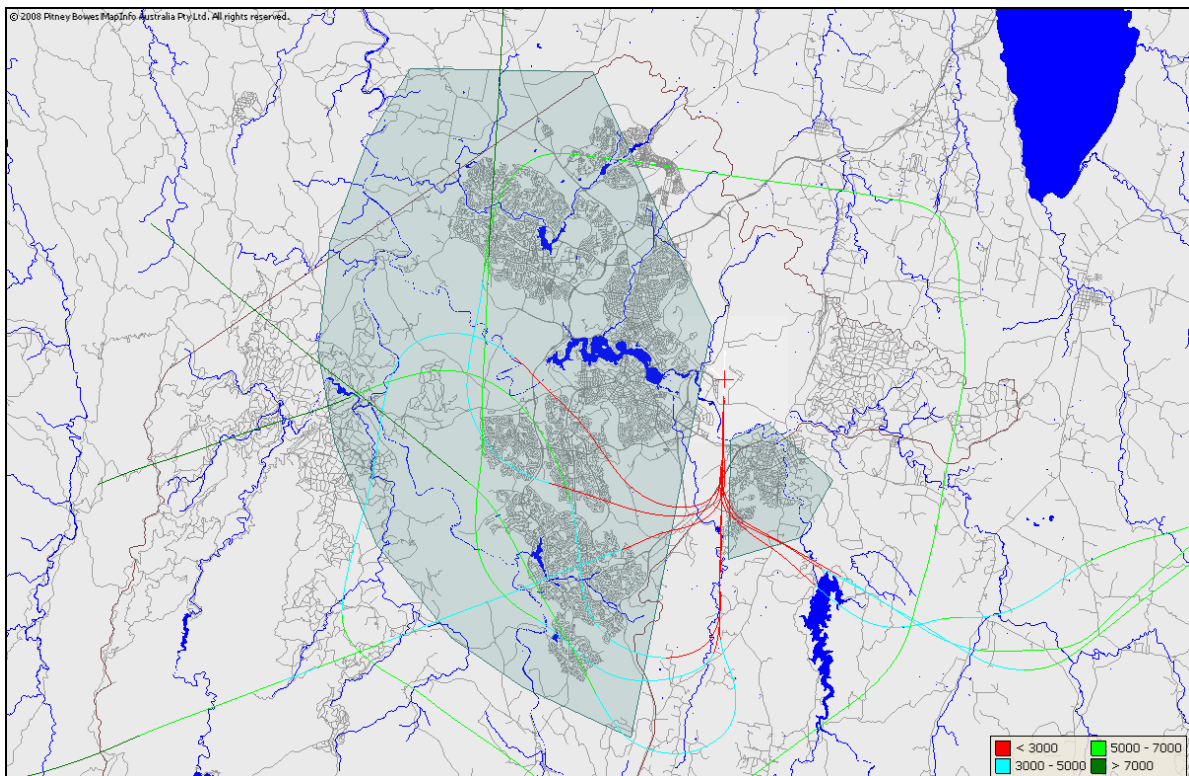


Figure 11 Qantas Jet Arrivals Requiring Investigation

Of the 9 Qantas jet arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 8 cases.

Date/Time	Type	Runway	Significant Weather
23/01/2009 18:55	B734	35	TS IN AREA
23/03/2009 18:15	B738	35	SH IN AREA EXP TURB OVER RWY 35, S OF RWY INT
11/08/2009 15:22	B734	35	SFC WET VIS REDUCED TO 6 KM TO E IN TS
10/09/2009 17:46	B734	35	EXP TURB
6/10/2009 17:26	B734	35	SH IN AREA EXP TURB OVER RWY 35 S OF RWY INT
12/10/2009 20:18	B738	35	TS IN AREA, OCNL SEV TURB FCST BLW 10000 FEET
16/10/2009 17:39	B734	35	
1/11/2009 18:22	B734	35	TS AND SH TO EAST
12/11/2009 20:28	B734	35	LIGHTNING OBS TO SOUTH

Table 9 Qantas Jet Arrivals Requiring Investigation

See Table F1 in Appendix F for an explanation of weather abbreviations

6.5.1.1.2 Virgin Blue Jet Arrivals

There were 7,341 Virgin Blue jet arrivals in 2009, and of these, 44 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 14 movements that overflew residential areas that were neither a missed approach nor training circuit.

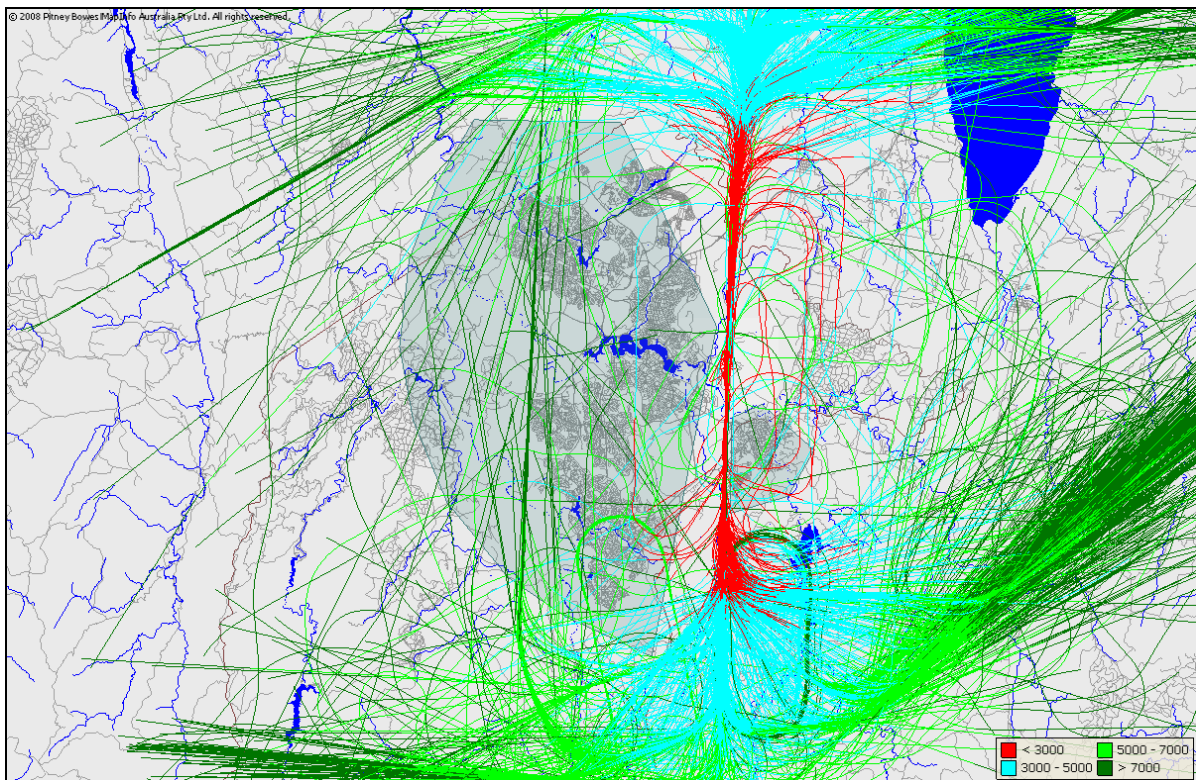


Figure 12 All Virgin Blue Jet Arrivals 2009

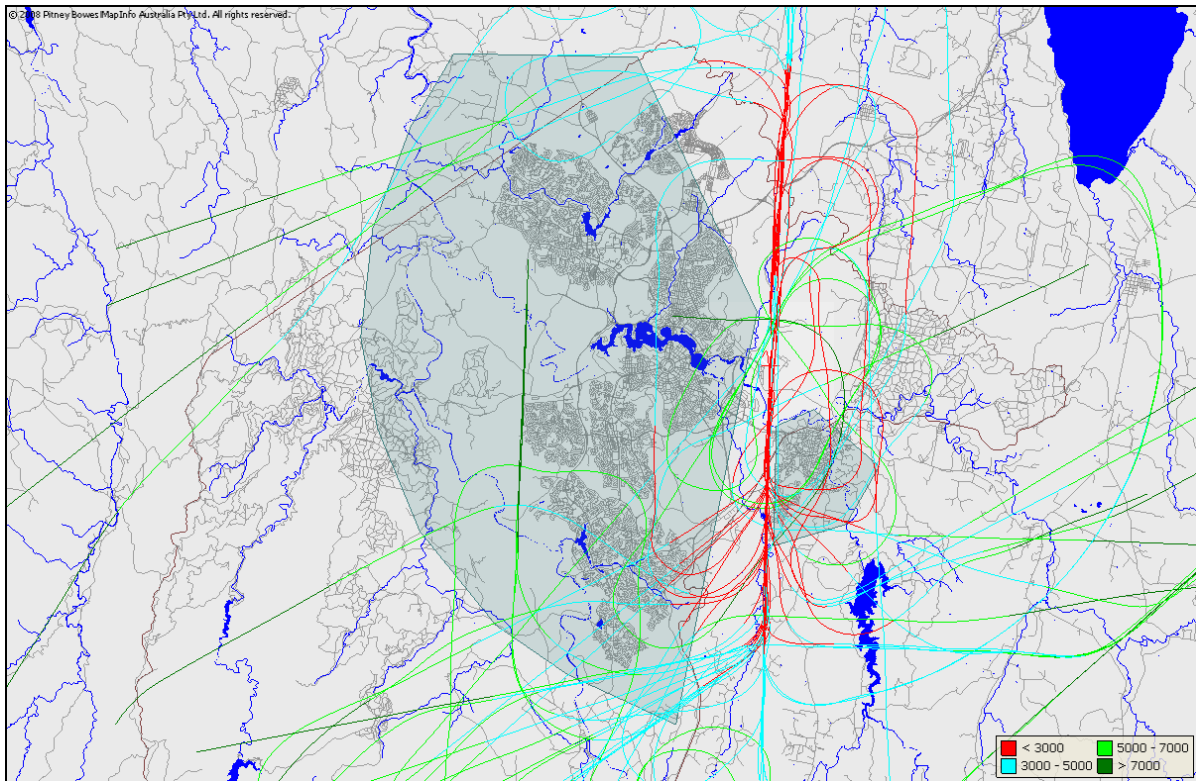


Figure 13 Virgin Blue Jet Arrivals Overflying NAA

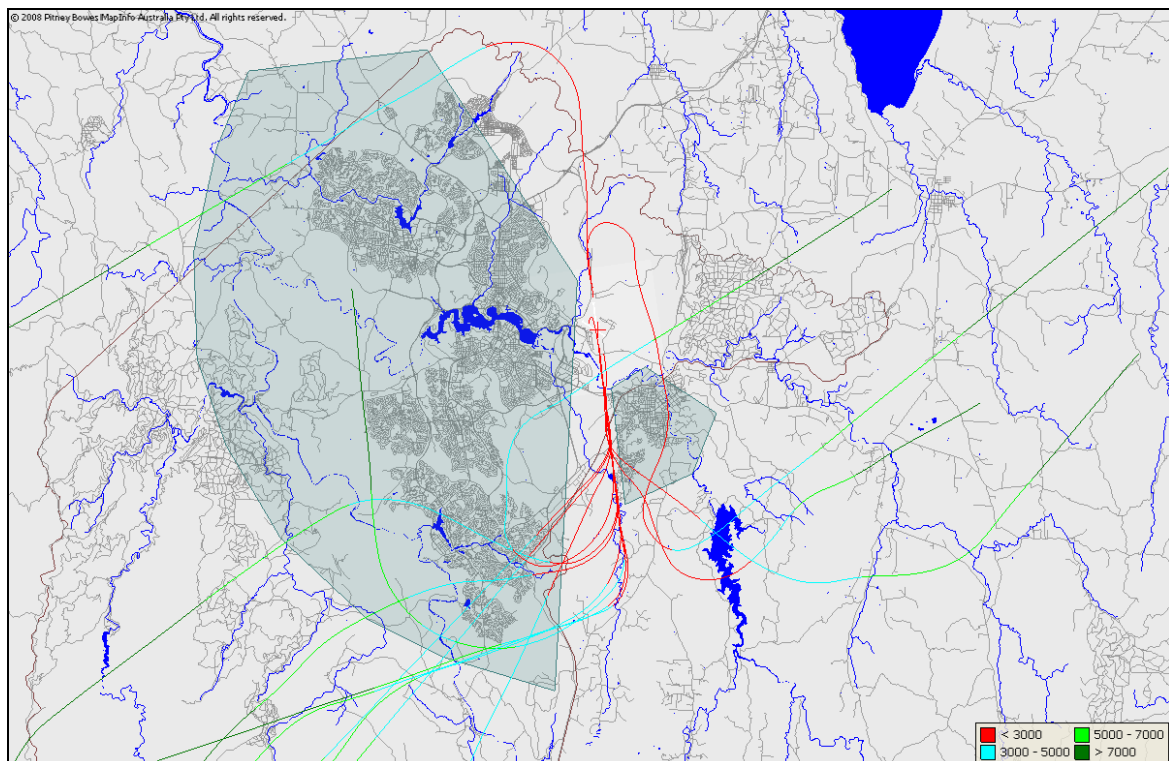


Figure 14 Virgin Blue Jet Arrivals Requiring Investigation

Of the 14 Virgin Blue jet arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 8 cases.

Date/Time	Type	Runway	Significant Weather
23/01/2009 19:22	E190	35	SH IN AREA EXP TURB OVER RWY 35 S OF RWY INT
21/02/2009 16:18	B738	35	
23/02/2009 16:00	E190	35	SH IN AREA, FREQUENT TS
13/03/2009 15:46	E190	35	
20/03/2009 16:29	E190	35	
20/03/2009 19:23	E190	35	
17/05/2009 14:39	E170	35	
11/08/2009 15:36	B737	35	VIS RED TO 6 KM IN TS, CLD: SCT045, BKN CB 5000 FT
8/09/2009 15:31	E190	35	
8/09/2009 16:52	E190	35	SH IN AREA EXP TURB OVER RWY 35 S OF RWY INT
13/09/2009 11:38	E170	35	SEV TURB FCST BLW 8000 FEET
5/10/2009 16:57	E190	17	TS IN AREA
31/10/2009 13:26	E170	35	CLD: TCU IN AREA
31/10/2009 17:43	E170	17	TS IN AREA

Table 10 Virgin Blue Jet Arrivals Requiring Investigation

6.5.1.1.3 Military Jet Arrivals

There were 820 military jet arrivals in 2009, and of these, 30 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 3 movements that overflew residential areas that were neither a missed approach nor training circuit.

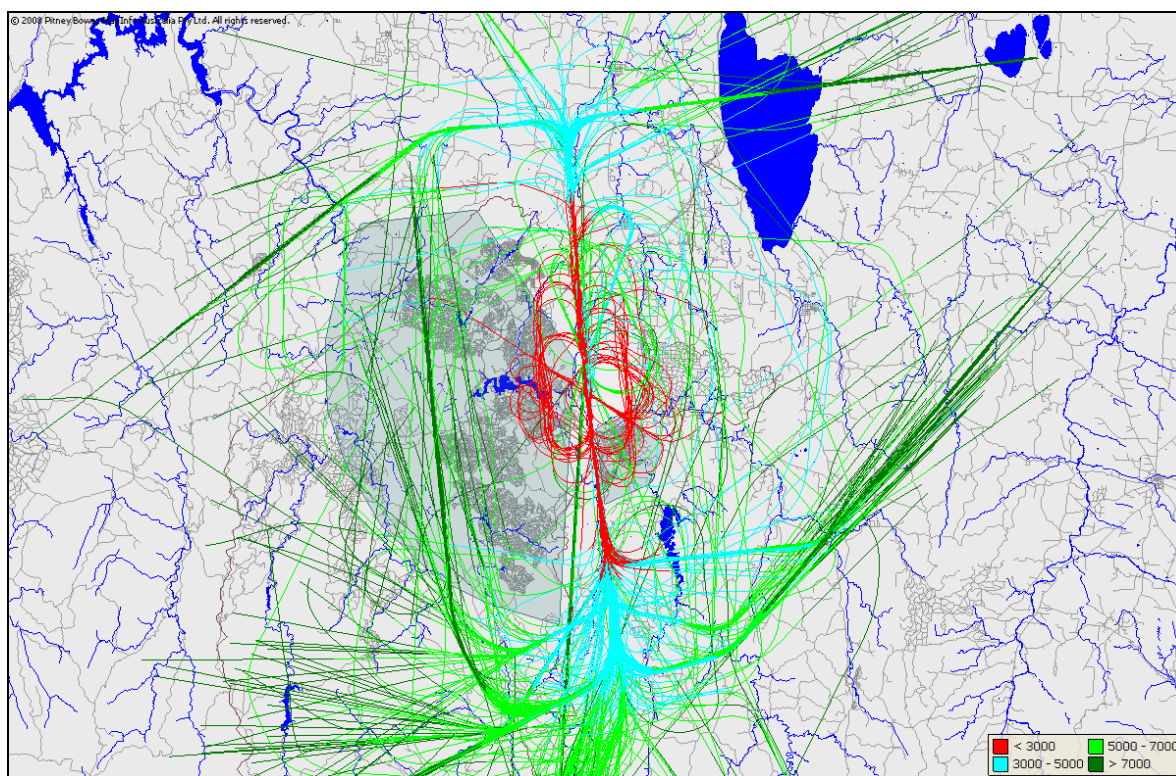


Figure 15 All Military Jet Arrivals 2009

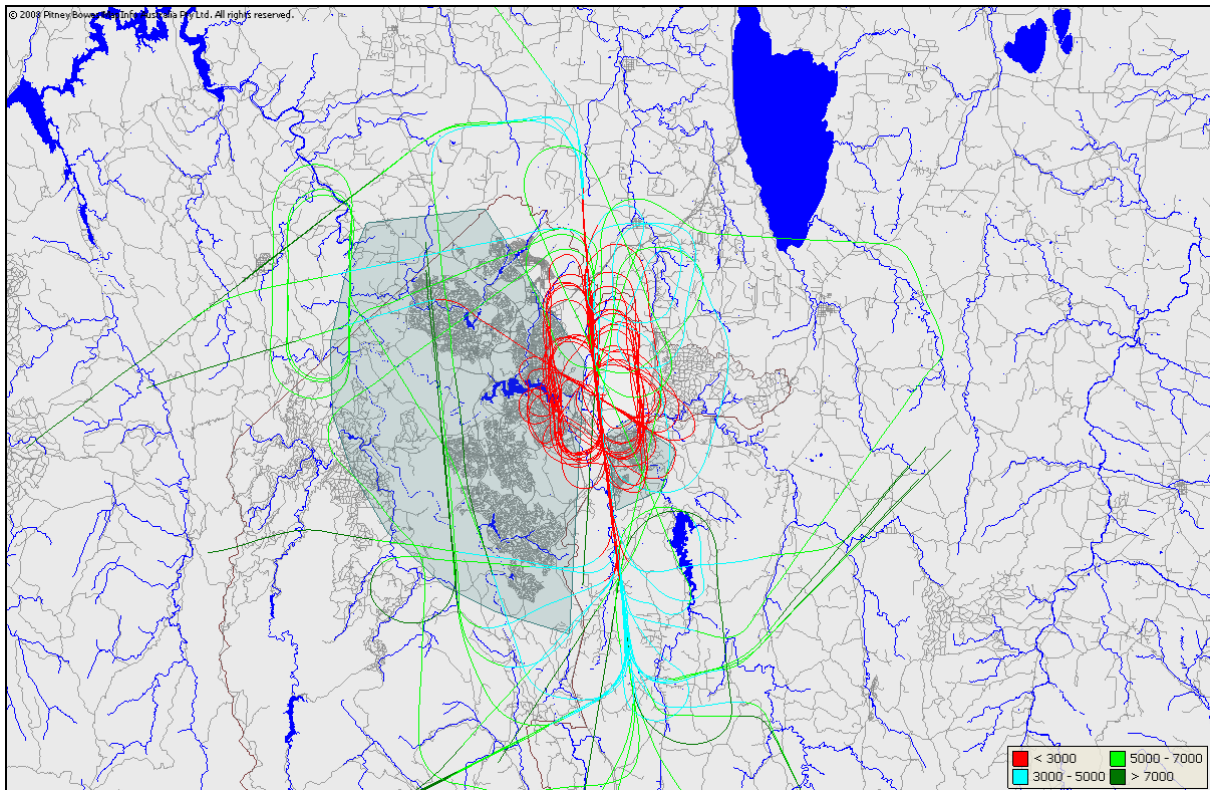


Figure 16 Military Jet Arrivals Overflying NAA

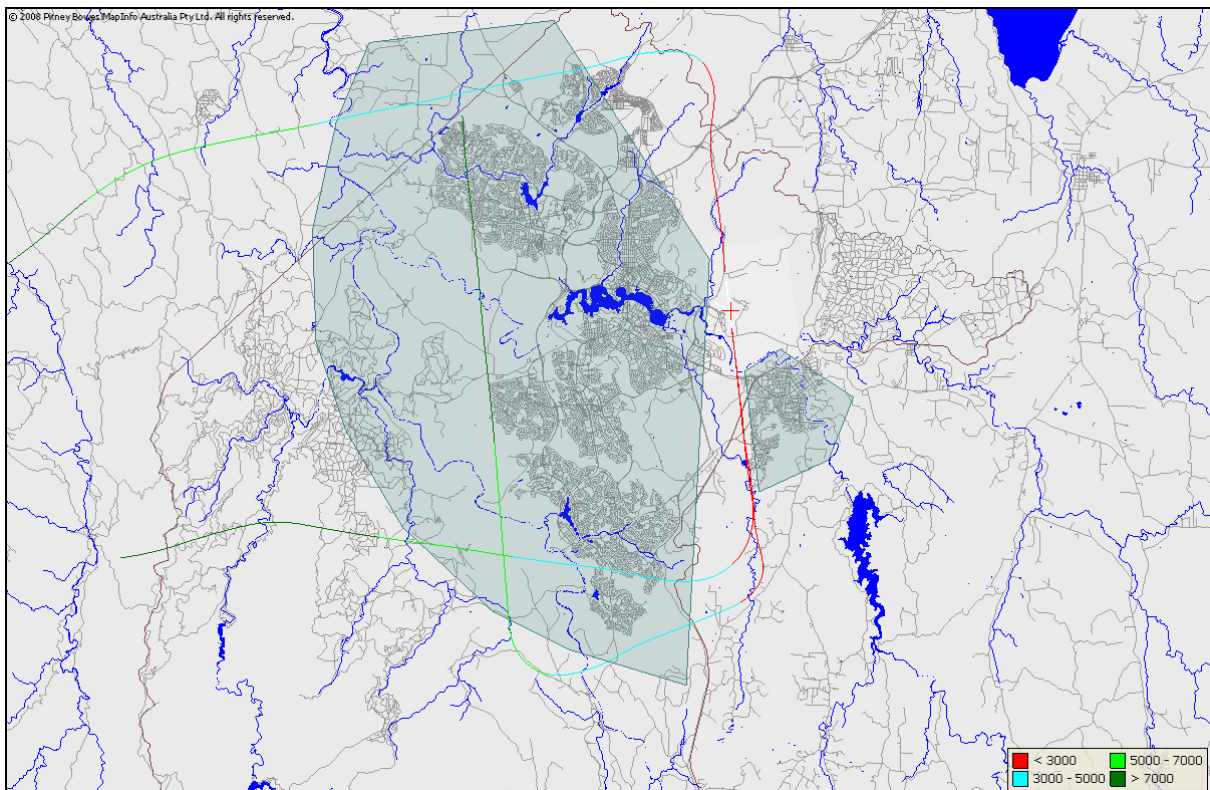


Figure 17 Military Jet Arrivals Requiring Investigation

Of the 3 military jet arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 2 cases.

Date/Time	Type	Runway	Significant Weather
26/02/2009 18:49	B737	35	
31/10/2009 15:18	CL60	35	CLD: TCU IN AREA
2/11/2009 18:25	B737	17	CB AND SHOWERS IN AREA

Table 11 Military Jet Arrivals Requiring Investigation

6.5.1.1.4 Other Jet Arrivals

There were 884 other jet arrivals in 2009, and of these, 11 flights overflowed one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 4 movements that overflowed residential areas that were neither a missed approach nor training circuit.

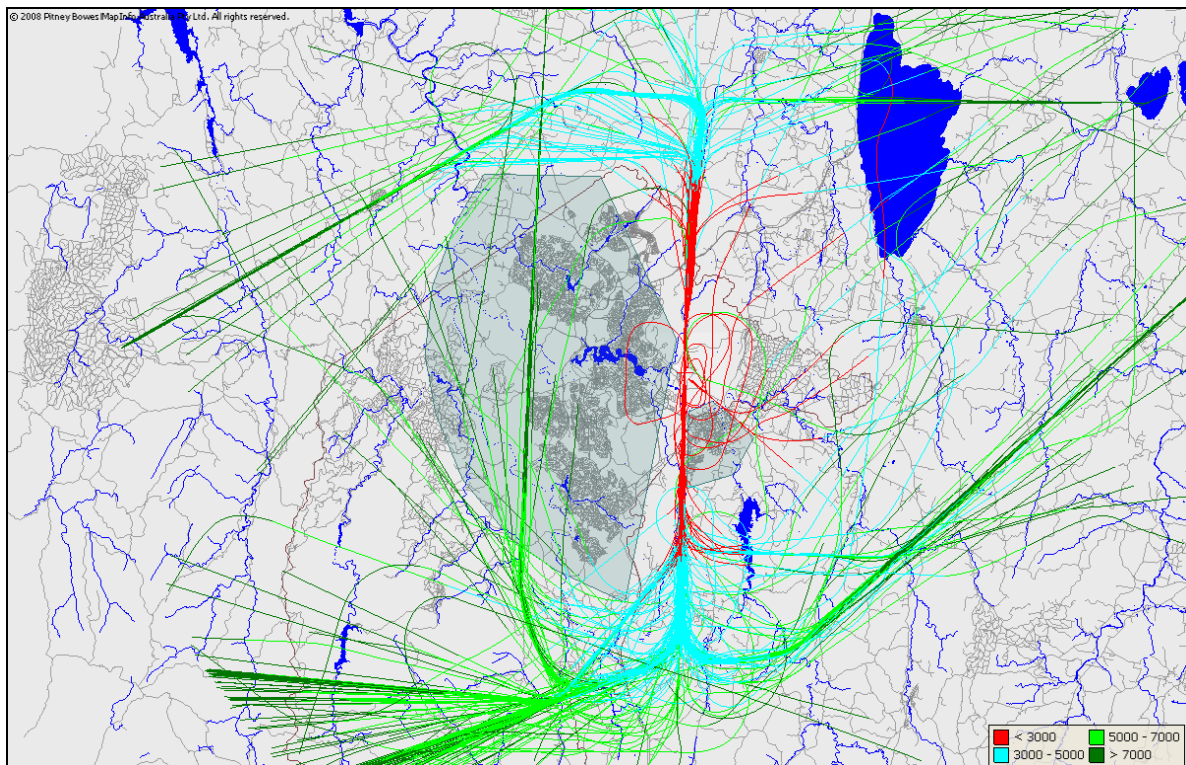


Figure 18 All Other Jet Arrivals 2009

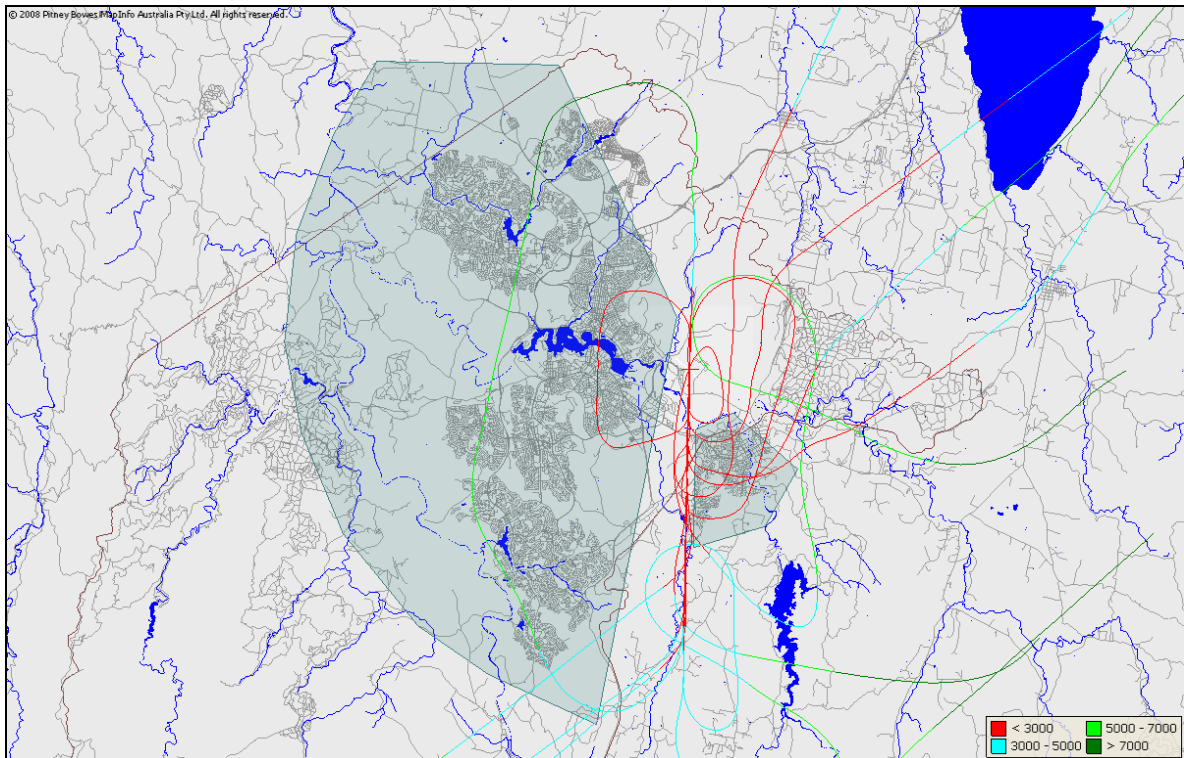


Figure 19 Other Jet Arrivals Overflying NAA

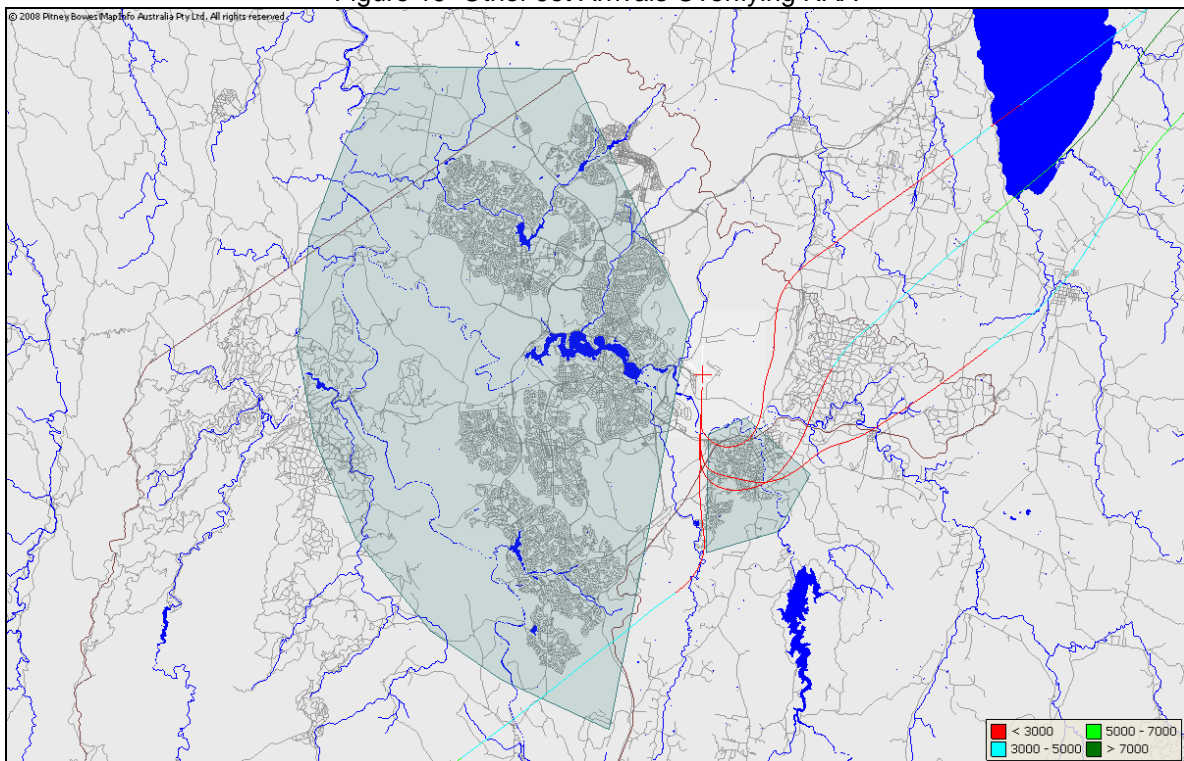


Figure 20 Other Jet Arrivals Requiring Investigation

Of the 4 other jet arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 3 cases.

Date/Time	Type	Runway	Significant Weather
28/03/2009 3:20	C550	35	
13/07/2009 8:36	BE40	35	SEV TURB FCST BLW 10000 FEET
15/07/2009 18:52	BE40	35	FEW TCU 5000, FEW035
17/12/2009 20:18	A320	35	SEV TURB FCST BLW 10000 FEET

Table 12 Other Jet Arrivals Requiring Investigation

6.5.1.2 Jet Departures

There were 16,995 jet departures in 2009, as follows:

- 7,855 Qantas departures
- 7,443 Virgin Blue departures
- 818 military departures
- 879 other jet departures.

6.5.1.2.1 Qantas Jet Departures

There were 7,855 Qantas jet departures in 2009, and of these, 47 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 35 movements that overflew residential areas that were not training circuits.

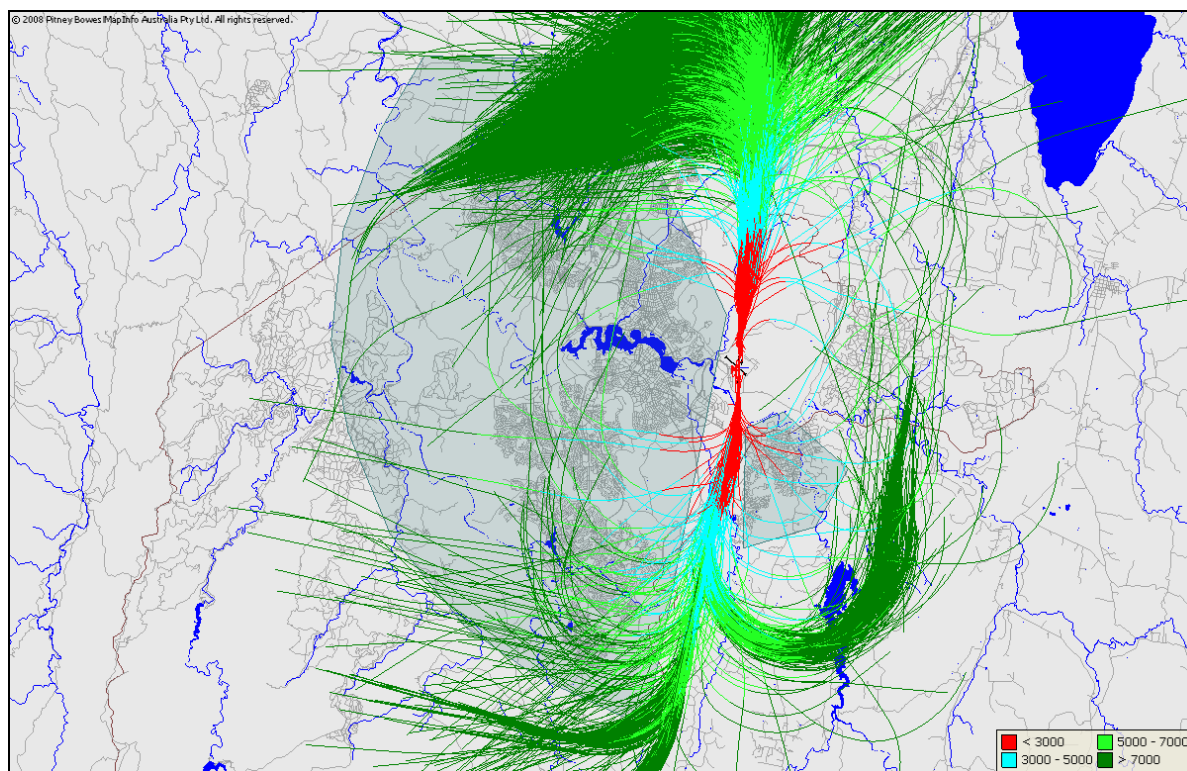


Figure 21 All Qantas Jet Departures 2009

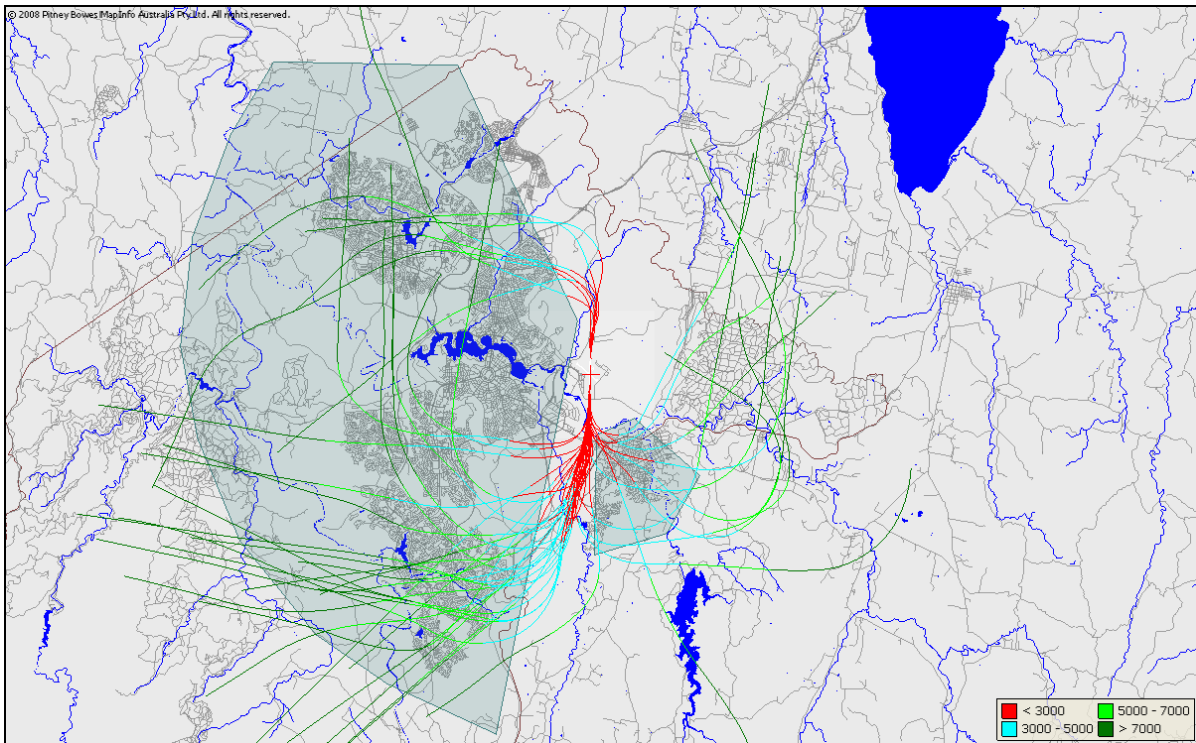


Figure 22 Qantas Jet Departures NAA

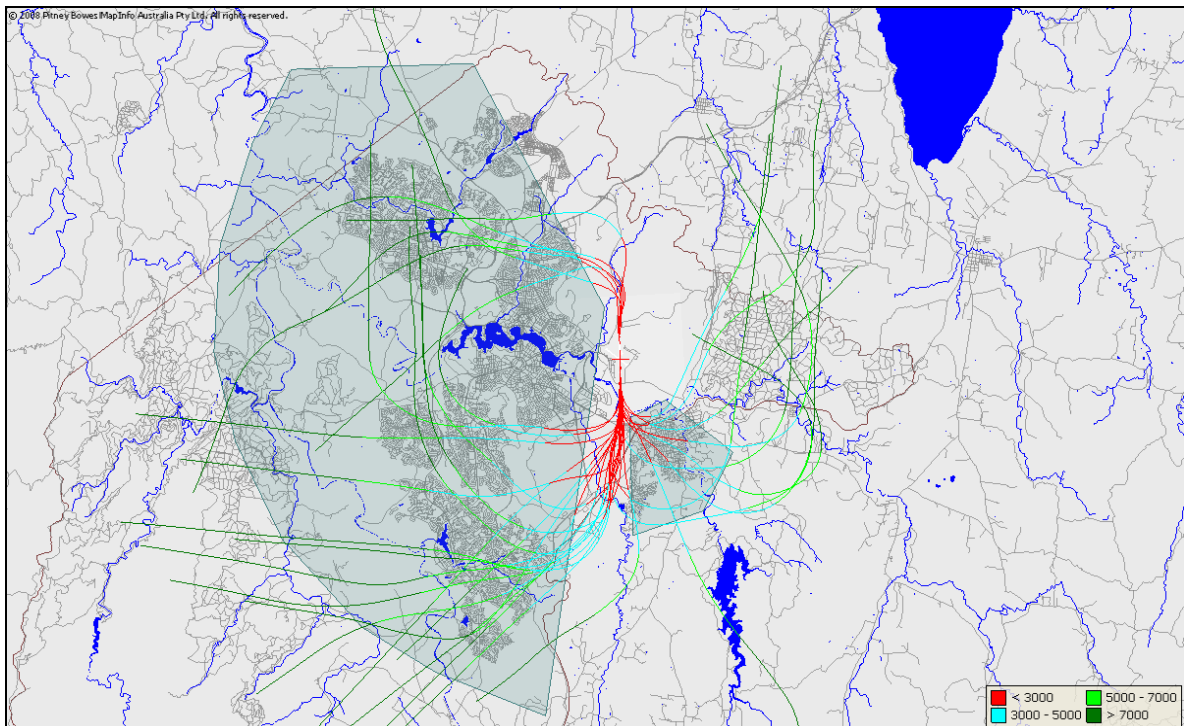


Figure 23 Qantas Jet Departures Requiring Investigation

Of the 35 Qantas jet departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 23 cases.

Date/Time	Type	Runway	Significant Weather
20/01/2009 19:23	B734	17	CB IN AREA
20/01/2009 20:56	B734	17	CB IN AREA
4/02/2009 19:30	B734	35	CB IN AREA
16/02/2009 16:08	B734	17	OCNL SEV TURB FCST BLW 10000 FEET
23/02/2009 17:12	B734	35	CB VC, FREQUENT TS
12/03/2009 21:06	B734	17	TS TO N AND SE
23/03/2009 19:30	B738	35	
29/03/2009 19:52	B738	17	
21/05/2009 9:59	B734	17	
22/05/2009 18:19	B734	17	
2/06/2009 20:02	B738	17	SEV ICING FROM 8 THOUSAND FT TO FL180
22/09/2009 17:23	B734	35	SEV TURB FCST BLW 10000 FT, FRQ TSGR OBS N OF CB
22/09/2009 20:11	B734	35	FREQUENT LIGHTNING OBS AROUND AIRPORT
2/10/2009 19:19	B734	17	SH AND TS IN AREA
2/10/2009 19:37	B734	17	SH AND TS IN AREA
2/10/2009 20:01	B734	17	SH AND TS IN AREA
2/10/2009 20:28	B738	17	SH AND TS IN AREA
25/10/2009 18:22	B734	17	TS IN AREA CLD: FEW008, SCT015, SCT025
25/10/2009 18:35	B734	17	TS IN AREA CLD: FEW008, SCT015, SCT025
28/10/2009 17:58	B734	17	
29/10/2009 16:39	B734	17	TS AND SH IN AREA CLD: FEW025
31/10/2009 19:06	B734	17	
1/11/2009 18:34	B734	17	TS AND SH TO EAST
1/11/2009 19:16	B734	17	TS AND SH TO EAST
2/11/2009 19:09	B734	17	CB AND SHOWERS IN AREA
2/11/2009 19:37	B738	17	CB AND SHOWERS IN AREA
2/11/2009 19:43	B734	17	CB AND SHOWERS IN AREA
2/11/2009 21:24	B734	17	CB AND SHOWERS IN AREA
3/11/2009 18:00	B734	35	SEV TURB FCST BLW 10000 FEET
19/11/2009 18:59	B734	17	
20/11/2009 18:28	B738	17	
30/11/2009 12:31	B734	17	
30/11/2009 16:13	B734	17	
30/11/2009 16:20	B763	17	
14/12/2009 20:41	B734	17	

Table 13 Qantas Jet Departures Requiring Investigation

6.5.1.2.2 Virgin Blue Jet Departures

There were 7,443 Virgin Blue jet departures in 2009, and of these, 37 flights overflow one or both of the NAAs below the 5,000 feet AGL threshold. None of the 37 movements that overflow residential areas were training circuits.

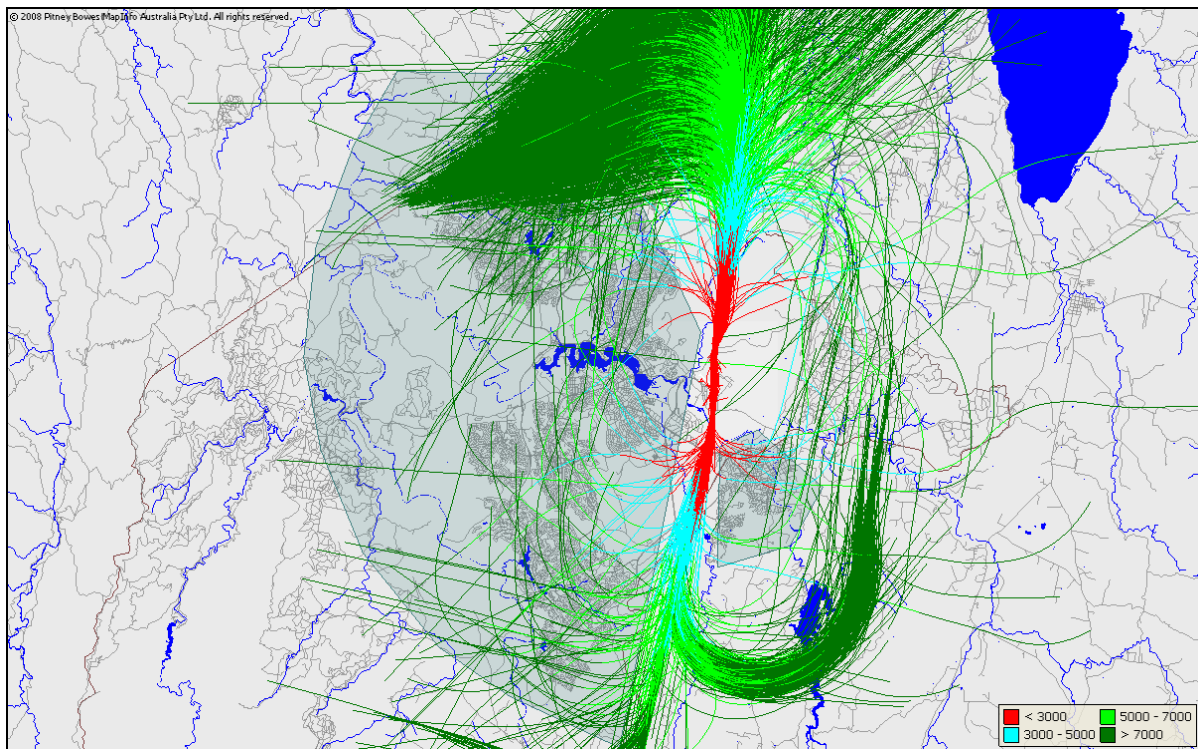


Figure 24 All Virgin Blue Jet Departures 2009

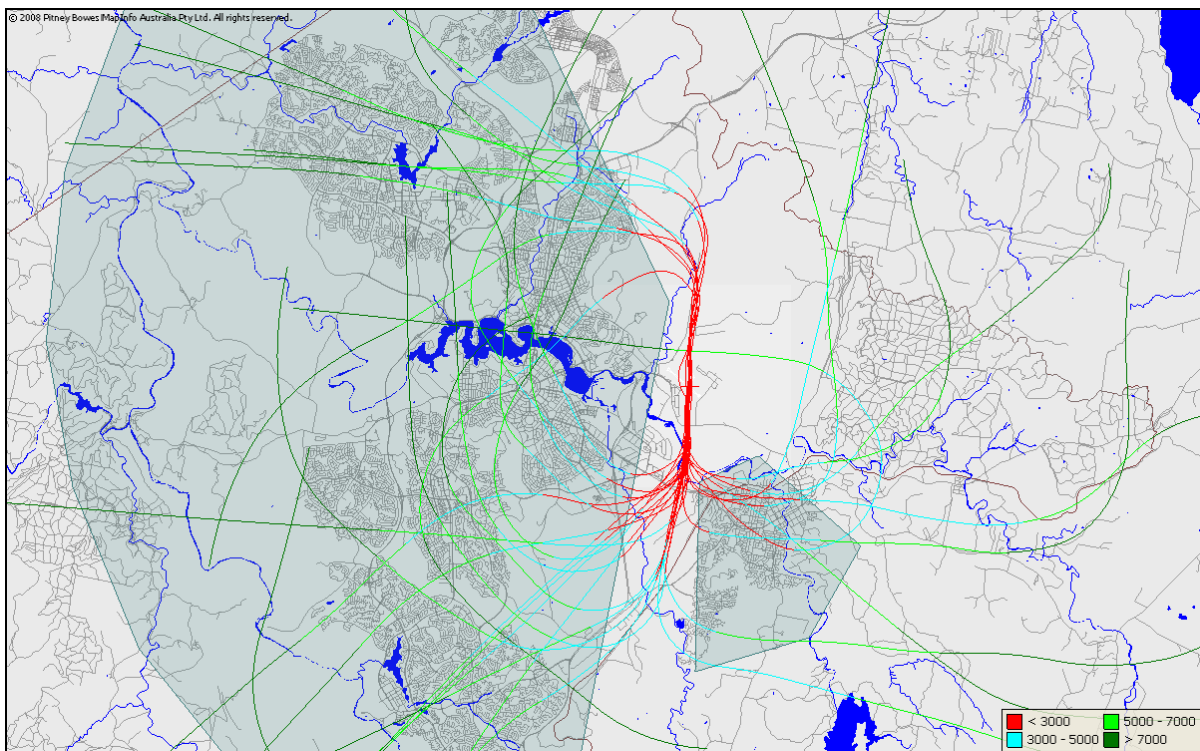


Figure 25 Virgin Blue Jet Departures Requiring Investigation

Of the 37 Virgin Blue jet departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 27 cases.

Date/Time	Type	Runway	Significant Weather
20/01/2009 21:00	E190	17	CB IN AREA
22/01/2009 20:35	E190	35	OCNL SEV TURB FCST BLW 8000 FEET
22/01/2009 20:38	E190	35	OCNL SEV TURB FCST BLW 8000 FEET
2/02/2009 19:56	E170	17	CLD: TOWERING CU OBS TO THE SOUTH AND EAST
3/02/2009 16:31	B737	17	CLD: FEW TCU 6000 FT, FEW CB 6000 FT
23/02/2009 16:47	E190	35	CB VC, FREQUENT TS
23/02/2009 17:09	E170	35	CB VC, FREQUENT TS
23/02/2009 17:17	B737	35	CB VC, FREQUENT TS
26/03/2009 16:28	E190	35	EXP TURB OVER RWY 35. S OF RWY INT
1/04/2009 12:39	E170	17	OCNL SEV TURB FCST BLW 10000 FEET
21/05/2009 9:46	E170	17	
21/05/2009 9:57	E170	17	
22/05/2009 18:35	E190	17	
8/09/2009 17:30	E190	35	EXP TURB OVER RWY 35 S OF RWY INT
2/10/2009 18:29	E190	17	SH AND TS IN AREA, CLD: SCT018, SCT022, FEW035
2/10/2009 19:31	E170	17	SH AND TS IN AREA, CLD: SCT018, SCT022, FEW035
2/10/2009 19:43	B737	17	SH AND TS IN AREA, CLD: SCT018, SCT022, FEW035
2/10/2009 20:21	E170	17	SH AND TS IN AREA, CLD: SCT018, SCT022, FEW035
5/10/2009 17:02	B737	17	TS IN AREA, CLD FEW020, FEW040, FEW CB BSE 5000 FT
5/10/2009 17:40	E190	35	TS IN AREA, CLD FEW020, FEW040, FEW CB BSE 5000 FT
25/10/2009 17:22	B738	17	
28/10/2009 17:09	E170	17	
28/10/2009 17:16	B738	17	
31/10/2009 18:15	E170	17	TS IN AREA CLD: FEW CB 5000 FT
1/11/2009 18:36	E190	17	TS AND SH TO EAST CLD: FEW CB 5000 FT
2/11/2009 19:11	E170	17	CB AND SHOWERS IN AREA CLD: FEW050
2/11/2009 19:39	B738	17	CB AND SHOWERS IN AREA
30/11/2009 12:59	E190	17	CB AND SHOWERS IN AREA
30/11/2009 13:04	E170	17	CB AND SHOWERS IN AREA
30/11/2009 14:08	E170	17	CB AND SHOWERS IN AREA
30/11/2009 14:17	E190	17	CB AND SHOWERS IN AREA
30/11/2009 15:55	E170	17	
30/11/2009 16:05	E170	17	
30/11/2009 17:42	E190	17	
30/11/2009 18:04	E190	17	
8/12/2009 19:58	E170	17	OCNL SEV TURB FCST BLW 10000 FEET
31/12/2009 17:31	E190	35	OCNL SEV TURB FCST BLW 10000 FEET

Table 14 Virgin Blue Jet Departures Requiring Investigation

6.5.1.2.3 Military Jet Departures

There were 818 military jet departures in 2009, and of these, 7 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. The movements that overflew residential areas that were not training circuits.

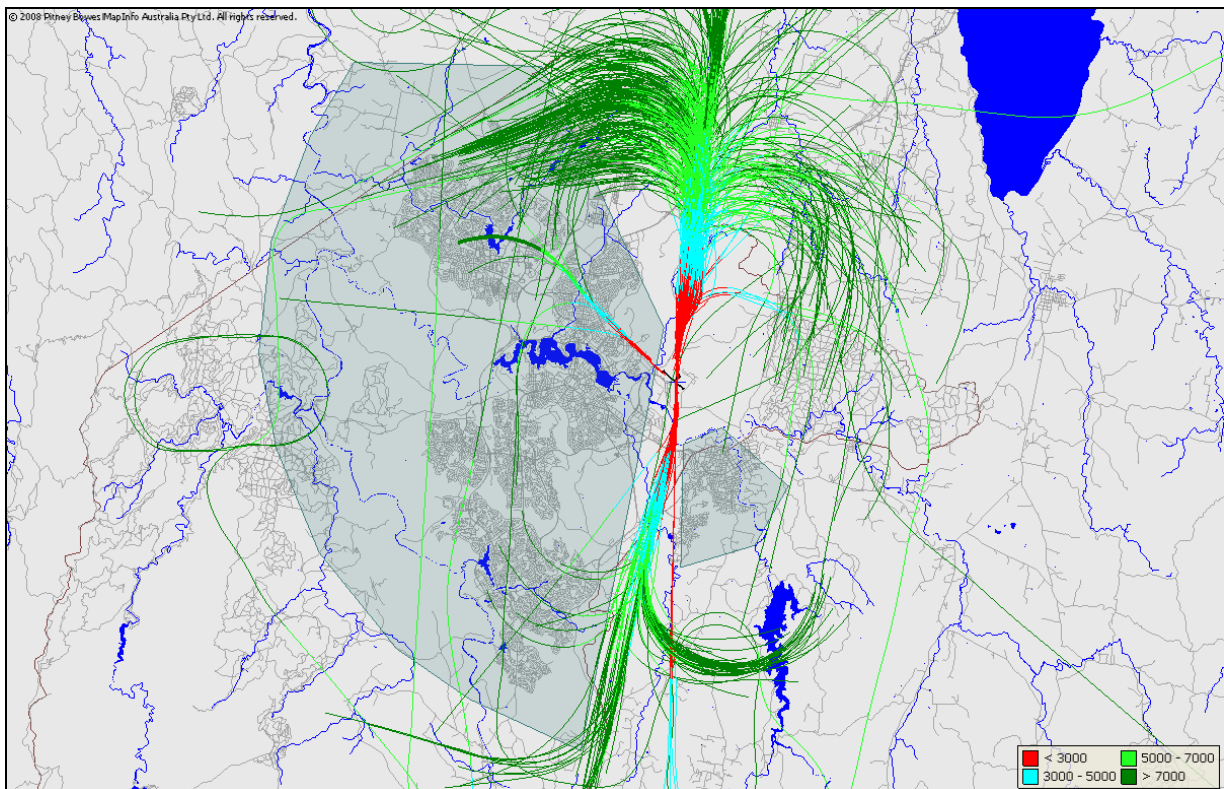


Figure 26 All Military Jet Departures 2009

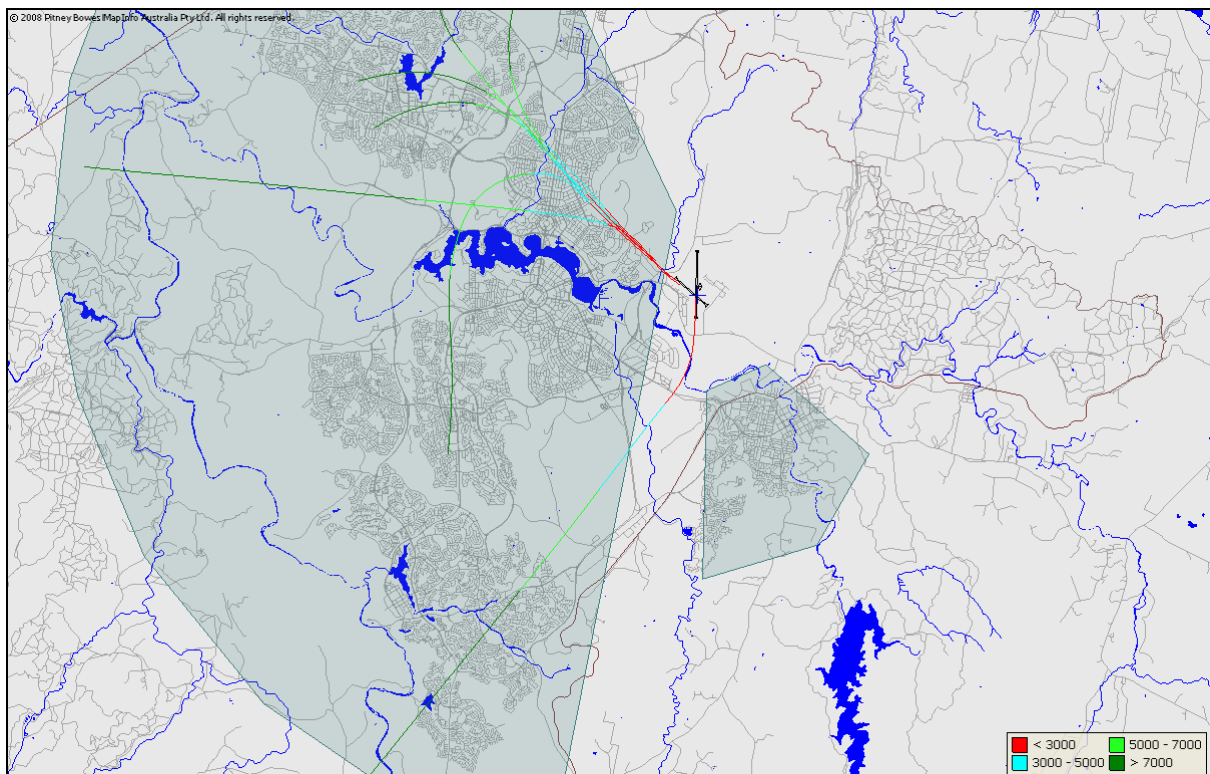


Figure 27 Military Jet Departures Requiring Investigation

Of the 7 military jet departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in all 7 cases.

Date/Time	Type	Runway	Significant Weather
24/01/2009 11:10	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
15/04/2009 15:37	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
1/07/2009 13:15	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
1/07/2009 16:13	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
3/08/2009 10:12	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
29/11/2009 12:34	CL60	30	OCNL SEV TURB FCST BLW 10000 FEET
31/12/2009 17:31	CL60	17	CB IN AREA CLD: FEW018 SCT030

Table 15 Military Jet Departures Requiring Investigation

6.5.1.2.4 Other Jet Departures

There were 879 other jet departures in 2009, and of these, 15 flights overflew one or both of the NAAs below the 5,000 feet AGL threshold. There were a total of 5 movements that overflew residential areas that were not training circuits.

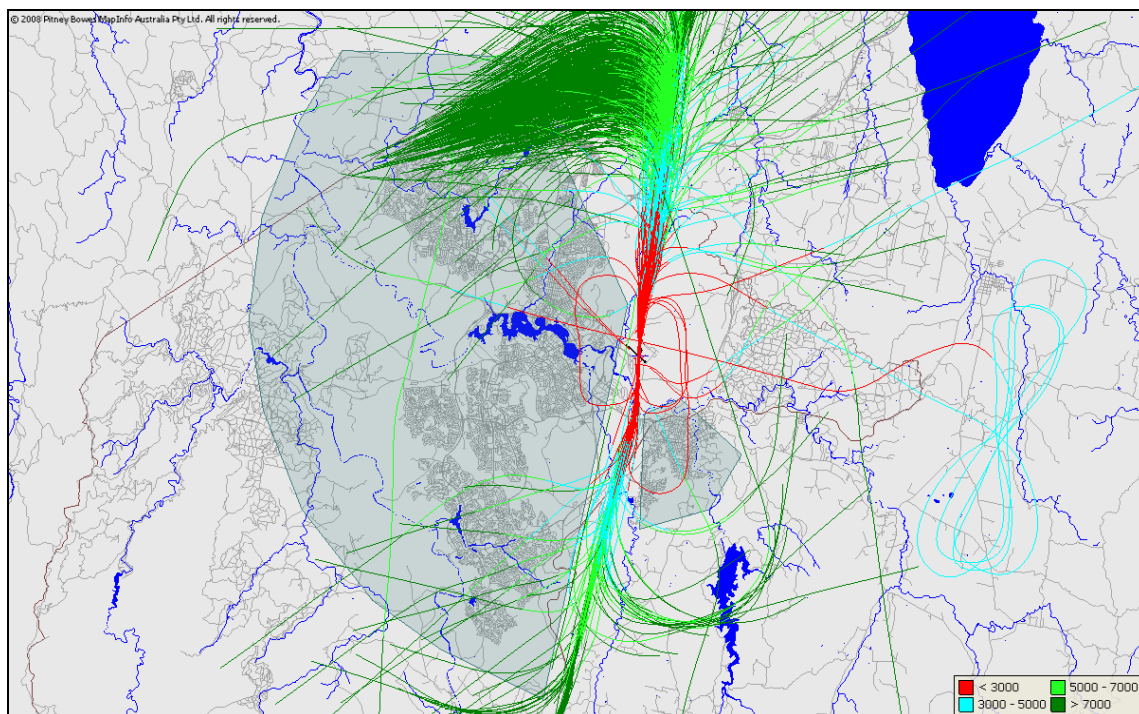


Figure 28 All Other Jet Departures 2009

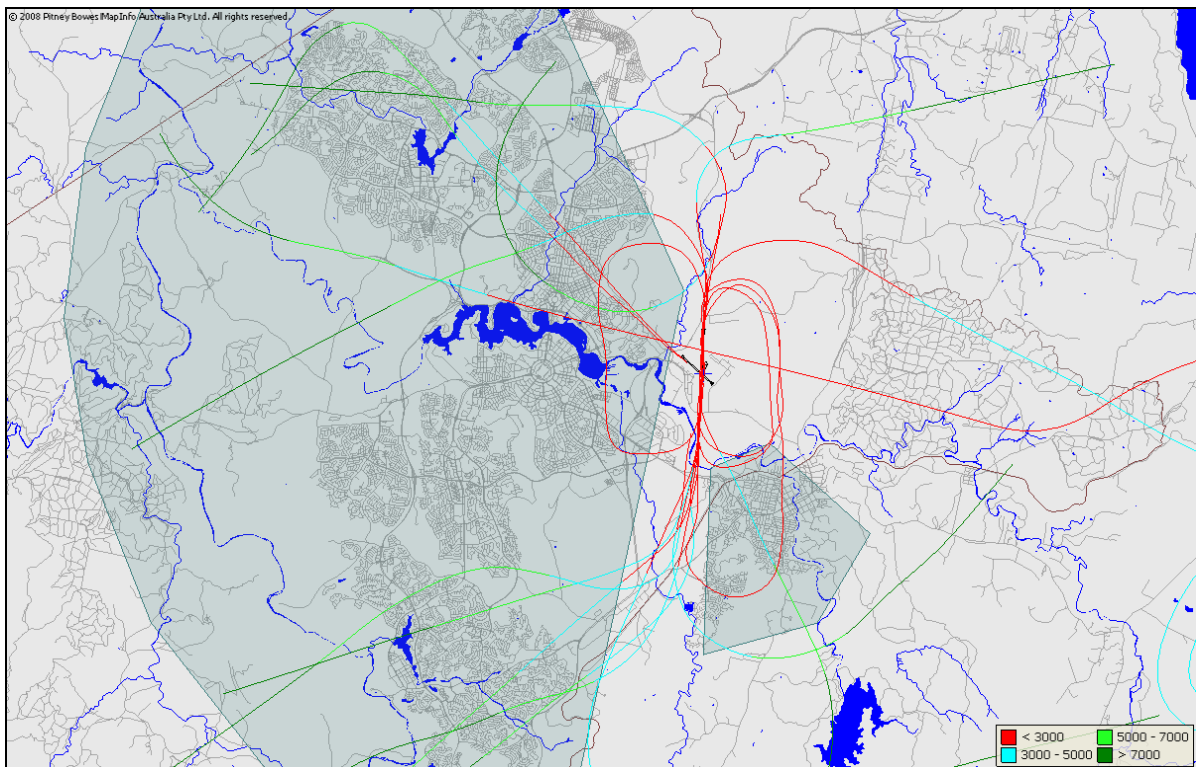


Figure 29 Other Jet Departures Overflying NAA

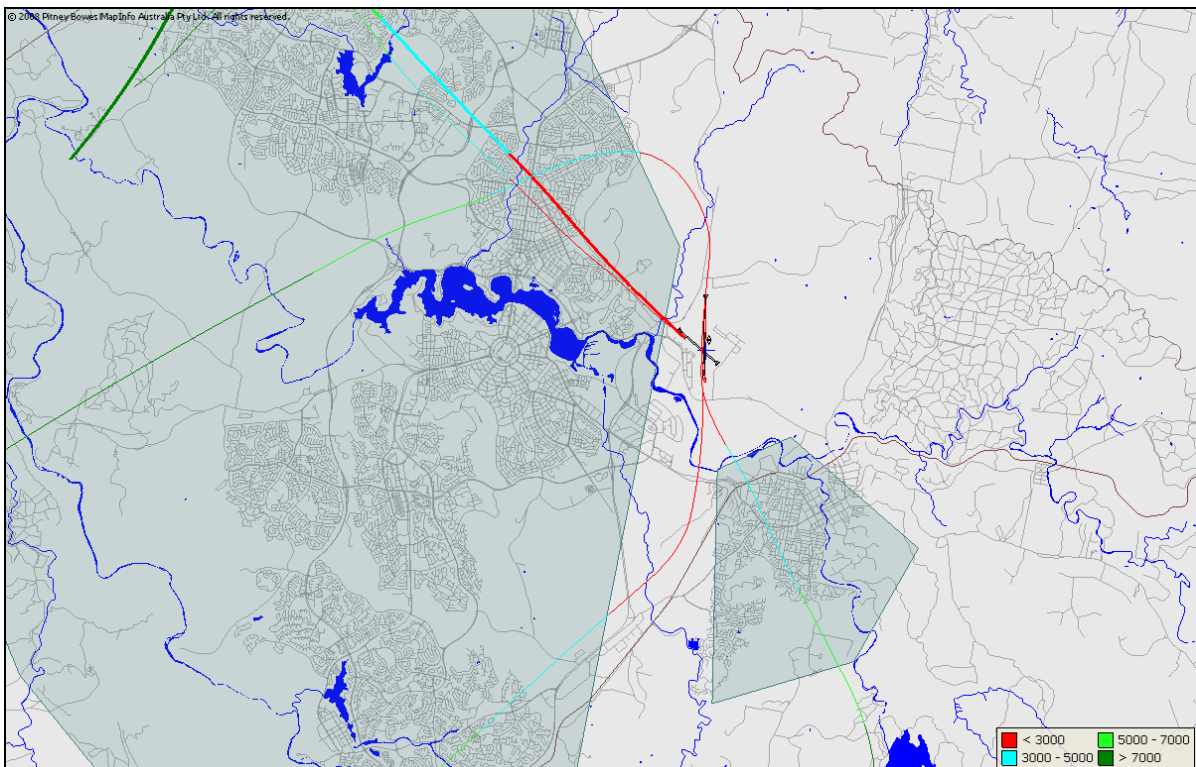


Figure 30 Other Jet Departures Requiring Investigation

Of the 5 other jet departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 4 cases.

Date/Time	Type	Runway	Significant Weather
6/01/2009 16:36	C52S5	30	EXP TURB OVER RWY 35, S OF RWY INT
23/02/2009 15:43	CL60	35	SH IN AREA, CB VC FREQUENT TS
23/02/2009 16:54	C550	30	SH IN AREA, CB VC FREQUENT TS
2/11/2009 18:59	A320	17	CB AND SHOWERS IN AREA
30/11/2009 12:43	F2TH	17	

Table 16 Other Jet Departures Requiring Investigation

6.5.2 Turboprop Aircraft

6.5.2.1 Turboprop Arrivals

There were 7,249 turboprop arrivals in 2009, as follows:

- 4,896 Qantas Link turboprop arrivals
- 1,186 Brindabella turboprop arrivals
- 1,167 other turboprop arrivals.

6.5.2.1.1 Qantas Link Turboprop Arrivals

There were 4,896 Qantas Link turboprop arrivals in 2009, and of these, 39 flights overflowed one or both of the NAAs below the 3,000 feet AGL threshold. There were a total of 4 movements that overflowed residential areas that were neither a missed approach nor training circuit.

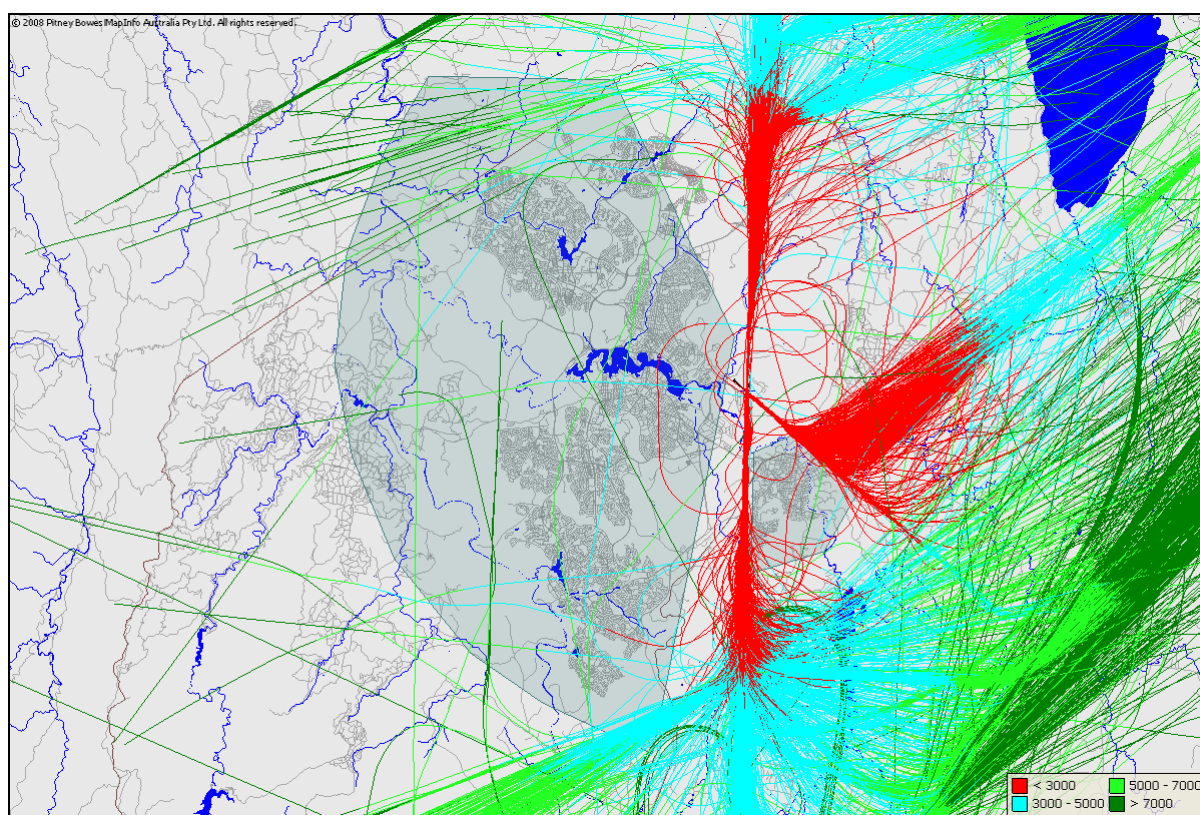


Figure 31 All Qantas Link Turboprop Arrivals 2009

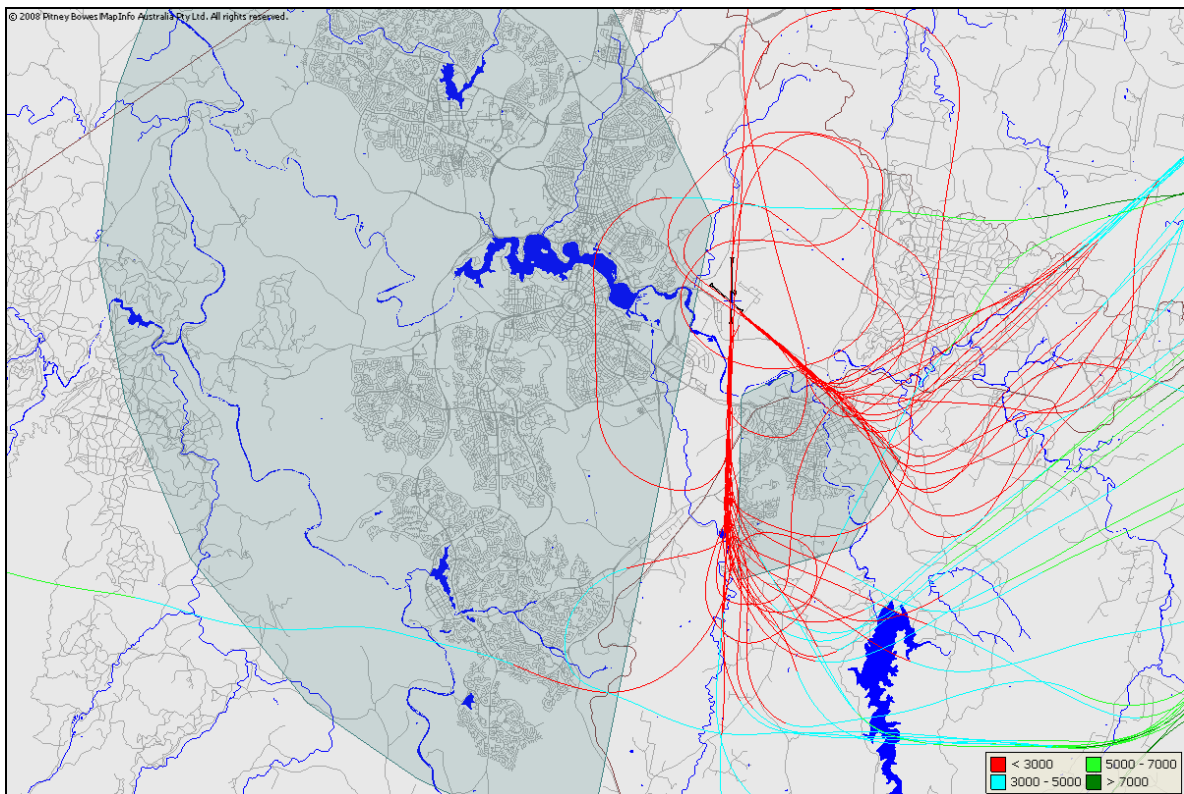


Figure 32 Qantas Link Turboprop Arrivals Overflying NAA

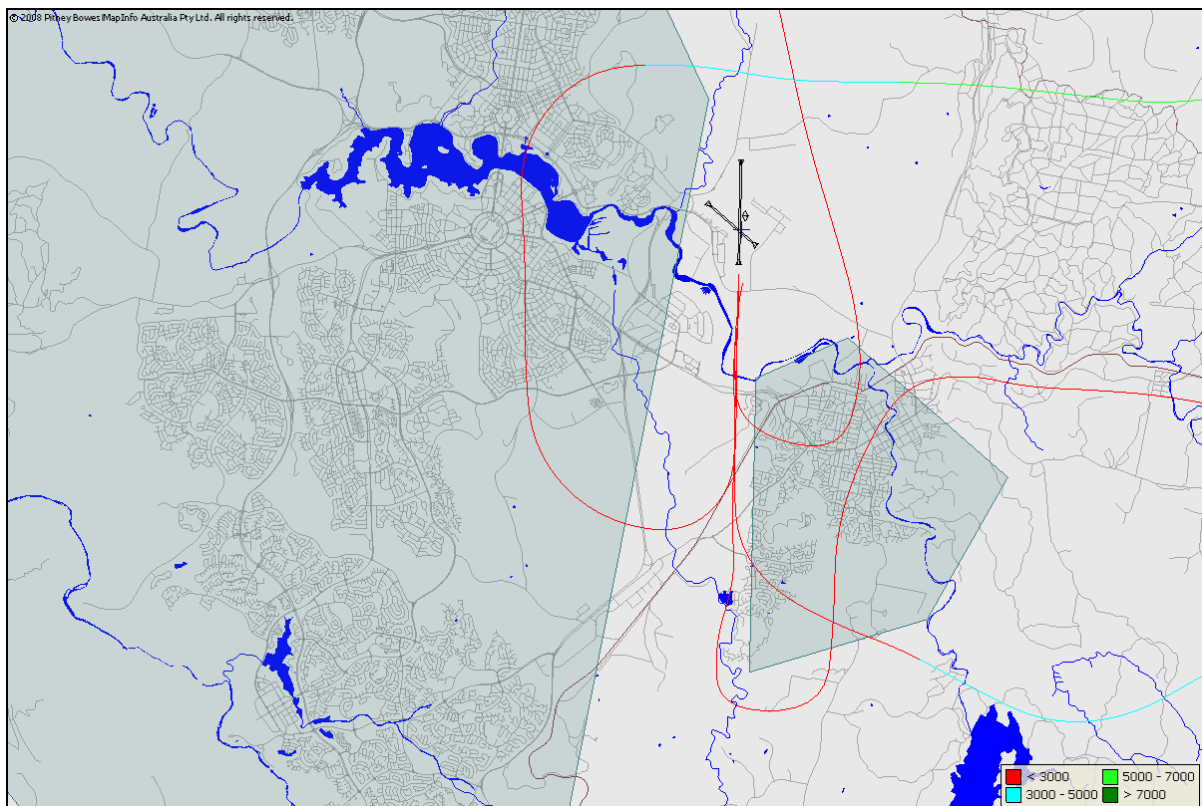


Figure 33 Qantas Link Turboprop Arrivals Requiring Investigation

Of the 4 Qantas Link turboprop arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 2 cases.

Date/Time	Type	Runway	Significant Weather
16/01/2009 20:58	DH8D	17	
14/04/2009 14:16	DH8D	35	TS IN AREA
16/04/2009 12:14	DH8B	35	
24/08/2009 10:38	DH8D	35	SEV TURB FCST BLW 10000 FEET

Table 17 Qantas Link Turboprop Arrivals Requiring Investigation

6.5.2.1.2 *Brindabella Turboprop Arrivals*

There were 1,186 Brindabella turboprop arrivals in 2009, and of these, 36 flights overflowed one or both of the NAAs below the 3,000 feet AGL threshold. There were a total of 7 movements that overflowed residential areas that were neither a missed approach nor training circuit.

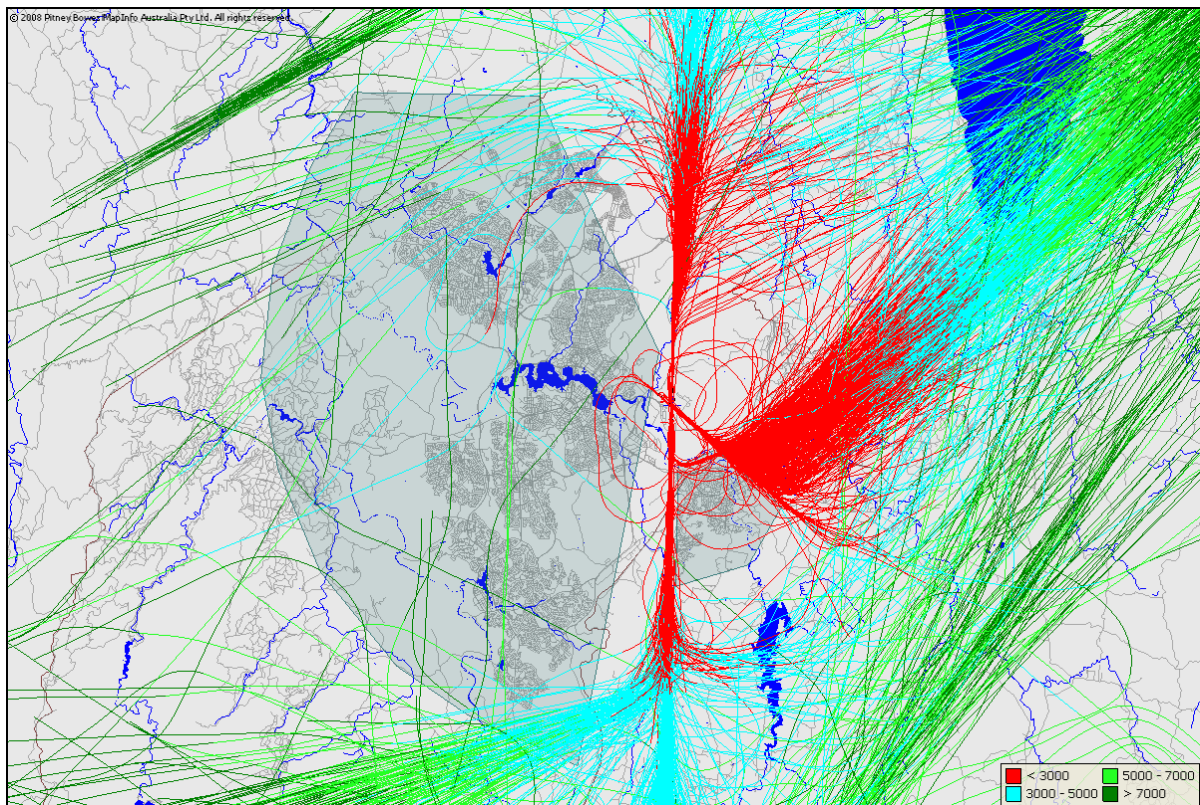


Figure 34 All Brindabella Turboprop Arrivals 2009

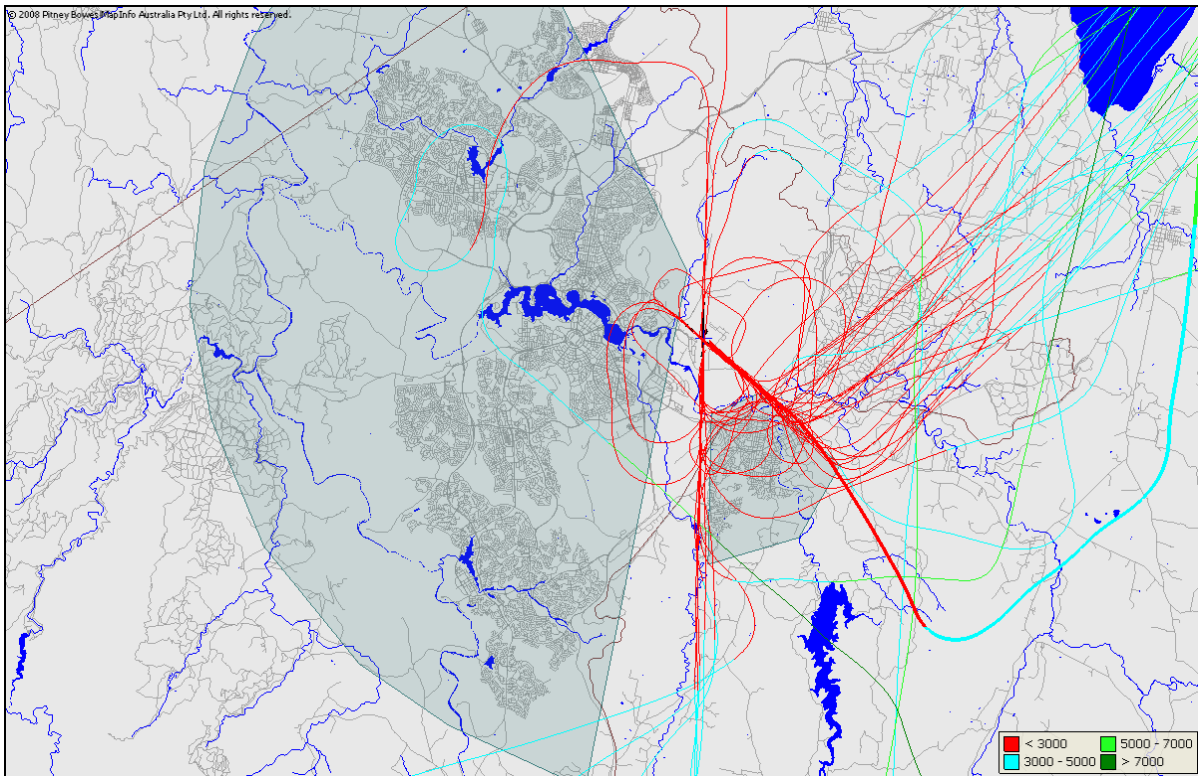


Figure 35 Brindabella Turboprop Arrivals Overflying NAA

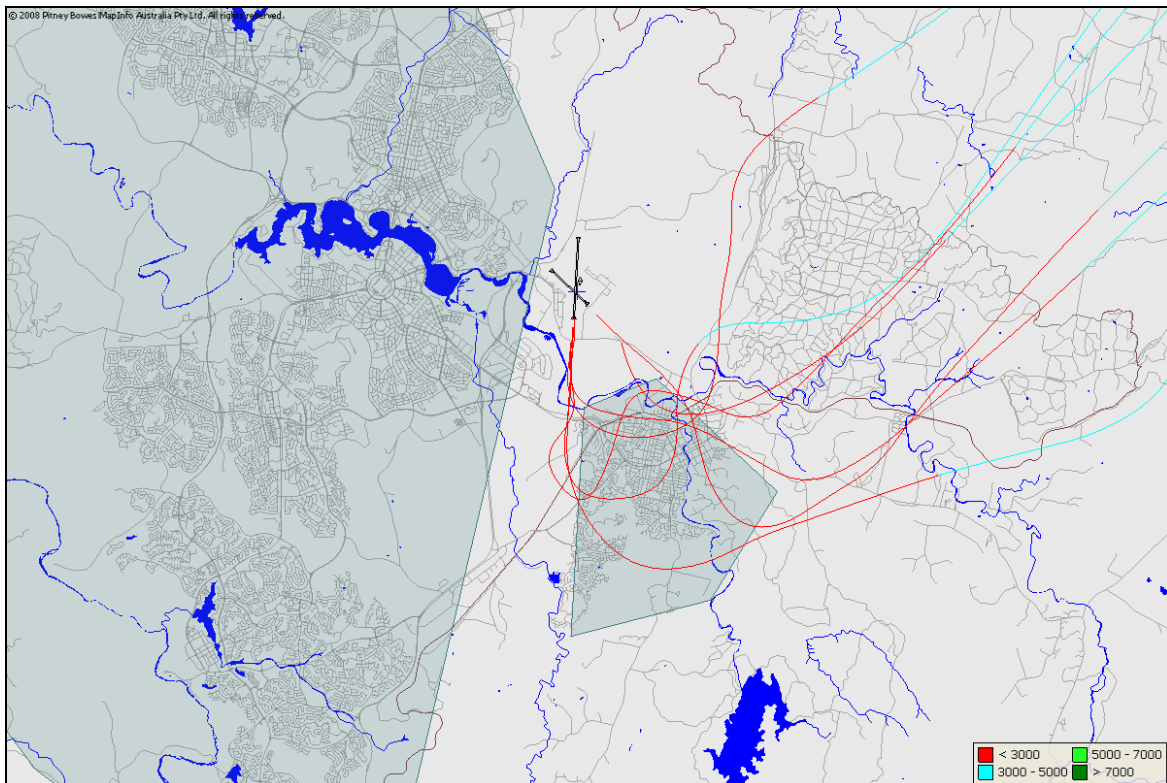


Figure 36 Brindabella Turboprop Arrivals Requiring Investigation

Of the 7 Brindabella turboprop arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 2 cases.

Date/Time	Type	Runway	Significant Weather
8/01/2009 15:59	JS41	35	
18/01/2009 20:05	JS41	35	
23/02/2009 16:08	SW4	30	CB VC CLD: FEW050
10/03/2009 9:02	JS41	35	
19/06/2009 15:52	SW4	35	
3/09/2009 19:43	JS41	30	OCNL SEV TURB FCST BLW 10000 FEET
6/11/2009 15:43	JS41	35	

Table 18 Brindabella Turboprop Arrivals Requiring Investigation

6.5.2.1.3 Other Turboprop Arrivals

There a total of 1,167 other turboprop arrivals in 2009; and of these 186 flights overflow one or both of the NAAs below the 3,000 feet AGL threshold. After excluding medical flights, there were a total of 5 movements that overflow residential areas that were neither a missed approach nor training circuit and were greater than 5,700 kg MTOW. Turboprops below 5,700 kg are not required to avoid the NAAs.

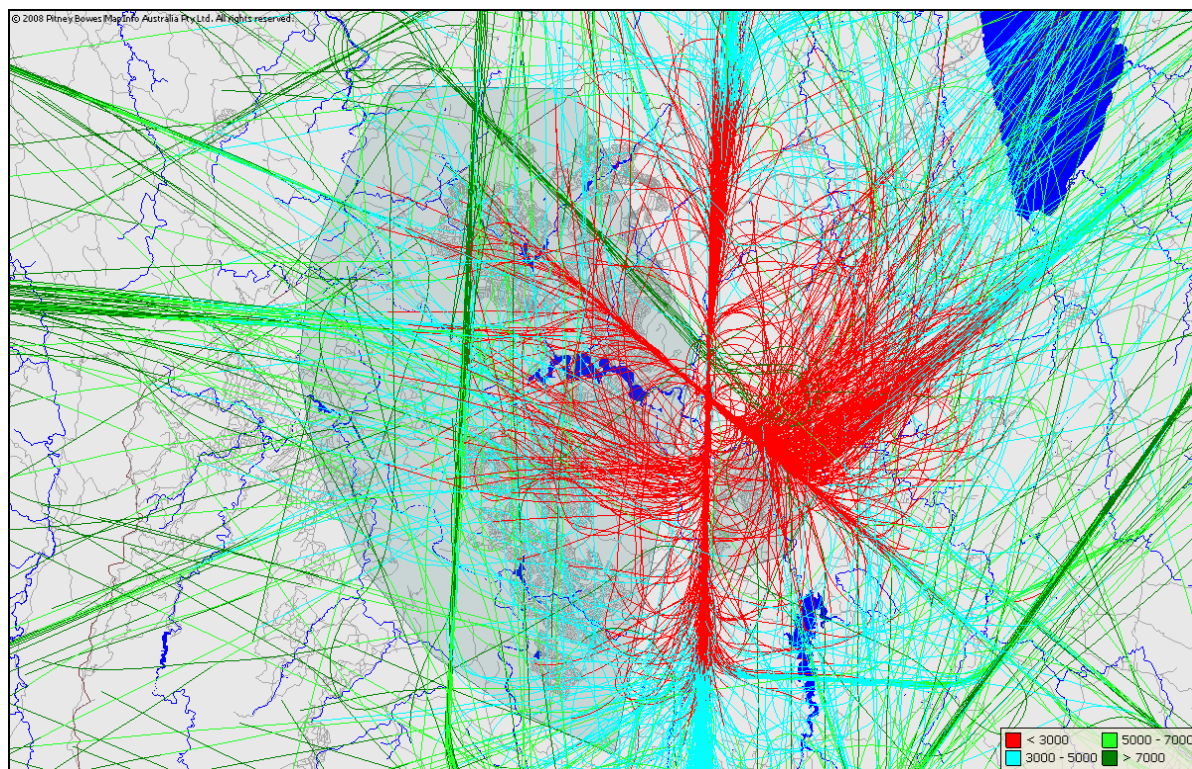


Figure 37 Other Turboprop Arrivals Requiring Investigation

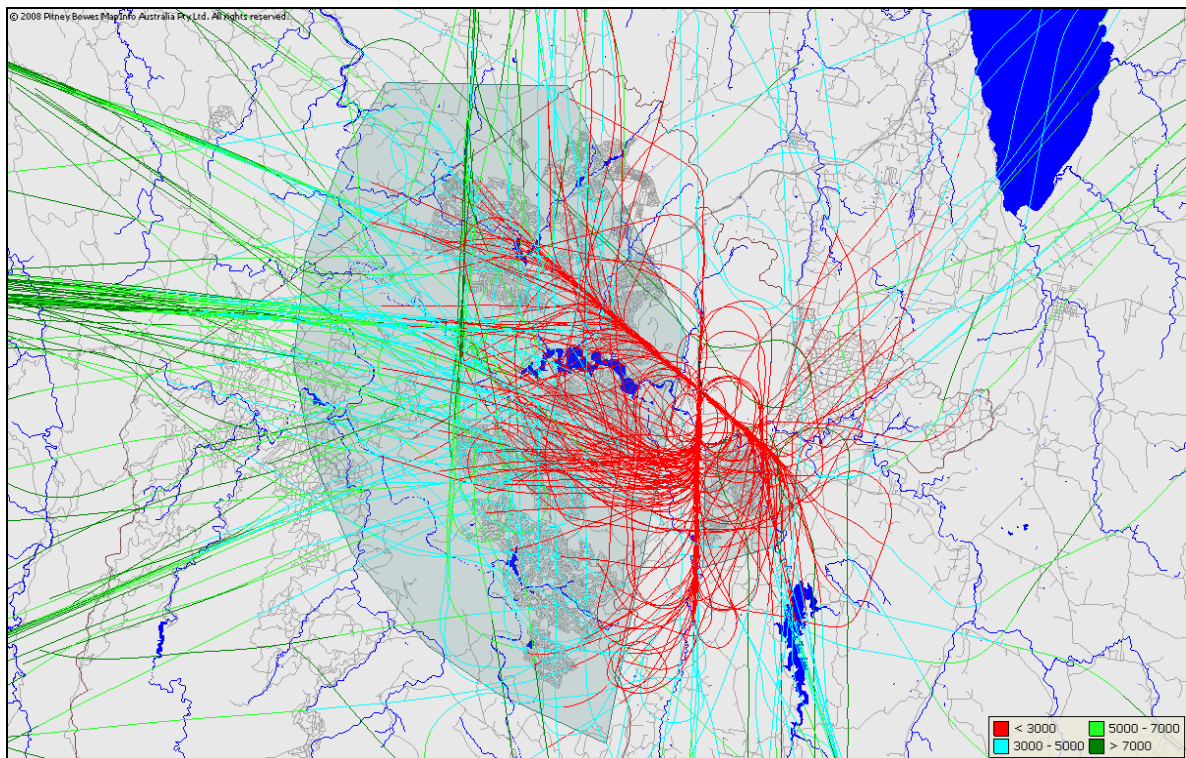


Figure 38 Other Turboprop Arrivals Overflying NAAs

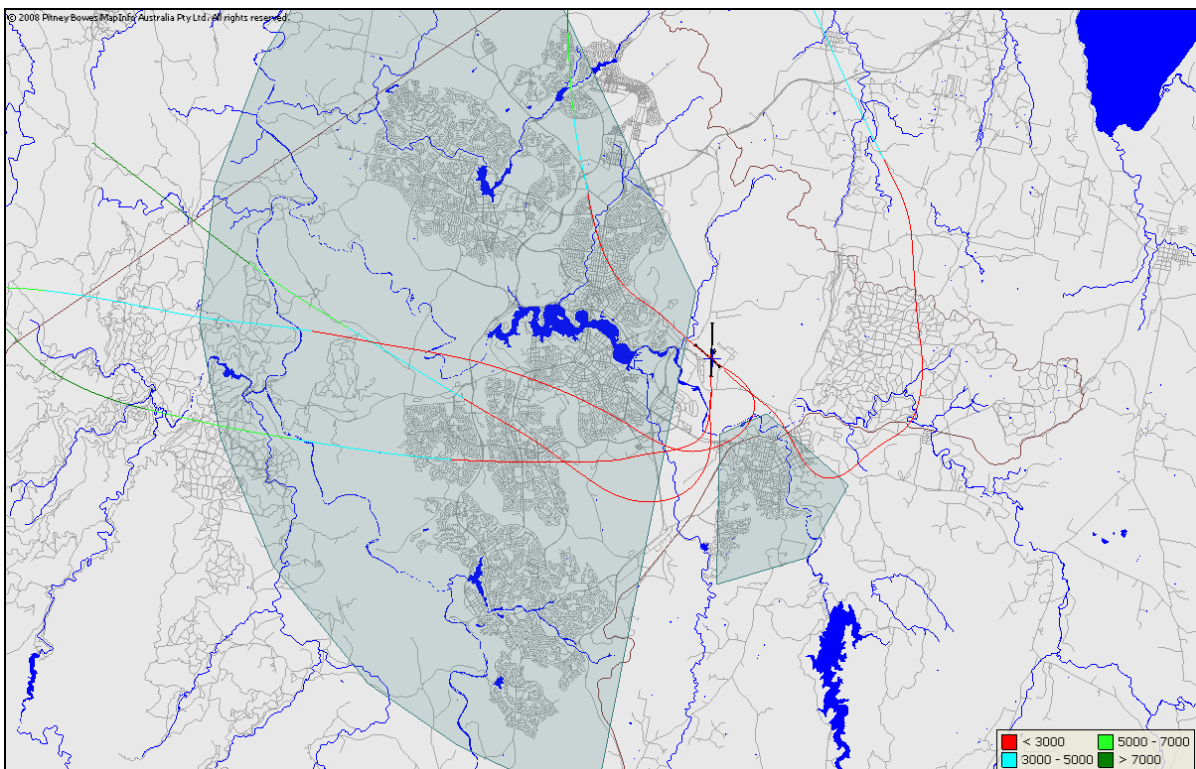


Figure 39 Other Turboprop Arrivals Requiring Investigation

Of the 5 other turboprop arrivals requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 1 case only.

Date/Time	Type	Runway	Significant Weather
2/03/2009 16:46	SW4	12	
27/05/2009 16:06	SW4	30	
11/09/2009 12:17	SW3	35	
11/12/2009 13:42	SW4	30	EXP TURB OVER RWY 35 S OF RWY INT
20/12/2009 20:51	SW4	35	

Table 19 Brindabella Turboprop Arrivals Requiring Investigation

6.5.2.2 Turboprop Departures

There were 7,241 turboprop departures in 2009, as follows:

- 4,874 Qantas Link turboprop departures
- 1,185 Brindabella turboprop departures
- 1,182 other turboprop departures.

6.5.2.2.1 Qantas Link Turboprop Departures

There were 4,874 turboprop departures in 2009, and of these, 13 flights overflowed one or both of the NAAs below the 3,000 feet AGL threshold. There were a total of 7 movements that overflowed residential areas that were not training circuits.

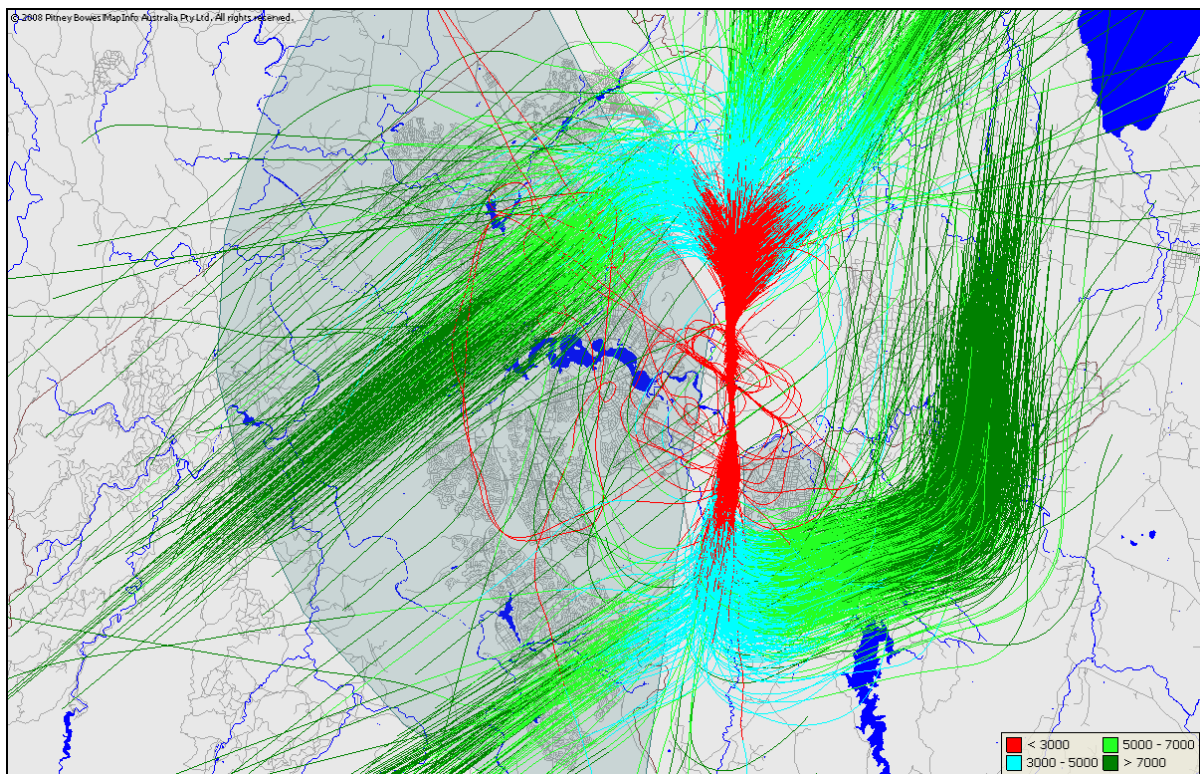


Figure 40 All Qantas Link Turboprop Departures 2009

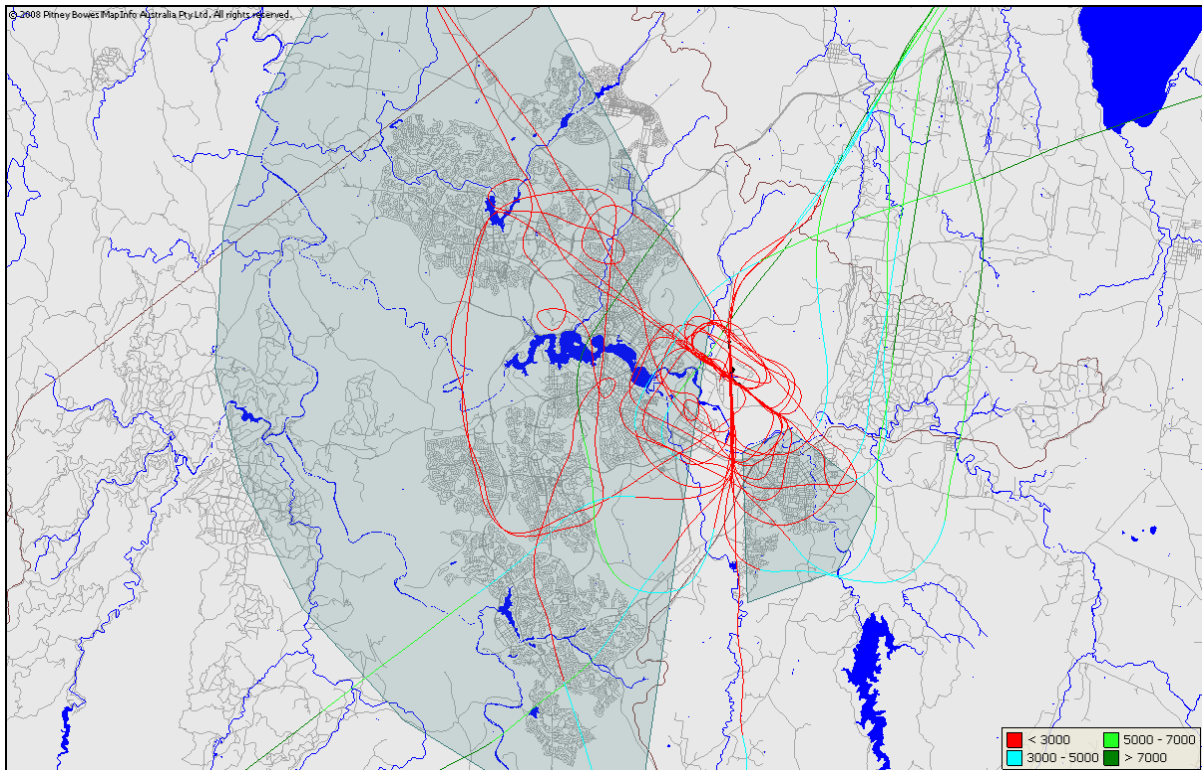


Figure 41 Qantas Link Turboprop Departures Overflying NAA

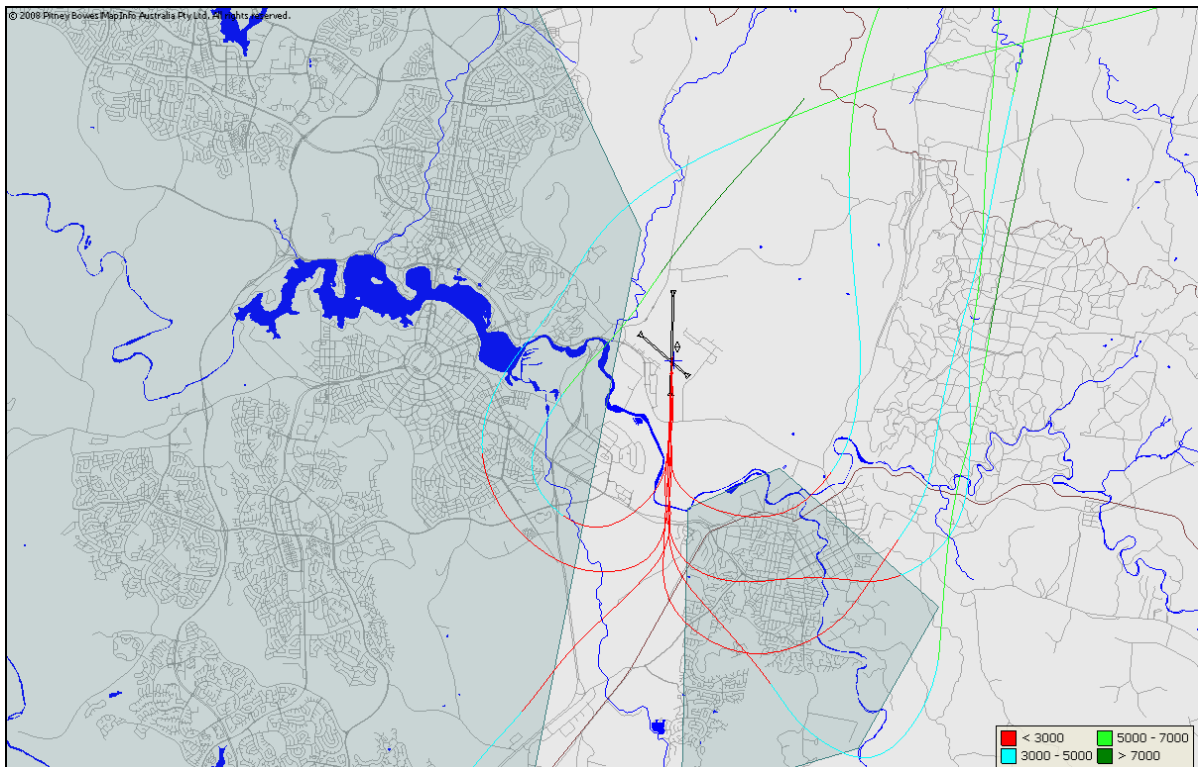


Figure 42 Qantas Link Turboprop Departures Requiring Investigation

Of the 7 Qantas Link turboprop departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in all 7 cases.

Date/Time	Type	Runway	Significant Weather
11/01/2009 14:09	DH8C	17	CB IN AREA
20/01/2009 15:11	DH8D	17	CLD: SCT050, CB TO THE WEST
20/01/2009 19:49	DH8D	17	CLD: SCT050, CB IN AREA.
25/10/2009 15:53	DH8C	17	TS IN AREA
30/10/2009 13:58	DH8C	17	CLD: FEW040 FEW TCU 4500 FT
20/11/2009 17:26	DH8C	17	EXP TURB OVER RWY 35 S OF RWY INT
30/11/2009 14:04	DH8C	17	SH AND CB IN AREA

Table 20 Qantas Link Turboprop Departures Requiring Investigation

6.5.2.2.2 *Brindabella Turboprop Departures*

There were 1,185 Brindabella turboprop departures in 2009, and of these, 14 flights overflowed one or both of the NAAs below the 3,000 feet AGL threshold. There were a total of 4 movements that overflowed residential areas that were not training circuits.

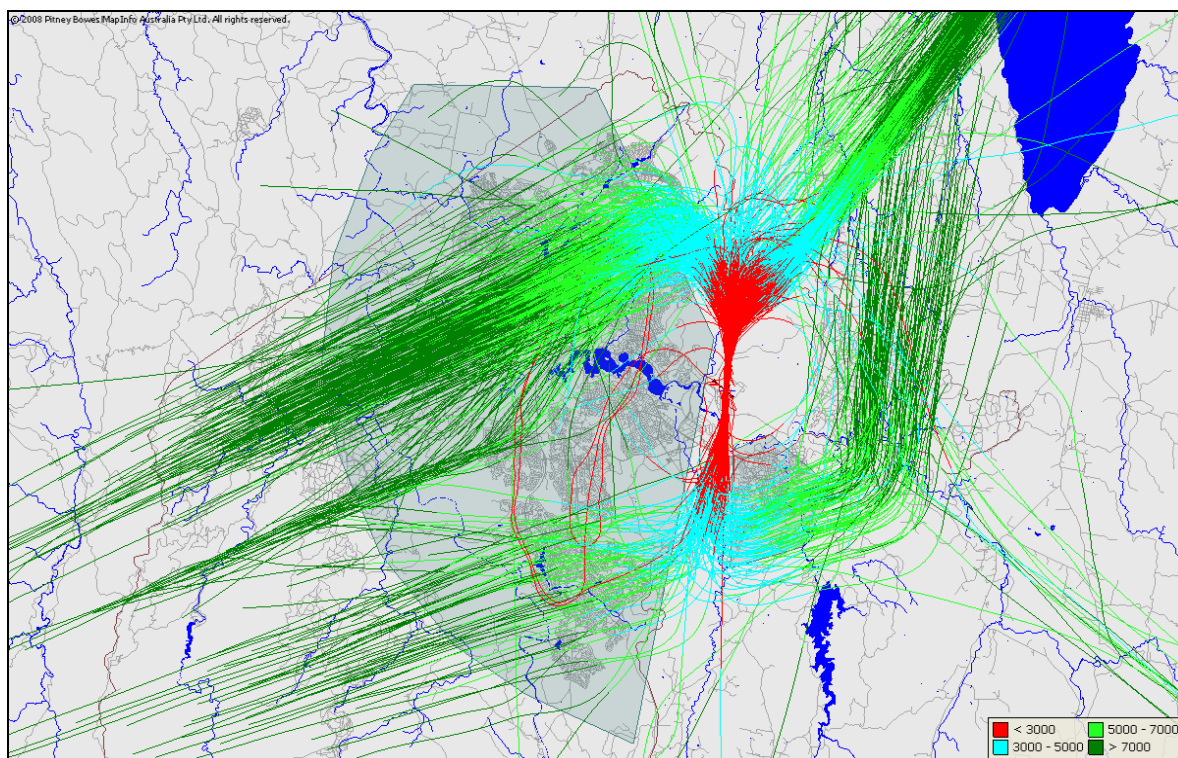


Figure 43 All Brindabella Turboprop Departures 2009

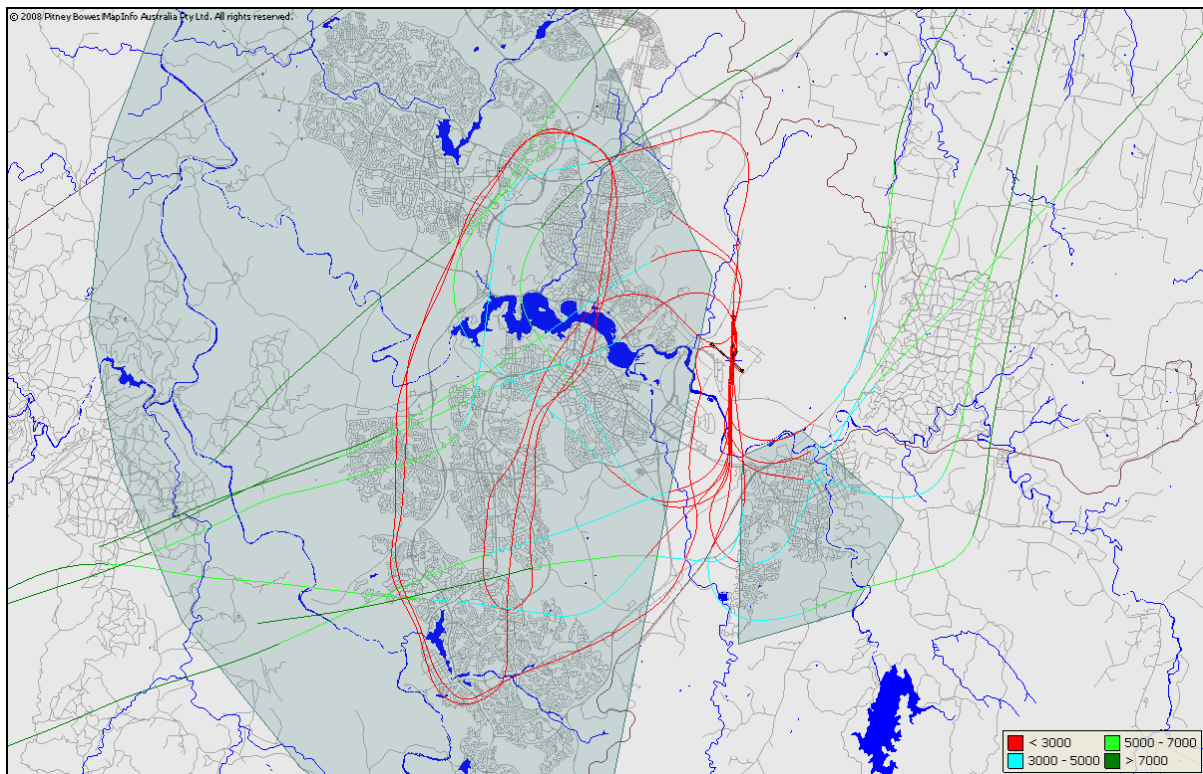


Figure 44 Brindabella Turboprop Departures Overflying NAA

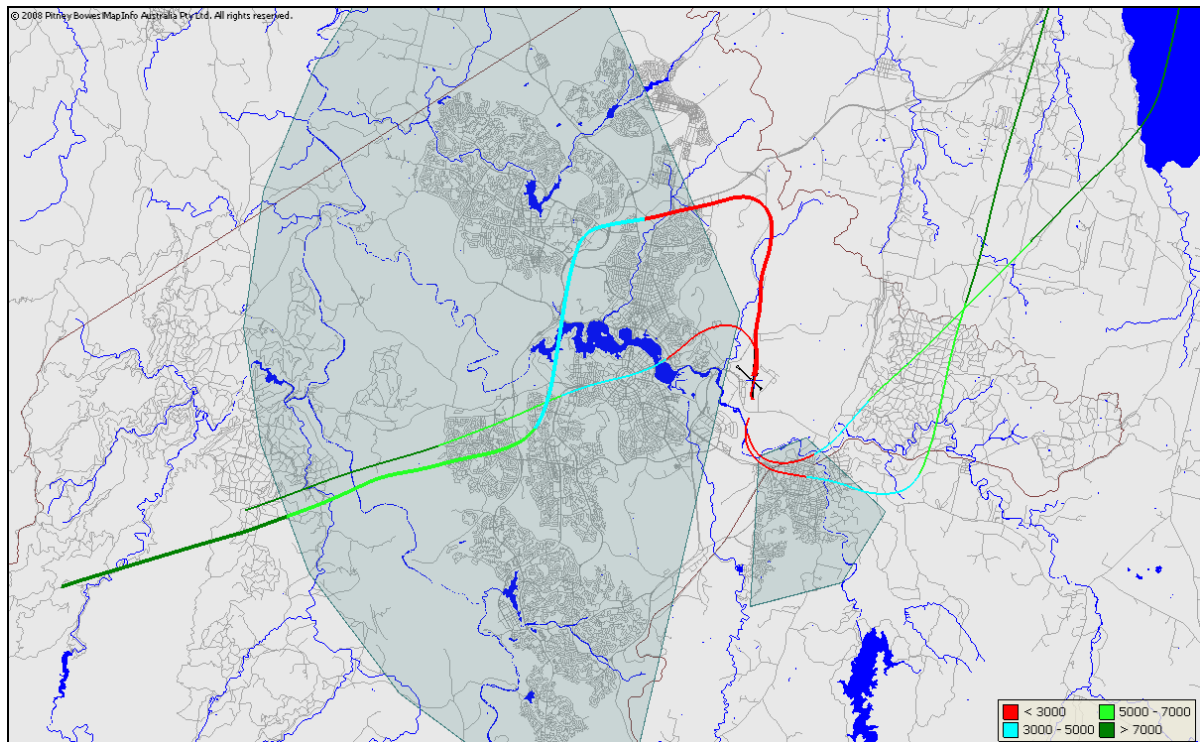


Figure 45 Brindabella Turboprop Departures Requiring Investigation

Of the 4 Brindabella turboprop departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 2 cases.

Date/Time	Type	Runway	Significant Weather
17/02/2009 10:55	SW4	17	
31/03/2009 10:58	SW4	17	VIS 8KM REDUCED TO 400M IN PASSING SHOWERS
8/09/2009 17:09	SW4	35	EXP TURB OVER RWY 35 S OF RWY INT
26/11/2009 11:31	JS41	35	

Table 21 Brindabella Turboprop Departures Requiring Investigation

6.5.2.2.3 Other Turboprop Departures

There were 1,182 other turboprop departures in 2009, and of these, 14 flights overflowed one or both of the NAAs below the 3,000 feet AGL threshold. There were a total of 5 movements that overflowed residential areas that were not training circuits.

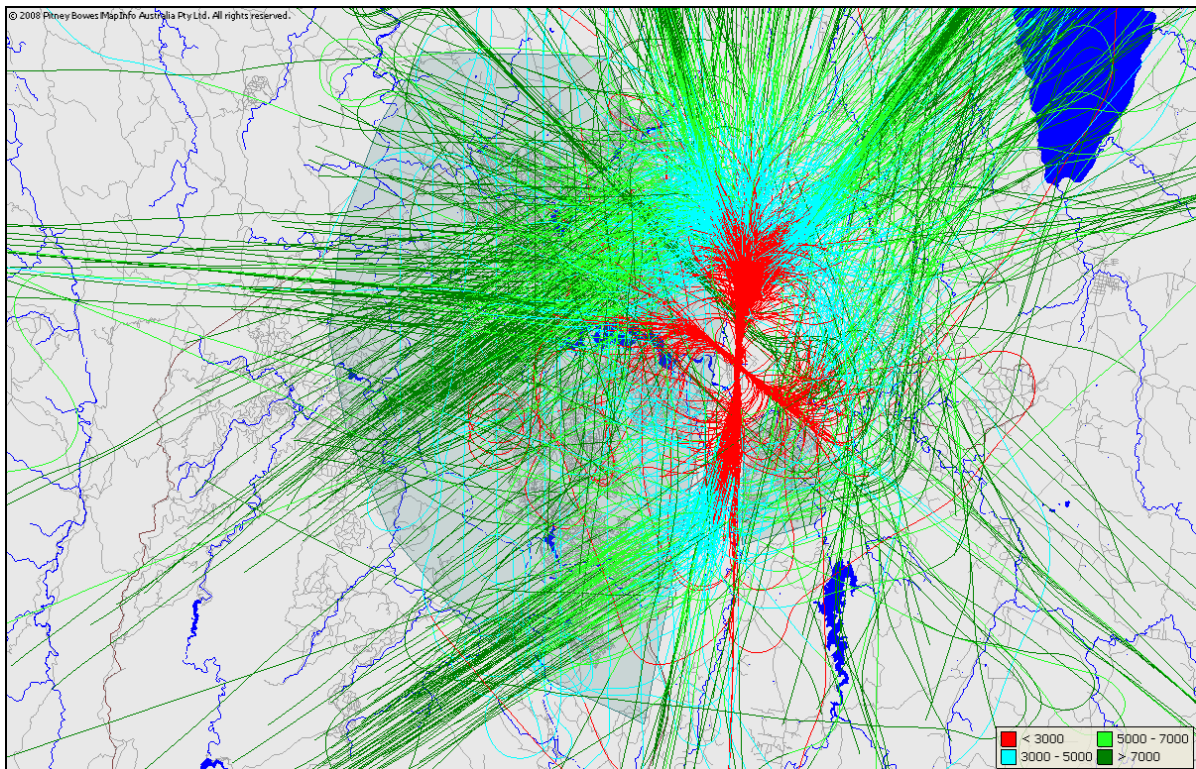


Figure 46 Other Turboprop Departures

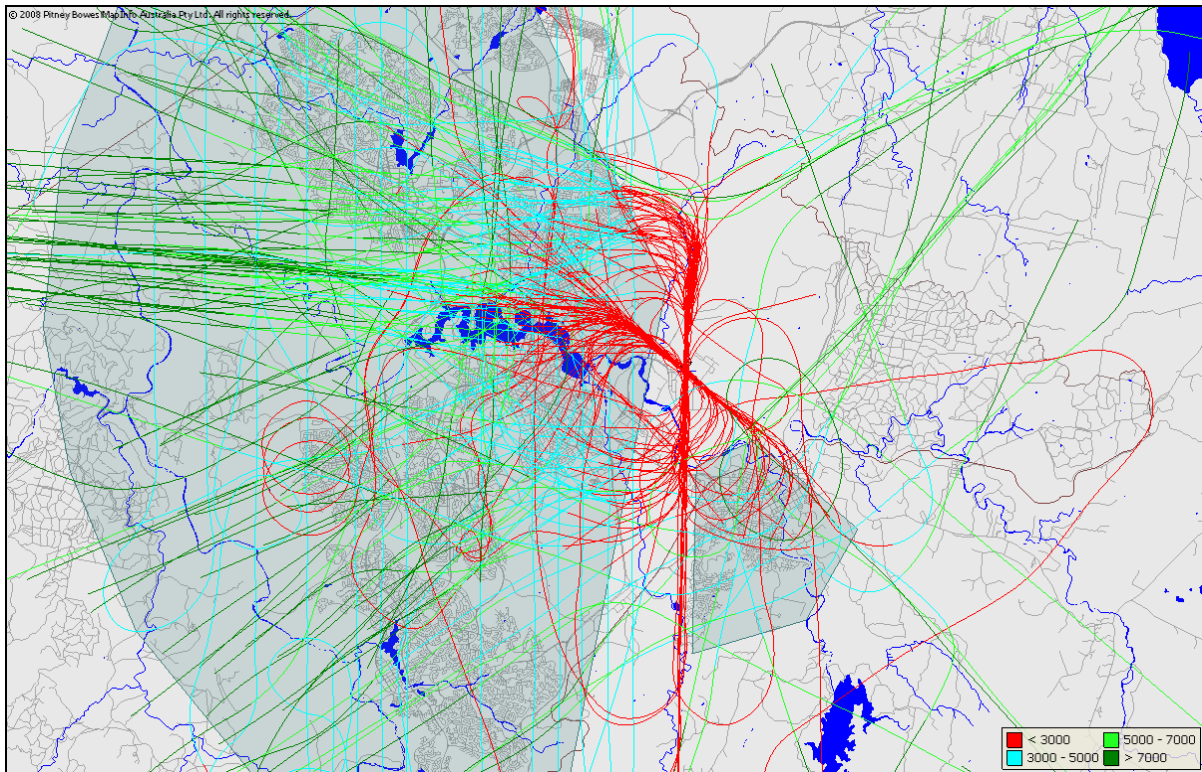


Figure 47 Other Turboprop Departures Overflying NAAs

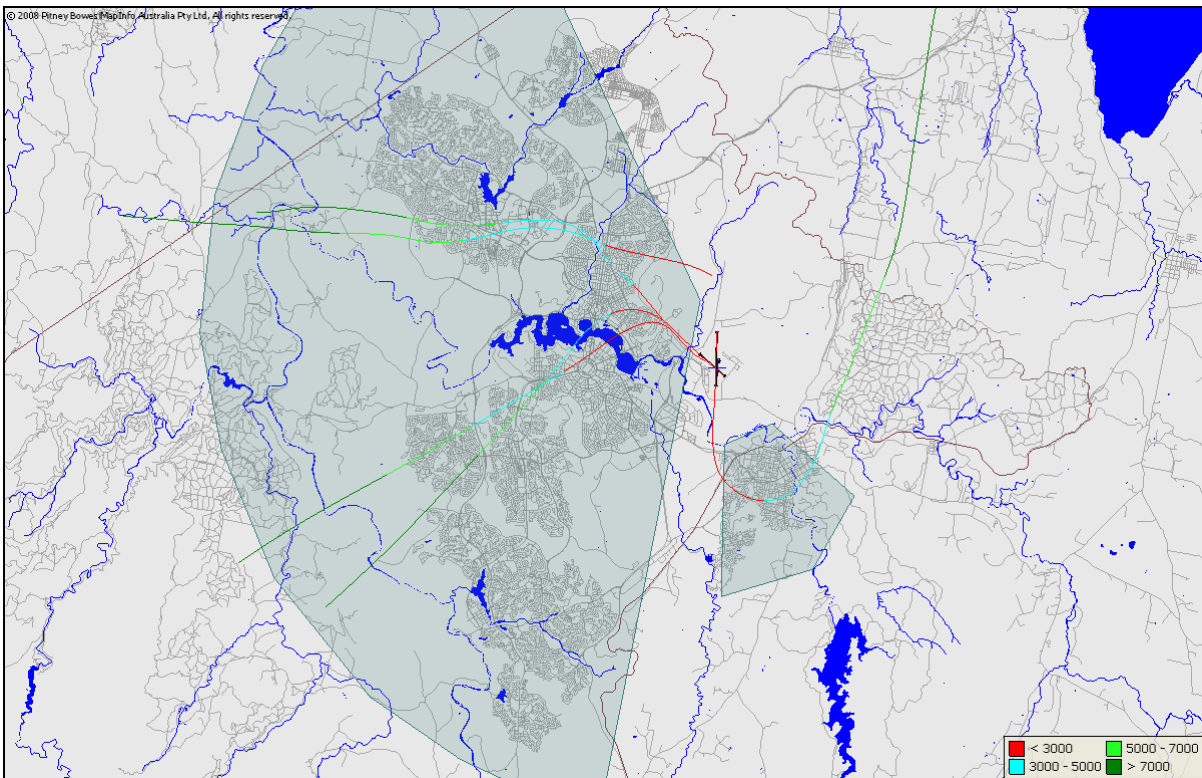


Figure 48 Other Turboprop Departures Requiring Investigation

Of the 5 other turboprop departures requiring investigation, the following table shows that there was significant weather (eg thunderstorms or turbulence) in 2 cases.

Date/Time	Type	Runway	Significant Weather
16/01/2009 16:09	BE20	30	EXP TURB OVER RWY 35 S OF RWY INT
21/01/2009 14:03	BE20	30	EXP TURB OVER RWY 35 S OF RWY INT
6/03/2009 15:17	SW4	30	
20/03/2009 14:20	BE20	35	
8/11/2009 15:56	SW4	17	

Table 22 Other Turboprop Departures Requiring Investigation

6.5.3 *Piston Engined Aircraft*

6.5.3.1 Piston Engined Arrivals

There were 3,515 piston engined arrivals as shown in the following plot. These had MTOWs below 5,700kg, so were not required to avoid the NAAs at any height.

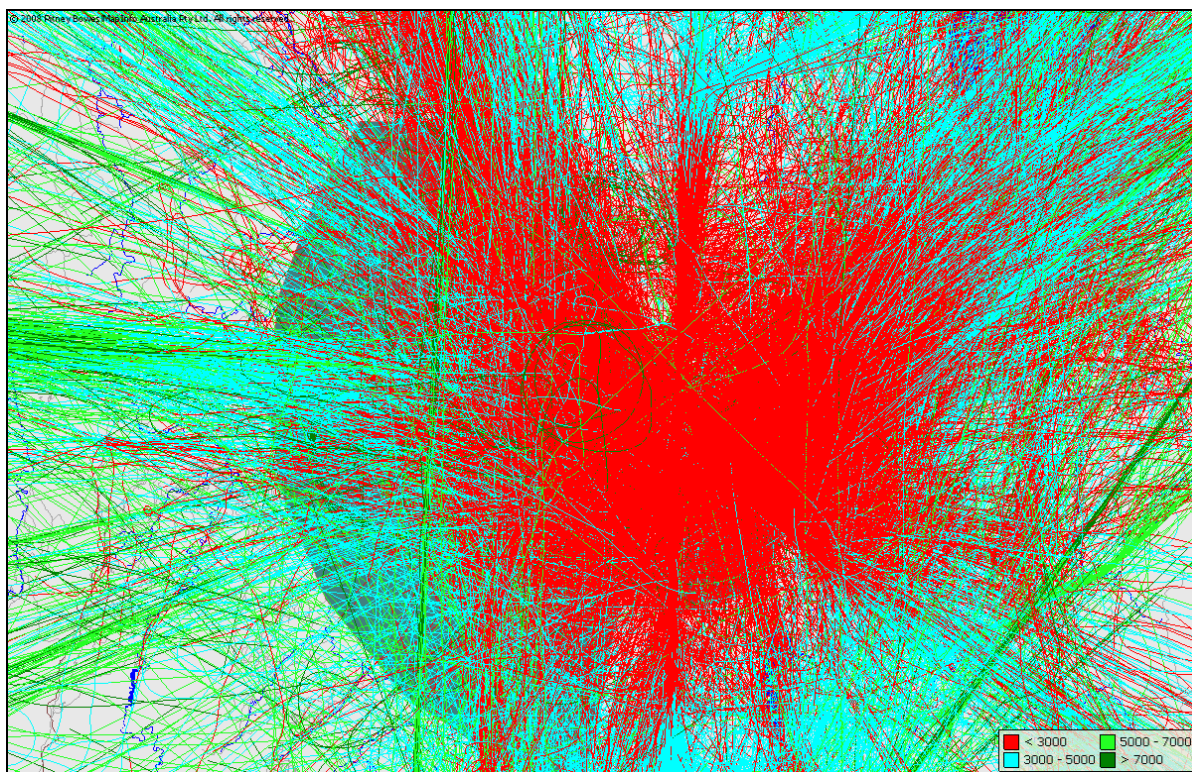


Figure 49 Piston engined arrivals 2009

6.5.3.2 Piston Engined Departures

There were 3,603 piston engined departures, as shown in the following plot. These had MTOWs below 5,700kg, so were not required to avoid the NAAs.

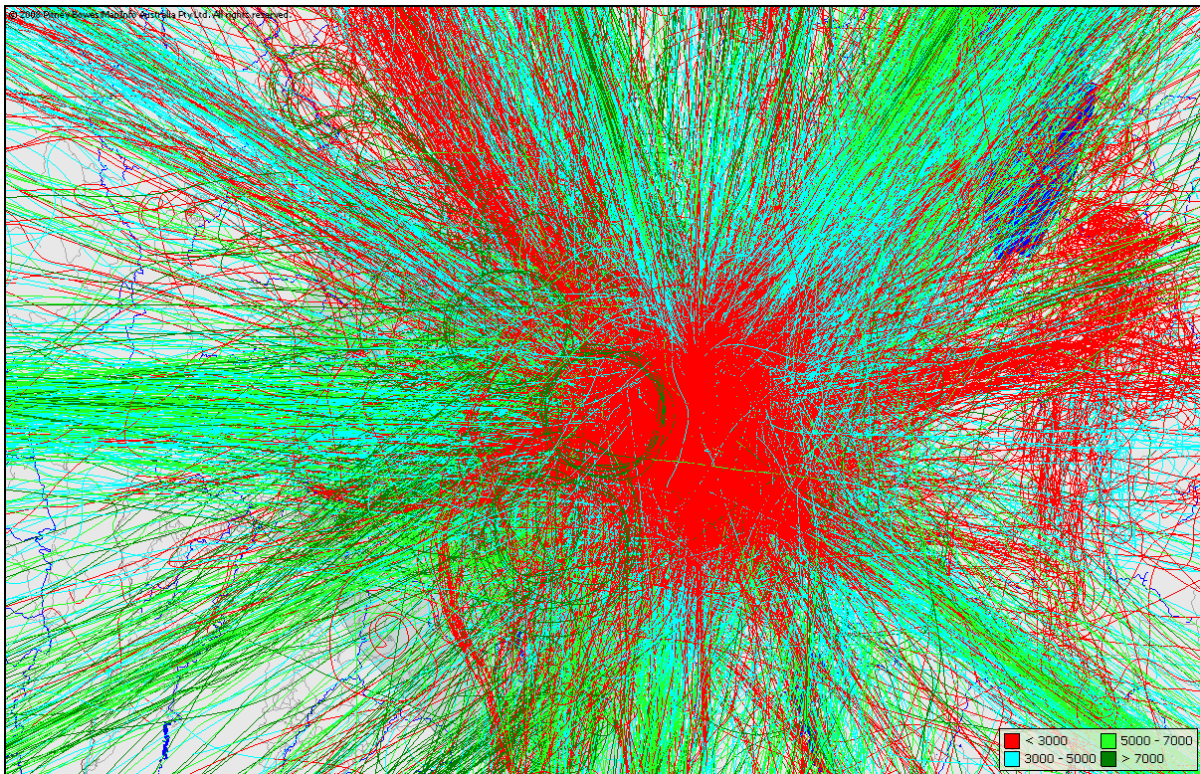


Figure 50 Piston Engine Departures 2009

6.5.4 *Levels of Compliance*

6.5.4.1 Jet Non-compliance with NAAs

The following table indicates that there is a very high level of compliance with the requirements of the NAA by jet aircraft operations. Non-compliance is shown to be 0.1% overall after severe weather conditions, as reported on the ATIS, have been taken into account. Qantas and Virgin Blue individually have 0.1% non-compliance.

	Arrivals					Departures					TOTAL
	12	17	30	35	Total	12	17	30	35	Total	
Qantas											
Total					7,869					7,855	15,724
Over NAA *	0	0	0	9	9	0	29	0	6	35	44
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.4%	0.0%	0.1%	0.4%	0.3%
Unexplained	0	0	0	1	1	0	11	0	1	12	13
%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.1%
Virgin											
Total					7,341					7,443	14,784
Over NAA *	0	2	0	12	14	0	28	0	9	37	51
%	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.4%	0.0%	0.1%	0.5%	0.3%
Unexplained	0	0	0	6	6	0	10	0	0	10	16
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Military											
Total					820					818	1,638
Over NAA *	0	1	0	2	3	0	1	6	0	7	10
%	0.0%	0.1%	0.0%	0.2%	0.4%	0.0%	0.1%	0.7%	0.0%	0.9%	0.6%
Unexplained	0	0	0	1	1	0	0	0	0	0	1
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Other											
Total					884					882	1,766
Over NAA *	0	0	0	4	4	0	2	2	1	5	9
%	0.0%	0.0%	0.0%	0.5%	0.5%	0.0%	0.2%	0.2%	0.1%	0.6%	0.5%
Unexplained	0	0	0	1	1	0	1	0	0	1	2
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
TOTAL					16,914					16,998	33,912
Over NAA *	0	3	0	27	30	0	60	8	16	84	114
%	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%	0.4%	0.0%	0.1%	0.5%	0.3%
Unexplained	0	0	0	9	9	0	22	0	1	23	32
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Over NAA * excludes missed approaches and training flights											

Table 23 Jets – Non-compliance with NAAs

Some or all of the 32 apparent breaches of the NAAs by jets in 2009 may have had some other legitimate explanation not revealed by this analysis, such as traffic conflicts or in-flight emergencies, so the figure of 0.1% is the maximum possible level of breach of the NAAs rather than actual breaches. As this figure is extremely low, and well within acceptable limits of noise abatement procedures, Airservices Australia did not investigate further.

6.5.4.2 Turboprop Non-compliance with NAAs

The following table indicates that there is a very high level of compliance with the requirements of the NAA by turboprop aircraft operations. Non-compliance is shown to be 0.1% overall after severe weather conditions, as reported on the ATIS, have been taken into account. Qantas Link non-compliance is 0.02% while Brindabella non-compliance is 0.3%.

	Arrivals					Departures					TOTAL
	12	17	30	35	Total	12	17	30	35	Total	
Qantas Link											
Total					4,896					4,874	9,770
Over NAA *	0	1	0	3	4	0	7	0	0	7	11
%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Unexplained	0	1	0	1	2	0	0	0	0	0	2
%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.02%
Brindabella											
Total					1,186					1,185	2,371
Over NAA *	0	0	2	5	7	0	2	0	2	4	11
%	0.0%	0.0%	0.2%	0.4%	0.6%	0.0%	0.2%	0.0%	0.2%	0.3%	0.5%
Unexplained	0	0	0	5	5	0	1	0	1	2	7
%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%	0.1%	0.0%	0.1%	0.2%	0.3%
Other											
Total					1,167					1,182	2,349
Over NAA *	1	0	2	2	5	0	1	3	1	5	10
%	0.1%	0.0%	0.2%	0.2%	0.4%	0.0%	0.1%	0.3%	0.1%	0.4%	0.4%
Unexplained	1	0	1	2	4	0	1	1	1	3	7
%	0.1%	0.0%	0.1%	0.2%	0.3%	0.0%	0.1%	0.1%	0.1%	0.3%	0.3%
TOTAL					7,249					7,241	14,490
Over NAA *	0	1	2	8	16	0	9	0	2	16	32
%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.0%	0.2%	0.2%
Unexplained	0	1	0	6	11	0	1	0	1	5	16
%	0.0%	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
Over NAA * excludes missed approaches and training flights											

Table 24 Turboprops – Non-compliance with NAAs

Some or all of the 16 apparent breaches of the NAAs by turboprops in 2009 may have had some other legitimate explanation not revealed by this analysis, such as traffic conflicts or in-flight emergencies, so the figure of 0.1% is the maximum possible level of breach of the NAAs rather than actual breaches. As this figure is extremely low, and well within acceptable limits of noise abatement procedures, Airservices Australia did not investigate further.

7 Compliance with Noise Abatement Procedures

7.1 Preferred Runways

An analysis of preferred runway usage was given in Section 6.3.5. The following tables summarise the results of that analysis and show the extent to which preferred runways have been used for arrivals and departures at the different times of day, for all operations, for jets and for turboprops.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	31,193		4,837		906		3931		22,841	
12										
17			1299	27%	339	37%	960	24%	3369	15%
30									2697	12%
35									16286	71%
Total Preferred Arr			1,299	27%	339	37%	960	24%	22,352	98%
DEP	27,839		4515		188		4327		23,324	
12										
17										
30										
35			3750	83%	151	80%	3599	83%	18199	78%
Total Preferred Dep			3,750	83%	151	80%	3,599	83%	18,199	78%
Total	62,635		10,122		1,329		8,793		52,513	

Table 25 Level of Usage of Preferred Runways by All Operations

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	16,914		3,689		443		3246		13,225	
12										
17			986	27%	177	40%	809	25%	2140	16%
30									9	0%
35									11075	84%
Total Preferred Arr			986	27%	177	40%	809	25%	13,224	100%
DEP	16,995		3132		55		3077		13,863	
12										
17										
30										
35			2679	86%	42	76%	2637	86%	11545	83%
Total Preferred Dep			2,679	86%	42	76%	2,637	86%	11,545	83%
Total	33,909		6,821		498		6,323		27,088	

Table 26 Level of Usage of Preferred Runways by Jets

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	7,249		743		269		474		6,506	
12										
17			155	21%	34	13%	121	26%	1033	16%
30									1171	18%
35									4259	65%
Total Preferred Arr			155	21%	34	13%	121	26%	6,463	99%
DEP	7,241		1018		92		926		6,223	
12										
17										
30										
35			838	82%	76	83%	762	82%	5109	82%
Total Preferred Dep			838	82%	76	83%	762	82%	5,109	82%
Total	14,490		1,761		361		1,400		12,729	

Table 27 Level of Usage of Preferred Runways by Turboprops

The following tables show the extent to which preferred runways have been used for arrivals and departures at the different times of day, for the sample period only (12 days in total).

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	771		138		26		112		633	
12										
17			39	28%	8	31%	31	28%	156	25%
30									30	5%
35									444	70%
Total Preferred Arr			39	28%	8	31%	31	28%	630	100%
DEP	768		130		7		123		638	
12										
17										
30										
35			101	78%	6	86%	95	77%	466	73%
Total Preferred Dep			101	78%	6	86%	95	77%	466	73%
Total	1,539		268		33		235		1,271	

Table 28 Usage of Preferred Runways on Sample Days by Jets & Turboprops

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	538		120		17		103		418	
12										
17			36	30%	7	41%	29	28%	103	25%
30									0	0%
35									315	75%
Total Preferred Arr			36	30%	7	41%	29	28%	418	100%
DEP	539		102		2		100		437	
12										
17										
30										
35			79	77%	2	100%	77	77%	320	73%
Total Preferred Dep			79	77%	2	100%	77	77%	320	73%
Total	1,077		222		19		203		855	

Table 29 Usage of Preferred Runways on Sample Days by Jets

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	233		18		9		9		215	
12										
17			3	17%	1	11%	2	22%	53	25%
30									30	14%
35									129	60%
Total Preferred Arr			3	17%	1	11%	2	22%	212	99%
DEP	229		28		5		23		201	
12										
17										
30										
35			22	79%	4	80%	18	78%	146	73%
Total Preferred Dep			22	79%	4	80%	18	78%	146	73%
Total	462		46		14		32		416	

Table 30 Usage of Preferred Runways on Sample Days by Turboprops

Whilst this information indicates relatively high use of preferred runways, it is the level of compliance which shows if the NAPs have been implemented as fully as possible. The level of compliance differs from the level of use as it takes the weather conditions into account. Weather data is not in a format which enables compliance to be calculated automatically, so a limited sample is taken for the purpose of the analysis. To ensure that seasonal variations do not affect the results, one day per month was selected. The analysis is shown in Section 6.3.5 of this report.

Only the night-outer period was analysed as there is no ATC Tower service provided during the night-inner period, nor do we have detailed weather conditions at the time of each movement available to determine level of compliance with the Preferred Runways. Noise abatement during the night-inner period relies upon the cooperation of the aviation industry.

As the following table from Section 6.3.5 shows, there was a very high compliance for both jets and turboprops during the day period for both arrivals and departures. During the night-outer period, there was a high level of compliance for departures but a low level of compliance for arrivals.

	Jets				Turboprops			
	Day		Night - Outer		Day		Night - Outer	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
1 Jan 09	100%	100%	Wind	100%	100%	100%	Wind	None
1 Feb 09	100%	77%	0%	38%	100%	81%	0%	None
1 Mar 09	100%	97%	0%	100%	100%	95%	0%	None
1 Apr 09	100%	Wind	89%	Wind	100%	Wind	100%	100%
1 May 09	100%	100%	20%	100%	100%	100%	None	100%
1 Jun 09	100%	100%	0%	100%	91%	100%	0%	100%
1 Jul 09	100%	96%	Wind	100%	100%	100%	Wind	100%
1 Aug 09	100%	96%	0%	100%	100%	100%	0%	None
1 Sep 09	100%	100%	Wind	100%	100%	100%	None	100%
1 Oct 09	100%	100%	0%	100%	100%	100%	0%	100%
1 Nov 09	100%	100%	100%	100%	100%	100%	None	None
1 Dec 09	100%	Wind	100%	0%	95%	Wind	100%	0%
Average	100%	97%	34%	85%	99%	98%	29%	86%

Table 31 Compliance with Preferred Runways on Sample Days

The low levels of compliance for night arrivals were not unexpected. The preferred mode of operation at night is opposite direction traffic, which is often not practical for traffic management. In addition, the preferred arrival runway, Runway 17, does not have a precision approach aid. Terrain to the northwest of the airport prevents installing an Instrument Landing System (ILS) due to required navigational tolerance standards. However, the NAPs result in a higher level of use of Runway 17 at night than during the day, which has environmental benefits.

Airservices Australia proposes to monitor and report on compliance with NAPs at night outside tower hours and will follow non-compliance issues up with industry to encourage improved performance where possible. While high levels of compliance are not achievable, landings on Runway 17 have best noise outcome so it will be retained as the highest priority for landings at night.

7.2 Preferred Flight Paths

Aircraft arriving at Canberra are processed by STARs and those departing are processed via SIDs. Noise abatement objectives at Canberra Airport are achieved by designing the SIDs and STARs to meet the requirements of the NAAs. This report has analysed the actual tracks for compliance with the NAAs in Section 6.5.4, and it is not necessary to ensure aircraft are tracking via the SIDs and STARs themselves.

7.3 Noise Abatement Areas

The analysis found that the level of compliance with NAAs is very high. Of the apparent breaches, many could be explained by adverse weather conditions, such as thunderstorms in the area which meant normal flight paths could not be followed, or are very minor where an aircraft tracks into a NAA by a few hundred metres or fails to reach the required altitude on climb by a few hundred feet, which can be explained by navigational tolerances, or by operational requirements such as a missed approach by an aircraft which is directed to carry out another approach via a circuit.

Over the 12 months examined, there were 32 breaches by jet aircraft and 16 breaches by turboprop aircraft. As these equate to 0.1% of total movements, these have not been investigated and there may be traffic or weather issues which have not been identified in this analysis. These figures are extremely low, and well within acceptable limits of noise abatement procedures.

8 Effectiveness of Noise Abatement Procedures

The effectiveness of each element in the suite of noise abatement procedures is interdependent on the others, and cannot be considered in isolation.

8.1 Preferred Runways

Preferred runways are a very effective noise abatement tool where the adoption of a particular runway mode of operation offers a high level of respite to a residential area, and when the weather conditions and traffic levels allow regular use of the preferred mode of operation.

At Canberra, the main north-south runway is the preferred runway for most operations and it is the only one suitable for jet operations – the only jet movements on Runway 12 or 30 were 18 military training operations and 7 business jet operations which in total amounted to less than 0.1%. 10% of turboprop movements, mostly R30 arrivals, and 55% of piston engined movements were on Runway 12 or 30.

There is some residential development south of the airport, notably Jerrabomberra, which is affected by arrivals to Runway 35 and departures from Runway 17. In addition there is rural residential development further south. North of the airport is less developed with sparse rural residential development affected by arrivals to Runway 17 and departures from Runway 35. Arrivals on Runway 30 overfly part of Queanbeyan which are directly in line with the runway, but this area is mostly industrial. Further east, some arrivals overfly

rural residential areas such as The Ridgeway, but here they are widely spread as it is before they join final approach.

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

In the daytime, the preferred runway mode for jets is Runway 35 for both arrivals and departures. There is a high level of compliance with this mode (over 97%). The alternative would be Runway 17 for both arrivals and departures. The greatest impact from using Runway 35 for both arrivals and departures is arrivals over Jerrabomberra and on rural residential developments to the south. There is also some impact to the north from Runway 35 departures. If the preferred mode of operation was Runway 17, the impact on Jerrabomberra would be less as the departures would be further away than the arrivals can be. However, Runway 17 does not have an ILS approach so it is not suitable in poor weather conditions. As more aircraft are equipped to fly an RNP approach in the future (see Section 8.2), Jerrabomberra will have less impact from Runway 35 arrivals than from Runway 17 departures. This will increase the effectiveness of the preferred runways.

Arrivals on Runway 30, which account for 18% of turboprop arrivals, provide effective noise abatement as the only part of Queanbeyan overflown while on the straight-in final approach is industrial land. The rural residential areas overflown are only affected by widely dispersed tracks before the aircraft turn onto the final approach.

8.2 Preferred Flight Paths

All jet traffic and most turboprop traffic are processed via SIDs and STARs. These procedures are subject to change, and any change undergoes environmental assessment by Airservices Australia. These are the mechanisms for achieving noise abatement in the areas not covered by the NAAs.

Arriving traffic requires a straight-in segment on final approach – the length of this segment depends on the weather. In poor weather, where an instrument approach is required, aircraft must intercept final at a greater distance from the airport than in fine weather, where they can execute a visual approach. In general, jet aircraft are required to be stabilised and on the final approach path at least 3-4 nautical miles (NM), or approximately 5-7km, from the runway threshold.

However, new high performance navigation technology (RNP) allows more flexibility, including curved final approach paths. This has enabled an arrival procedure to be designed for Runway 35 which has a deviation to the west around Jerrabomberra. At present this only applies to a limited number of newer Qantas aircraft fitted with the required equipment as part of a CASA approved trial, but in the future this or similar technology will enable this sort of procedure to be applied to most flights.

In general, and subject to minimum safe altitude and safety requirements, departures can be turned onto a heading very soon after they are airborne, so there is greater opportunity

for designing departures procedures to avoid sensitive areas. The SIDs from Runway 17 use a combination of headings and waypoints to ensure the departures remain west of Jerrabomberra. RNP technology will enable this to be achieved with more accuracy in the future and may also have the flexibility to deviate traffic around possible future residential areas, without overflying the NAAs. However, there are limitations which will mean not all future developments can be protected by changes to procedures, which may result in pressure to implement noise sharing with areas currently unaffected by aircraft noise.

8.3 Noise Abatement Areas

The NAAs are very effective in limiting overflight within their geographical areas to above the heights stipulated, as there is a very high level of compliance by jets and turboprops. Their effectiveness is achieved by design of the preferred flight paths. The NAAs are effective in ensuring that any changes to the SIDs and STARs meet the minimum requirements.

9 Forecast Growth

9.1 Traffic Levels

The Canberra Airport's 2009 Master Plan included a range of forecasts for growth in aircraft movements over the next 20 years. It showed a "Mid Range" of 3.4%, a "Low Range" of 3% and a "High Range" of 4.2% for growth in domestic and regional RPT (regular public transport) movements. Its highest range predicted an "overflow" of traffic unable to use Sydney Airport because of congestion and curfew restrictions.

		2007/08	2011/12	2016/17	2021/22	2027/28	2029/30
		Actual					
Low Range	Domestic/Regional RPT	39,629	44,603	51,707	59,942	69,490	75,933
	International RPT	0	312	730	1,095	1,460	1,595
	Other	48,947	54,028	59,652	62,694	64,278	65,247
	Total	88,576	98,943	112,089	123,731	135,228	142,775
Mid Range	Domestic/Regional RPT	39,629	45,300	53,542	63,285	74,800	82,692
	International RPT	0	728	1,248	1,768	2,184	2,514
	Other	48,947	54,877	63,309	66,538	69,932	72,051
	Total	88,576	100,905	118,099	131,591	146,916	157,257
High Range	Domestic/Regional RPT	39,629	46,718	57,388	70,495	86,596	97,972
	International RPT	0	1,092	1,820	2,548	3,640	4,214
	Other	48,947	57,261	69,667	76,918	82,862	86,647
	Total	88,576	105,071	128,875	149,961	173,098	188,833

Table 32 Aircraft Movement Growth Forecasts

The low range forecast for 2029/30 is a 61% increase in traffic over 2007/08 levels, but an increase in RPT movements of 96%, as these are expected to grow at a higher rate than other movements (such as freight, general aviation, military and emergency).

The mid range forecast for 2029/30 is a 78% increase in traffic over 2007/08 levels, but an increase in RPT movements of 115%, as these are expected to grow at a higher rate than other movements.

The high range forecast for 2029/30 is a 113% increase in traffic over 2007/08 levels, but an increase in RPT movements of 158%, as these are expected to grow at a higher rate than other movements (such as freight, general aviation, military and emergency).

The information in the next two tables is sourced from the Canberra Airport's 2009 Master Plan

		2007/08	2029/30	%
		Actual		Increase
Low Range	Domestic/Regional RPT	39,629	75,933	92%
	International RPT	0	1,595	
	All RPT	39,629	77,528	96%
	Other	48,947	65,247	33%
	Total	88,576	142,775	61%
Mid Range	Domestic/Regional RPT	39,629	82,692	109%
	International RPT	0	2,514	
	All RPT	39,629	85,206	115%
	Other	48,947	72,051	47%
	Total	88,576	157,257	78%
High Range	Domestic/Regional RPT	39,629	97,972	147%
	International RPT	0	4,214	
	All RPT	39,629	102,186	158%
	Other	48,947	86,647	77%
	Total	88,576	188,833	113%

Table 33 Aircraft Movement Growth %

9.2 Traffic Levels 11pm to 6am

While most of the growth in traffic will occur during the day time, the low level of traffic between 11pm and 6am in 2007/08 means that there will be very large increases in movements in the forecast period – over 1,000% increase in total movements and 3,700% increase in jet movements. It is more meaningful to consider these numbers in absolute terms of 60 movements in the inner night period, of which 38 will be jets.

	2007/08	2012/13	2027/28	%
	Actual	Predicted	Predicted	Increase
Jet Freight Aircraft	0	10	30	
Jet Passenger Aircraft	1	4	8	700%
All Jet Aircraft	1	14	38	3700%
TP Freight Aircraft	4	6	20	400%
TP Passenger Aircraft	0	0	0	
All TP Aircraft	4	6	20	400%
Other Movements	0.4	2	2	400%
Total	5.4	22	60	1011%

Table 34 Aircraft Movement Growth % 11pm-6am
Movements per night

Source: Canberra Airport Master Plan 2009

To put this number of movements into a context of current operations, the following table shows the number of actual movements in 2009.

	H24	Night		Night - Inner		Night - Outer		Day	
		<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	27,678	4,837	17%	906	3.3%	3,931	14%	22,841	83%
Jet	16,914	3,689	22%	443	2.6%	3,246	19%	13,225	78%
TP	7,249	743	10%	269	3.7%	474	7%	6,506	90%
Piston	3,515	405	12%	194	5.5%	211	6%	3,110	88%
DEP	27,839	4,515	16%	188	0.7%	4,327	16%	23,324	84%
Jet	16,995	3,132	18%	55	0.3%	3,077	18%	13,863	82%
TP	7,241	1,018	14%	92	1.3%	926	13%	6,223	86%
Piston	3,603	365	10%	41	1.1%	324	9%	3,238	90%
Total	55,517	9,352	17%	1,094	2.0%	8,258	15%	46,165	83%

Table 35 All Aircraft Movements 2009

60 movements per night would be 21,900 per year, which is 39% of all movements that occurred throughout all of 2009.

38 jet movements per night would be 13,870 per year, which is 41% of all jet movements that occurred throughout all of 2009.

	H24	11pm to 6am	%
	2009	2027/28	
Total	55,517	21,900	39%
Jet	33,909	13,870	41%
TP	14,490	7,300	50%

Table 36 Forecast night movements as a proportion of all 2009 movements

9.3 Aircraft Types

The Canberra Airport Master Plan shows that long term passenger growth is forecast to be 4.2%, which is greater than the mid range forecast growth in aircraft movements of 3.4%. This reflects the expectation that there will be an increase in aircraft size over time, which will account for some of the increase in passenger numbers.

While it is not possible to accurately predict which aircraft types will be brought into service by operators, past trends suggest that newer aircraft will be quieter than those they replace of equal size. However, if newer aircraft types are also larger there will not necessarily be a reduction in noise levels, particularly if turbo-prop aircraft are replaced by jet aircraft.

9.4 Impact on Effectiveness of NAPs

The general increase in traffic is not expected to have any effect on the way the NAPs are applied. The SIDs and STARs would still be used and these ensure that the NAAs are complied with.

The preferred runways during the day period are likely to be applied to the same extent as in 2009. In the period between 8pm and 7am, there is very little compliance with the preferred runway for arrivals. This is because opposite direction operations are not practical during the hours when a tower ATC service is provided due to traffic levels. As these traffic levels are forecast to increase, this situation is not likely to change. Between 11pm and 6am, opposite direction operations are at the discretion of pilots.

As the period between 11pm and 6am becomes busier, the hours of provision of tower services will need to be reviewed. If 24 hour tower services are introduced there will be a greater likelihood of nomination of preferred runways, unless the distribution of traffic renders opposite direction operations impractical.

10 Options

10.1 Preferred Runways

All capital city airports in Australia, as well as many other airports, have identified noise preferred runways, based on the local demographic distribution. These preferences only apply when the weather conditions allow a choice of runway nomination – often the wind velocity determines the runway for use and this overrides the noise preferred runway hierarchy.

Except in periods of very light traffic, runways are generally operated in a single direction for both arrivals and departures. Only in unusual circumstances, eg thunderstorms in one direction, would opposite direction operations be nominated. At Canberra, there is only one runway with a precision ILS approach, Runway 35 (due to terrain limitations north of the field), so in poor weather conditions with strong southerly winds arrivals may be nominated on Runway 35 to enable them to use the ILS while departures are offered Runway 17. However, most often a single runway direction is nominated.

At Canberra, for the majority of movements (and all of the jet movements) the options are:

- Runway 17 for arrivals and departures, or
- Runway 35 for arrivals and departures.

Traditionally, the preferred single direction runway has been chosen to minimise the overflight of residential areas by departures. Aircraft are generally noisier when departing than arriving, due to the higher engine thrust used on take-off. However, departing aircraft climb at a steeper profile than the standard descent profile of 3 degrees, which is set by the approach navigation aids. For any given distance from the runway, a departing aircraft will normally be higher than an arriving aircraft. Therefore, it may be that overflight by departures is less noisy than overflight by arrivals, depending on an area's distance from the runway, but this is not always the case, and is more likely for areas further from the airport than for areas close to the airport.

At Canberra, the approach and departure paths for both Runway 17 and 35 do not directly overfly urban residential areas except for part of Jerrabomberra, but noise impacts are experienced at Hackett to the north and other parts of Jerrabomberra to the south. A comparison of noise levels measured at these locations for arrivals and departures are given in the following table. Noise levels for RNP arrivals and departures are also included as they enable noise reductions by moving the flight tracks further away from the noise receptors.

The following table shows measured noise data for B737-800s. This type is analysed because many of these aircraft undertake RNP approaches and departures. RNP departures from Runway 17 follow the same track as the SID, so it is not possible to

identify which flights are executing an RNP departure. While the track is the same, the climb profiles may be different, resulting in a different noise footprint.

	Runway 17		Runway 35	
	Hackett	Jerrabomberra	Hackett	Jerrabomberra
Arrivals				
RNP	<55	n/a	n/a	64.5
non-RNP	<55	n/a	n/a	73.0
Departures				
RNP	n/a	67.5	62.6	n/a
non-RNP	n/a		59.8	n/a

Table 37 Measured Noise Levels B737-800 (dB(A)) – mean maximum levels

The noise levels indicate that Hackett receives more noise from departing aircraft – this is largely because arrivals are lower when adjacent to Hackett and the hills effectively shield Hackett from arriving aircraft noise. Departures, on the other hand, have a steeper profile and the noise is not shielded. Therefore Hackett receives less aircraft noise from B738s when Runway 17 is the duty runway at the airport.

The following figures show the terrain influence on noise levels at Hackett.

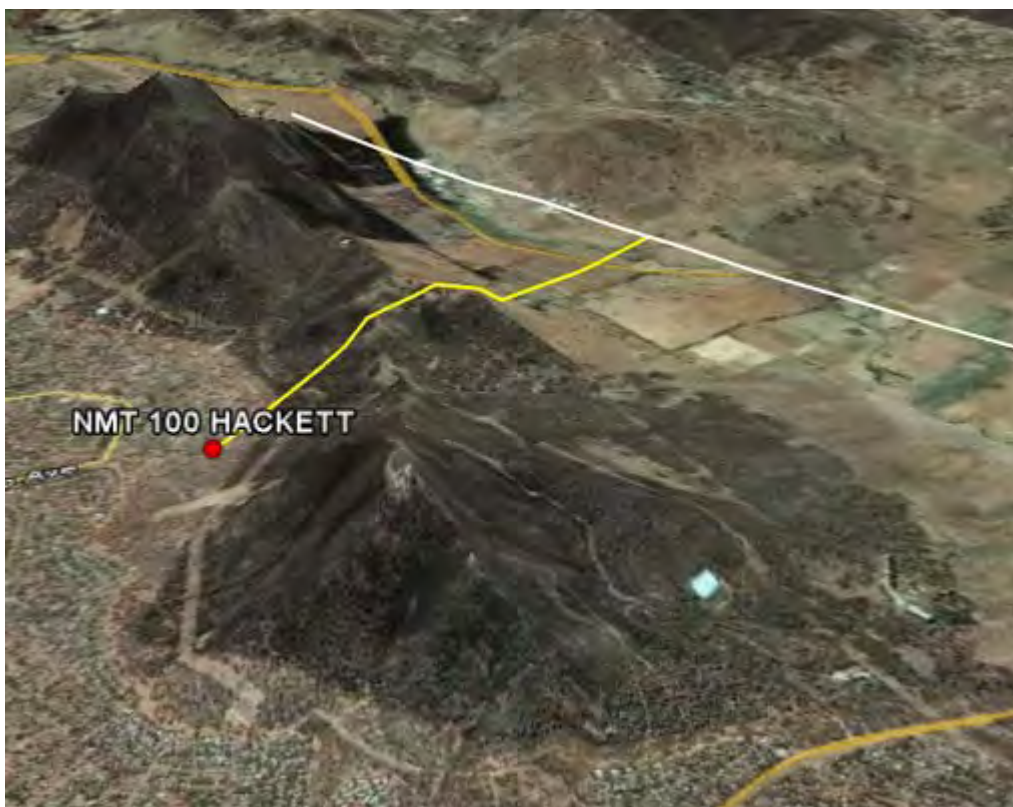


Figure 51 Terrain Between Hackett and Extended Runway Centreline

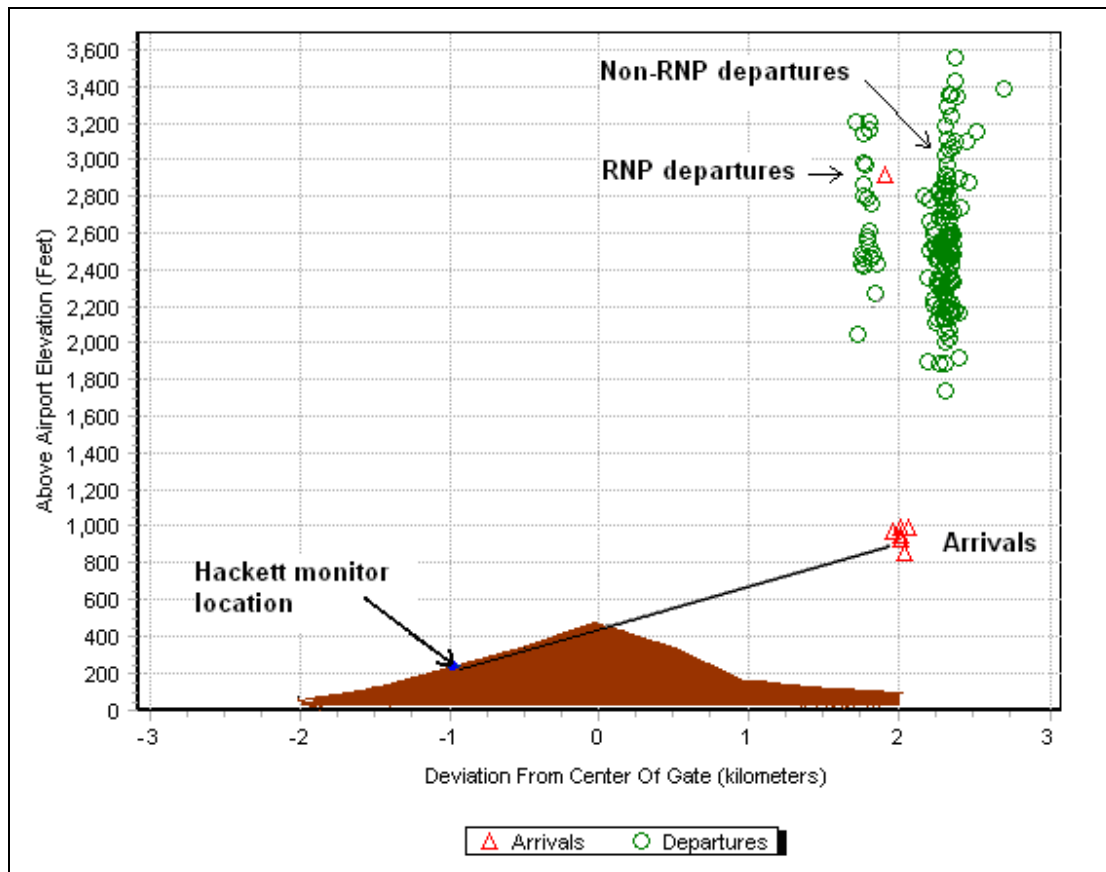


Figure 52 Height of Terrain and Arrivals and Departures

The noise levels indicate that Jerrabomberra receives highest levels of noise from arriving aircraft conducting a straight in approach, than from departures, and least from arrivals conducting an RNP approach.

As few aircraft currently conduct RNP arrivals, Jerrabomberra receives less aircraft noise from B737-800s when Runway 17 is the duty runway at the airport, as only departures affect Jerrabomberra, and the departure path is further away from Jerrabomberra than the arrival path.

The current preferred runway for the majority of operations at Canberra is Runway 35. The data for B737-800s indicate changing the preferred runway to Runway 17 may have environmental benefit for Jerrabomberra as there is less noise from departures as the flight path is further away; however, this would be a major change to the NAPs and would require a thorough environmental assessment. Such a change may not be practicable for operational reasons, and may not result in reduced noise levels for other aircraft types. If additional track miles would result, then greenhouse gas emissions impacts would also need to be considered in the environmental assessment.

If Runway 17 were the preferred runway, there would be more overflight of the proposed residential development of Tralee. However, it may be possible to design an RNP flight path which avoids Tralee, although existing residential areas as well as other rural residential areas in the vicinity would also have to be considered.

Operational impediments to using Runway 17 as the preferred runway are the lack of a precision approach to Runway 17, terrain issues and the siting of the ATC tower, which favours Runway 35 approaches.

The environmental assessment which must precede any change to the preferred runway priorities would consider all these factors.

10.2 Preferred Flight Paths

Most traffic is processed via standard routes – SIDs and STARs. These are amended on an as-needs basis, for example when a safety review recommends a change, or traffic levels or the fleet mix changes and better ways for separating and efficiently processing air traffic are devised.

Traditionally, depending on the type of navigation aids being used by the aircraft, there has been a wide spread of tracks around a nominal track representing the published procedure, particularly if aircraft made a turn after reaching a particular altitude, as each aircraft type would achieve this at a different distance from the airport due to differences in aircraft weight and performance, pilot operating techniques and weather. Recent technological advances in aircraft navigation have resulted in the lateral and vertical spread of aircraft around a nominal track decreasing. This is particularly noticeable on routes which are defined by a series of waypoints rather than traditional navigation equipment.

Aircraft equipment with more accurate satellite navigation systems can use special flight paths which can provide more flexibility to achieve noise abatement. These aircraft are in the minority of the fleet mix at present, but it is expected that eventually the majority will be equipped to navigate this way.

RNP approaches have been developed for use by suitably equipped Qantas B737-800s operating at Canberra. The approach from the south deviates slightly to the west when adjacent to Jerrabomberra, resulting in a reduction in noise level compared to when they fly the straight-in ILS approach.

Departure flight paths are also more flexible in that aircraft can often turn onto a specified heading soon after becoming airborne. Again RNP technology offers more flexibility to design flight paths for noise abatement, making best use of unpopulated areas.

Changing flight paths for noise abatement may however result in greater track miles flown. This results in more fuel used and hence more emissions of greenhouse gases and other pollutants. All these factors are taken into account when there is a proposed amendment to a flight path.

10.3 Noise Abatement Areas

The NAAs could be redesigned to cover newer residential areas of Gunghalin and Watson. Airservices Australia has considered this but concluded it is not practicable for three reasons.

Firstly, the area over part of Watson cannot be included as it is needed for navigational tolerances on the propeller departure flight path on Runway 35. The actual track is not over the residential area, but navigational tolerances must also be planned for.

Secondly, the NAA is defined geographically in a way that is meaningful to pilots while flying – not by a set of coordinates but by lines that can be determined by use of aircraft navigation aids.. This is to enable pilots to determine whether they are inside the area or outside, but has limitations with regard to the most precise alignment with actual built-up areas.

Thirdly, the NAA has been designed to enable a divergence between jet and propeller departure paths for operational efficiency.

The altitude requirements of the NAAs could be raised so that aircraft are higher when they overfly these areas, resulting in lower noise levels. Departures would be most affected by changing the NAA altitude requirements. The NAAs were established in 1994 and in the absence of any legislated noise standards for residential areas, altitudes were adopted in consultation with all stakeholders which reflected community reaction to aircraft noise throughout Australia.

Raising the altitudes of the NAAs would require redesign of many of the SIDs for both jets and turboprops, increasing the distances flown. Each new SID would have to undergo environmental assessment by Airservices Australia, and increases in emissions and greenhouse gases would have to be considered. Given the current high level of compliance with the NAAs, it is not considered materially beneficial to make changes to the areas.

10.4 Night Operations

It has been suggested that additional flight paths should be designed for use during night period to ensure there was no overflight of the NAAs at all.

This is possible, however when the airport is uncontrolled, pilots may choose to overfly the NAAs. This could be addressed between voluntary arrangements between the Airport and the Airline operators concerned.

As with any new procedure, each new SID and STAR would have to undergo environmental assessment by Airservices Australia. If the new procedures involve additional distances flown, and as a result an increase in emissions and greenhouse gases, this would have to be considered as well as any noise reduction improvements.

The existing jet SIDs and STARs result in limited overflight of the NAAs above 5,000 feet (AGL).

10.5 Other Restrictions

Operating restrictions include:

- Curfews
- Movement caps

- Restrictions on aircraft types

Airservices Australia is able to introduce Noise Abatement Procedures, but it does not have the power to introduce operating restrictions, such as movement caps or curfews. Nevertheless, they are discussed in this section.

Under ICAO's "Balanced Approach" to aircraft noise management, operating restrictions should be a last resort, and only after fully assessing the benefits of the first three key areas – reducing noise at source, land use planning and operational NAPs.

10.5.1 Curfews

There are Commonwealth Government curfews at four airports in Australia – Sydney, Adelaide, Gold Coast and Essendon – which are governed by Acts of Parliament and Regulations. These all have different levels of restrictions on aircraft operations, and it is important to note that none of them prohibit all operations. The time of the curfew period is 11pm to 6am at all four locations. Fines may apply to any operators found to be in breach of any of the curfews.

All the airports allow emergency aircraft (aircraft experiencing an emergency or assisting in an emergency such as a medical flight) without restriction. At Sydney and Adelaide there is an ATC service during the curfew period, and at Essendon and Gold Coast there is no tower ATC service.

All four curfews apply to movements at the airport, and not to overflight of nearby residential areas. It is possible for aircraft to overfly residential areas during the period of the curfew without breaching it in any way.

Sydney Airport restricts arrivals to Runway 34L and departures to Runway 16R, which means all operations during the curfew are over the water for their initial/final stage. Only emergency category aircraft can use the other runways. Departures are permitted if they commence taxiing before 11pm. If the permitted runways are not suitable due to weather, the aircraft must divert to another airport. Jet aircraft are not permitted except for low noise jets under 34,000 kg, a quota of BAe146 freighter aircraft and a quota of international jet arrivals during northern hemisphere daylight savings between 5am and 6am. In addition, there are restrictions on runway use during the periods 10.45pm and 11pm every day, and between 6am and 7am and between 10pm and 11pm on weekends. The Department of Infrastructure and Transport administers the quotas and can issue aircraft dispensations to operate during the curfew.

Adelaide Airport restricts arrivals to Runway 05 and departures to Runway 23, but this can be relaxed if the weather does not allow use of those runways. Departures are permitted if they commence taxiing before 11pm. Jet aircraft are not permitted except for low noise jets under 34,000 kg and a quota of BAe146 freighter aircraft. The Department of Infrastructure and Transport administers the quotas and can issue aircraft dispensations to operate during the curfew.

Gold Coast (Coolangatta) Airport restricts operations to low noise jets and propeller aircraft under 34,000 kg. Departures are permitted if they commence taxiing before 11pm. A quota of passenger and freight jet operations is permitted. The Department of Infrastructure and

Transport administers the quotas and can issue aircraft dispensations to operate during the curfew.

Essendon Airport restricts operations during the curfew period to propeller aircraft below 8,618 kg and helicopters meeting specific noise standards.

Curfews also exist at a number of other airports around the world, all with their own set of restrictions. At Heathrow and Gatwick there is a noise quota – the number of flights permitted depends on the noise levels of each flight. The quota is reduced every year to encourage the introduction of quieter aircraft.

Compared to most airports with curfews, Canberra Airport has very few night movements, and those movements are largely away from residential areas. However, according to the airport's Master Plan, night movements, especially jets carrying freight, are likely to increase from an average of 5.4 per night (2008) to 60 per night. The Master Plan states that there would be significantly fewer movements expected to occur overnight on weekends, so the average per weeknight would be between 60 and 84.

	Jet		Propeller		Other	Total	% increase
	Freight	Passenger	Freight	Passenger	movements		
Current	0	1	4	0	<1	5.4	
5 years	10	4	6	0	2	22	307%
20 years	30	8	20	0	2	60	1011%

Table 38 Forecast growth of night operations

By way of comparison, the total number of movements at Sydney Airport during the curfew period 11pm to 6am in 2009 was 4,050, of which 1,544 were jet freight carriers. There was an average of 11 movements per night, or 4 jet freight aircraft per night.

	Movements	Daily Average	BAe146	Daily Average
Jan-09	337	11	85	3
Feb-09	288	10	139	5
Mar-09	314	10	146	5
Apr-09	306	10	110	4
May-09	363	12	127	4
Jun-09	336	11	120	4
Jul-09	396	13	141	5
Aug-09	348	11	121	4
Sep-09	400	13	138	5
Oct-09	318	10	141	5
Nov-09	298	10	140	5
Dec-09	346	11	136	4
	4050	11	1544	4

Table 39 Sydney Airport curfew movements

Canberra's forecast night movements exceed the current Sydney curfew movements by a factor of around 6.

Movement levels between 11pm and 6am at Canberra Airport in 2009 were low compared to other Australian capital city airports. However, the forecast movements are high. The

need for a curfew is not determined on movement levels alone, and there is no consistent set of criteria for establishment of a curfew. Curfews in Australia have generally been introduced to resolve a noise issue after it has arisen, rather than to restrict future noise impacts to an acceptable limit. If it were found to be necessary, either to reduce levels below forecast numbers or to limit further growth, it may assist planning to introduce any operating restrictions before noise levels became excessive. The Airport would be well placed to do this by encouraging quieter operations during noise sensitive periods.

10.5.2 *Movement Caps*

Sydney Airport is the only Australian airport that has a legislated cap on movements. It limits movement (arrivals and departures) to 80 per hour, not including emergency movements.

As Canberra Airport does not have parallel runways, 80 movements an hour exceeds the capacity of the airport.

Some airports in Europe impose caps on night movements well below the operating capacity of the airport, to limit future growth of night operations beyond present operations.

10.5.3 *Restrictions on Aircraft Types*

The Commonwealth Government has announced restrictions on the operations of marginally compliant Chapter 3 aircraft, such as hush-kitted Boeing 727s, where they contribute to unacceptable levels of noise.

Some airports in Europe have restrictions on aircraft types that are imposed by the airport owners rather than by government legislation. At others, the landing fees applicable to such aircraft are set much higher to discourage operators from using those types.

10.6 *Concentration vs Sharing*

Airservices Australia's Environmental Principles state that:

“Noise should be concentrated as much as possible over non-residential areas.”
(Principle 2)

However, it is not always possible to achieve that goal. Where residential areas are overflowed, then:

“Noise exposure should be fairly shared whenever possible.” (Principle 3)

To ensure a fair distribution of noise:

“No suburb, group or individual can demand or expect to be exempt from aircraft noise exposure.” (Principle 4)

Canberra's NAAs have been possible because of the undeveloped land areas north and south of the airport, enabling SIDs and STARs to be designed so that they do not overfly residential areas at low altitudes. However these areas are not totally unpopulated, and noise intrusion is higher because of low ambient noise levels. There are also planned residential areas to the south.

At airports where it is not possible to avoid residential areas altogether, and flight paths do overfly them at low altitudes, the only way to minimise the environmental impact is to consider where the flight paths should go. There is no clear direction from the legislation whether the flight paths should be concentrated, to minimise the number of people overflown, or whether they should be spread out to share lower noise impacts over a greater number of people. Nor is there any direction for treating residential or urban areas differently to rural or rural residential areas, which have much lower population densities and low levels of background noise.

A further complication is that, should flights be concentrated over a currently uninhabited area, there is no mechanism for compensating the owners of that land for rendering it unsuitable for future residential development.

Sydney Airport is the only Australian airport where the Federal Government has implemented a “noise sharing policy” which is achieved by employing specific runway modes at particular times of the day, weather and traffic levels permitting, which in turn lead to the use of certain flight paths associated with SIDs and STARs at those times of the day. However, the policy does not dictate whether the flight paths themselves should attempt to share noise by having a wide spread of tracks or not. The policy focuses on ensuring that where possible, all areas have periods of “respite” where they are not subject to any aircraft overflight.

10.7 New Technology

ICAO has recommended to member States that they implement Performance Based Navigation (PBN) procedures and Australia has agreed to these recommendations.

The PBN concept embraces the well established Area Navigation (RNAV) methodology and adds a relatively new form of RNAV known as Required Navigation Performance (RNP). Australia is a world leader in applying RNAV and has operated to this navigation standard for many years. RNAV is extremely well suited to the Australian operational environment, which has large volumes of airspace and in some areas limited surveillance capability and widely separated radio navigation aids. RNAV is the standard navigation capability of the majority of passenger carrying aircraft in service today.

RNP builds on the RNAV capability of a particular aircraft through greater levels of on-board performance monitoring and alerting. This reduces the reliance on ground based navigation aids and surveillance and improves operational safety and efficiency. RNP capability is currently limited to the latest generation passenger transport jets; however, the introduction of RNP has delivered significant safety, environmental and economic benefits at locations where RNP procedures have been implemented. Over time, as legacy RNAV aircraft are retired, they are expected to be replaced with RNP capable aircraft due to their superior performance.

RNP operations have significant benefits, including:

- Increased aircraft safety, in particular reduced risk of Controlled Flight into Terrain through the provision of accurate lateral and vertical guidance;
- Reduced environmental impact through reduced fuel burn and CO₂ and related emissions;

- Reduced overall noise exposure due to steeper descent profile with engines generally at flight idle;
- Reduced overall noise exposure due to containment of flight paths;
- Aircraft will be configured (landing gear down and flaps extended) later in the approach for landing therefore reducing the noise footprint;
- A degree of flexibility in placement of noise through being able to adapt the design of approach and departure paths;
- Reduced fuel consumption on approach through the use of optimised vertical profile;
- Reduced cockpit and Air Traffic Control complexity; and
- Increased aircraft payload through the implementation of flexible Departure and Approach Procedures.

When RNP-AR procedures are introduced it is accepted that aircraft equipage and pilot training will initially limit the number of aircraft capable of performing RNP operations. However, once more and more aircraft become equipped, RNP clearances will be issued as the standard and aircraft performing RNP procedures will be given priority over older, legacy aircraft. In the intervening period RNP capable aircraft need to be able operate in the same airspace as other, non-RNP capable aircraft and vice versa.

Airservices Australia plans to introduce multi variant design RNP procedures to a number of airports including Canberra, in the near future. The multi variant design of the proposed RNP procedures will allow them to be used by a range of aircraft types such as B737-700, B737-800 and A320 aircraft as well as allowing for wide body twin engine jet aircraft such as B767, B777-200, B777-300, A330-200 and A330-300 aircraft.

At an airport where there are areas with no residential development available for approach and departure paths, RNP's offer a number of potential environmental benefits:

- Lower noise levels associated with each aircraft's operation
- More precise navigation resulting in highly concentrated tracks around the nominal flight path
- Greater flexibility in the design of flight paths to avoid residential developments, including future development as they arise.

10.8 Noise Monitoring

Noise monitoring comprises collecting noise data from an area and correlating it with aircraft movement data to determine which noise events are aircraft noise events. Data is published in quarterly reports, available on Airservices Australia's website:

<http://www.airservices.gov.au/projectsservices/reports/nfpms/nfpmscanberra.asp>

Airservices Australia undertakes continuous noise monitoring at all Australian capital city airports. At Canberra there is a permanent noise monitor at Jerrabomberra and a temporary monitor was installed at Hackett for all of 2009.

10.9 Proposed Action

On the basis of the findings in this report, Airservices Australia does not see any need to change any of the existing NAPs within the short term (next five years), but can explore the use of RNP technology as it enables routes that have less environmental impact to be

flown. This can be achieved at Canberra Airport through the development of multi-variant design RNP procedures, enabling suitably equipped aircraft to use RNP flight paths. Work on the feasibility of this option is underway.

Airservices Australia also proposes to monitor and report on compliance with NAPs at night outside tower hours and will follow non-compliance issues up with industry to encourage improved performance where possible.

Appendix A

Terms of Reference

Context

On 28 August 2009, the Minister for Infrastructure, Transport, Regional Development and Local Government approved the Master Plan for Canberra Airport. In doing so, the Minister acknowledged the concern within the Canberra community about aircraft noise and noted that Airservices Australia had been requested to conduct a review of noise abatement. It was further noted that Airservices' review would be conducted in 2010 and will "consider options to concentrate aircraft noise away from existing residential areas, especially at night" and "examine the application of air navigation technology to minimise the impact of aircraft noise" (source: Media Release 28 August 2009).

Purpose

To review ways to minimise the impact of aircraft noise on residential areas around Canberra Airport, especially at night, and advise the Minister of options to concentrate aircraft noise away from existing residential areas.

Scope

The review will identify

1. Current noise distribution, which will rely on
 - a. Noise monitoring data, including complaints
 - b. Noise complaint data
 - c. Community impacts of aircraft noise.
2. Demography and land use around Canberra Airport
 - a. Historical
 - b. Future growth projections
3. Current noise abatement procedures, including
 - a. Historical and legal foundation, including ICAO balanced approach
 - b. Preferred runways
 - c. Preferred flight paths
 - d. Noise abatement areas
 - e. Applicability to military operations
4. Compliance with Noise Abatement Procedures (2009)
 - a. Preferred runways
 - b. Preferred flight paths
 - c. Noise abatement areas
5. Effectiveness of Noise Abatement Procedures
 - a. Preferred runways
 - b. Preferred flight paths
 - c. Noise abatement areas
6. Forecast growth of traffic (as per Master Plan)
 - a. Traffic levels
 - b. Aircraft types
 - c. Impact on effectiveness of NAPs

7. Options, including likely implications for their implementation (including cost, efficiency, emissions etc)
 - a. Preferred runways
 - b. Preferred flight paths
 - c. Noise abatement areas
 - d. Night operations
 - e. Other restrictions, such as curfew, movement caps, etc
 - f. Concentration vs sharing of noise
 - g. Opportunities from new technology
 - h. Noise monitoring studies

Consultation with Interested Parties

Airservices will consult with interested parties via the Canberra Airport Community Consultation Committee convened by airport management. The Committee comprises representatives from the airport; Airservices; Commonwealth (Department of Infrastructure, Transport, Regional Development and Local Government - DITRD LG), ACT and NSW (State and Local) government; the aviation industry (i.e. airport users) and residents' associations (or similar purpose organisations) for all areas surrounding the airport.

Review Process

Terms of Reference

The Terms of Reference for the review will be agreed between Airservices and DITRD LG, following consideration by members of Canberra Airport's Community Consultation Committee at its February 2010 meeting. The Terms of Reference will be circulated to Committee members for comment by 28 February 2010. Comments are to be sent to linda.thane@airservicesaustralia.com

Review Report

A final draft of Airservices report will be provided to members of the Airport's Community Consultation Committee for discussion at the November 2010 meeting.

Final Report

The final report will be provided to the Minister's Office by 31 December 2010.

Appendix B

Glossary of terms and phrases

Aerodrome Elevation	The elevation of the highest point of the landing area.
Aerodrome Reference Point (ARP)	The designated geographical location of an aerodrome.
Air Traffic	All aircraft in flight or operating on the manoeuvring area of an aerodrome.
Air Traffic Control Service (ATC)	A service provided for the purpose of: a. preventing collisions: 1. between aircraft; and 2. on the manoeuvring area between aircraft and obstructions; and b. expediting and maintaining an orderly flow of air traffic.
Altitude	The vertical distance of a level, a point, or an object considered as a point measured from mean sea level.
Area Navigation (RNAV)	A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space based navigation aids or within the limits of the capability self contained aids, or a combination of these.
Arrival Routes	Routes identified in an instrument approach procedure by which aircraft may proceed from the en route phase of flight to an initial approach fix.
Continuous Descent Operation (CDO)	Continuous Descent Operations are enabled by airspace design, procedure design and facilitation by ATC, in which an arriving aircraft descends continuously, ideally from top of descent, to the greatest possible extent, by employing minimum engine thrust, ideally in a low drag configuration, to the final approach phase.
Distance Measuring Equipment (DME)	Equipment which measures, in nautical miles, the slant range of an aircraft from the selected DME ground station
Decibels A-weighted (dB(A))	The decibel is the standard unit of measurement for noise. A-weighted indicates that the noise measurement has been weighted to match human hearing characteristics.
L _{Amax}	The maximum noise level occurring during an aircraft overflight noise event.
L _{Aeq}	The L _{eq} represents the average noise energy during the measurement period. When the energy level is A-weighted it may be written as L _{Aeq} . The night time period occurs between 10pm and 7am. The day time period occurs between 7am and 10pm.
DME Distance	The slant range from the source of a DME signal to the receiving antenna.
DME or GPS Arrival Procedure	Procedures specified in Departure and Approach Procedures as being able to be carried out using either GPS or DME.

Elevation	The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.
Global Navigation Satellite System (GNSS)	A satellite system used by the pilot on board an aircraft to determine position from satellite data.
Height	The vertical distance of a level, a point, or an object considered as a point measured from a specified datum
Instrument Approach Procedure	A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix or, where applicable, from the beginning of a defined arrival group to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.
Instrument Flight Rules (IFR)	A set of regulations and procedures for flying aircraft when weather conditions are below the minimum for visual flight rules.
Instrument Landing System (ILS)	A precision instrument approach system which normally consists of a Localiser, Glideslope, and Marker Beacons.
Instrument Meteorological Conditions (IMC)	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions
Localiser	The component of an ILS which provides azimuth guidance to a runway.
Locator	A type of NDB used as an aid to final approach.
Maximum Take off Weight (MTOW)	The maximum take off weight of an aircraft as specified in its Certificate of Airworthiness.
Noise and Flight Path Monitoring System (NFPMS)	The NFPMS is a system that records the identity, flight path and altitude of each aircraft operating to and from the airport, the noise levels produced by individual aircraft, weather data, and the general background noise.
Noise Monitoring Terminal (NMT)	The NMT consists of a microphone on top of a 6 metre mast and an electronics box. The noise level to which the microphone is exposed over the range of 30 to 130 dB(A) is continuously measured and transmitted via a data line to the NFPMS central computer where it is processed and stored for later analysis.
Non Directional Beacon (NDB)	A special radio station, the emissions of which are intended to enable a mobile station to determine its radio bearing or direction with reference to that special radio station.

Performance based Navigation (PBN)	Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.
Required Navigation Performance (RNP)	A statement of the navigation performance necessary for operation within a defined airspace.
Required Navigation Performance-Authorisation Required (RNP-AR) approach	An RNP-AR instrument approach in IMC under the IFR for which authorization by CASA is required in Australia.
Required Navigation Performance-Authorisation Required (RNP-AR) departure	An RNP-AR instrument departure in IMC under the IFR for which authorization by CASA is required in Australia
Runway (RWY)	A defined rectangular area on a land aerodrome prepared for the landing and take off of aircraft
Runway Number	The runway identification associated with the runway direction end.
Standard Arrival Route (STAR)	A published IFR arrival route which links the en route airways system to a fix at or near the destination aerodrome.
Standard Instrument Departure (SID)	A published IFR departure comprising obstacle clearance data to the minimum safe altitude and tracking data until the aircraft reaches a specified point on its Air Traffic Control cleared route.
Standard Instrument Departure (Radar)	A published ground radar based IFR departure comprising standard climb gradient data to minimum safe altitude while being radar vectored by ATC.
VHF Omni-directional Radio Range (VOR)	A VHF radio navigational aid which provides a continuous indication of bearing from the selected VOR ground station
Visual Meteorological Conditions (VMC)	Meteorological conditions expressed in terms of visibility, ceiling and distance from cloud, equal to or better than specified minima.
Waypoint	A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.

Appendix C

Canberra Airport SIDs and STARs

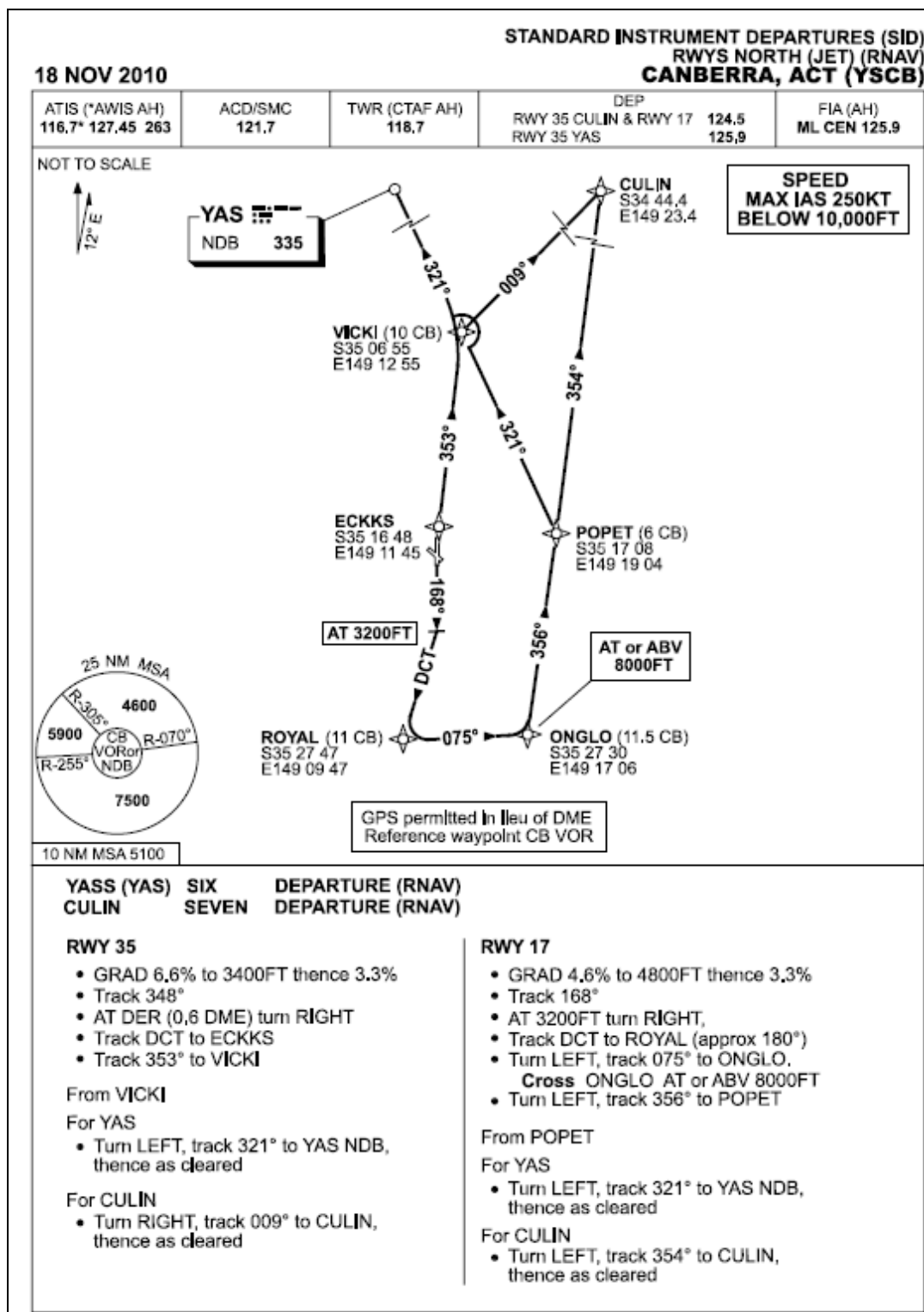


Figure C1 Jet SIDs to the North

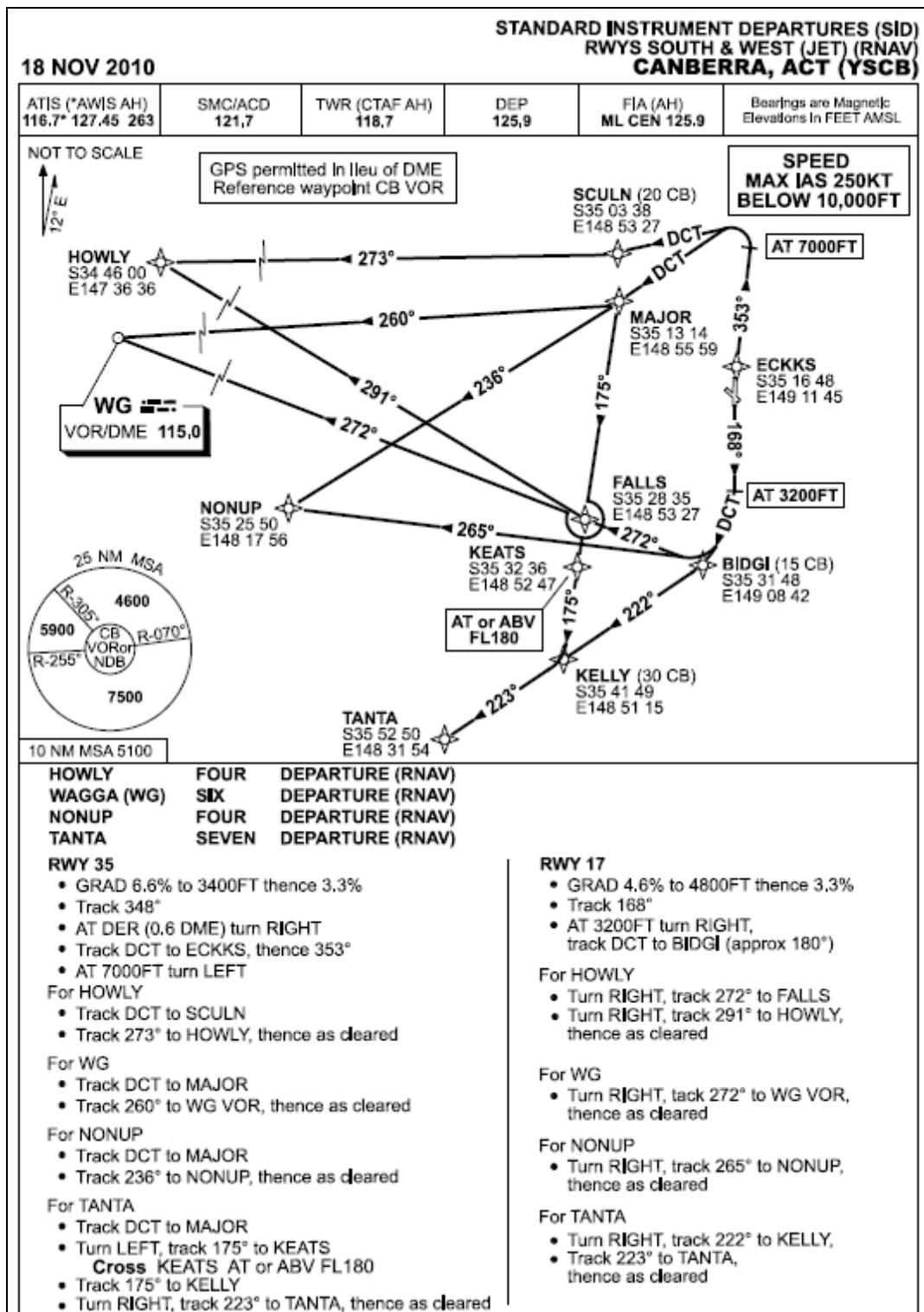


Figure C2 Jet SIDs to the South & West

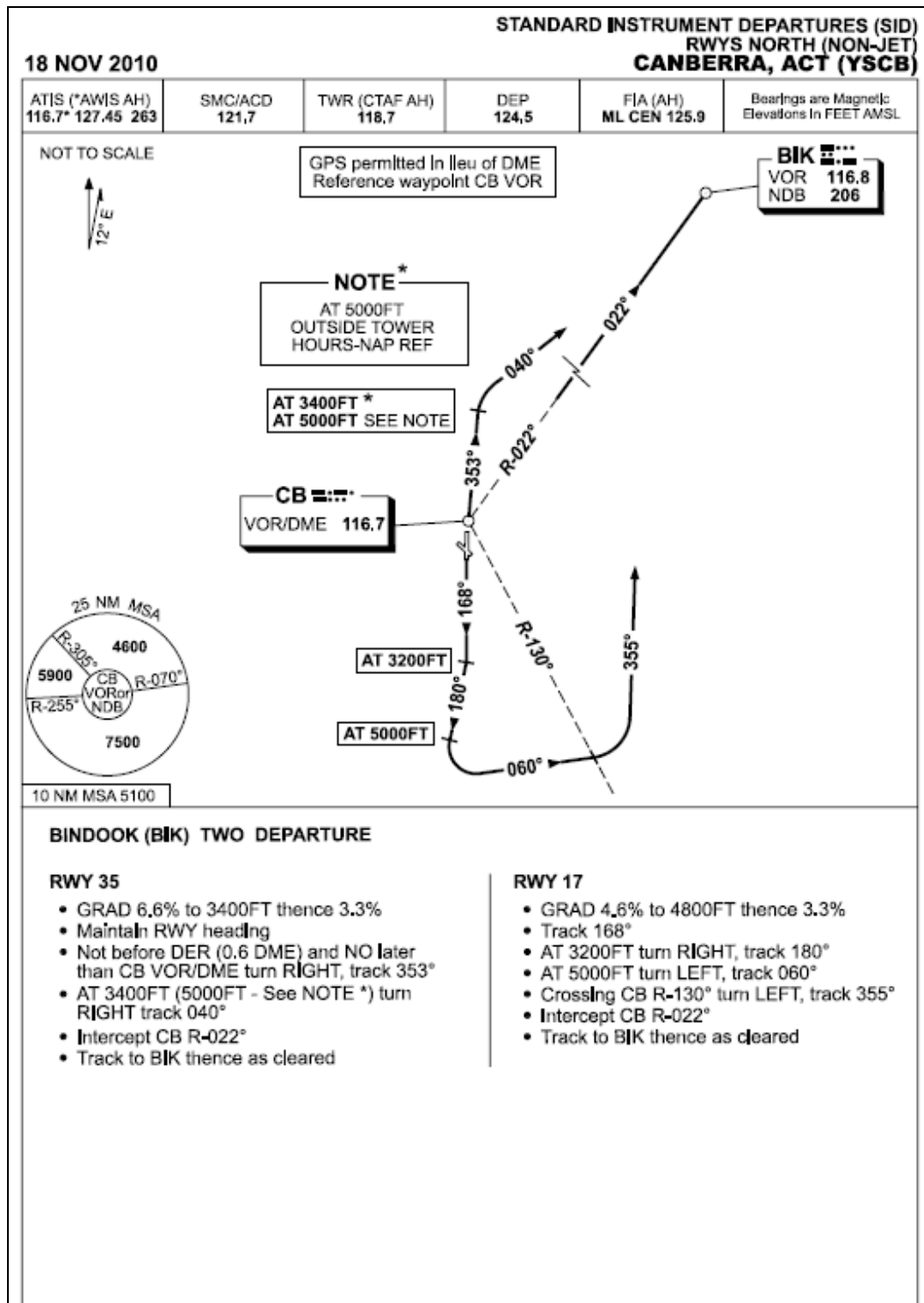


Figure C3 Non-Jet SIDs to the North

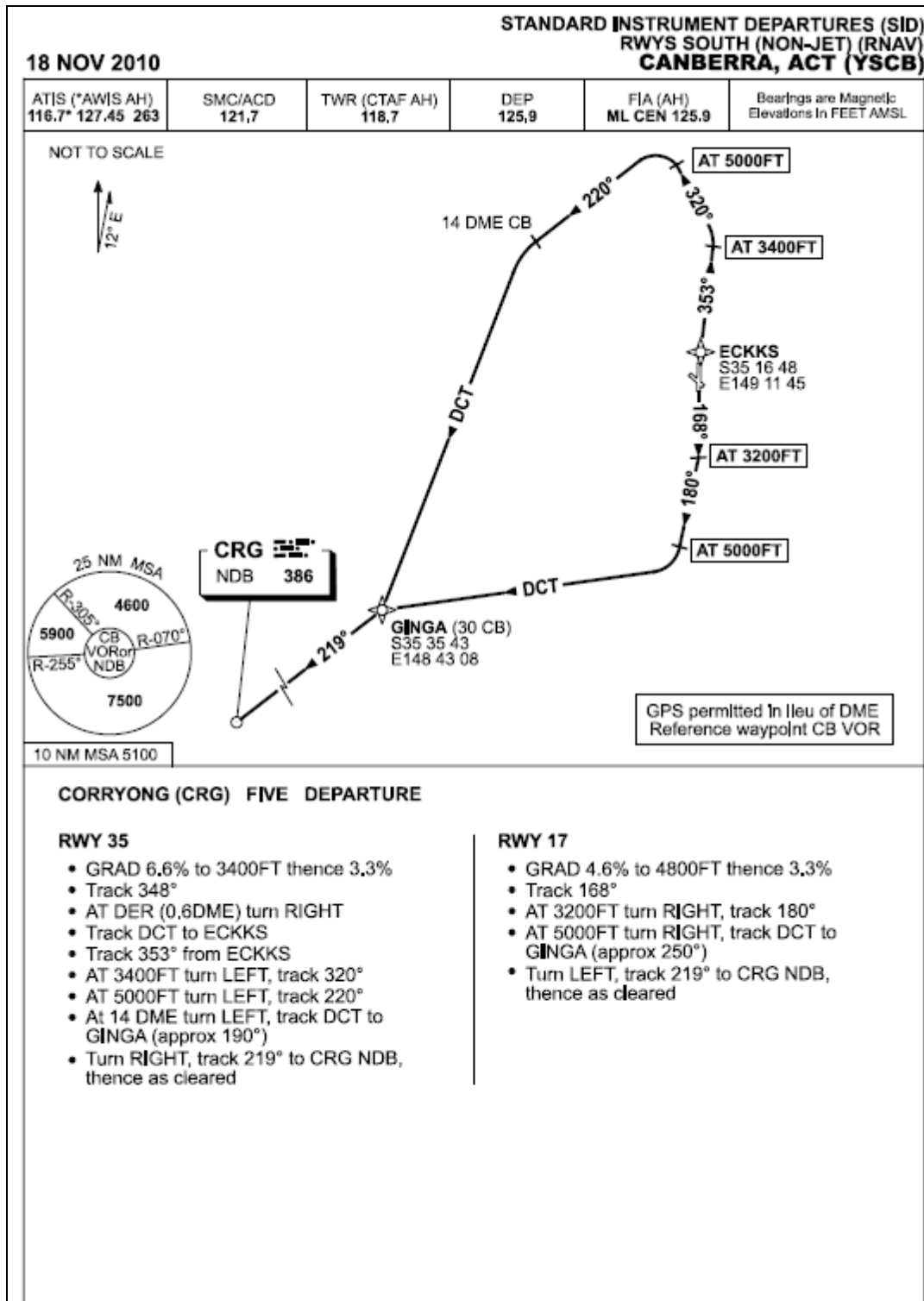


Figure C4 Non-Jet SIDs to the South

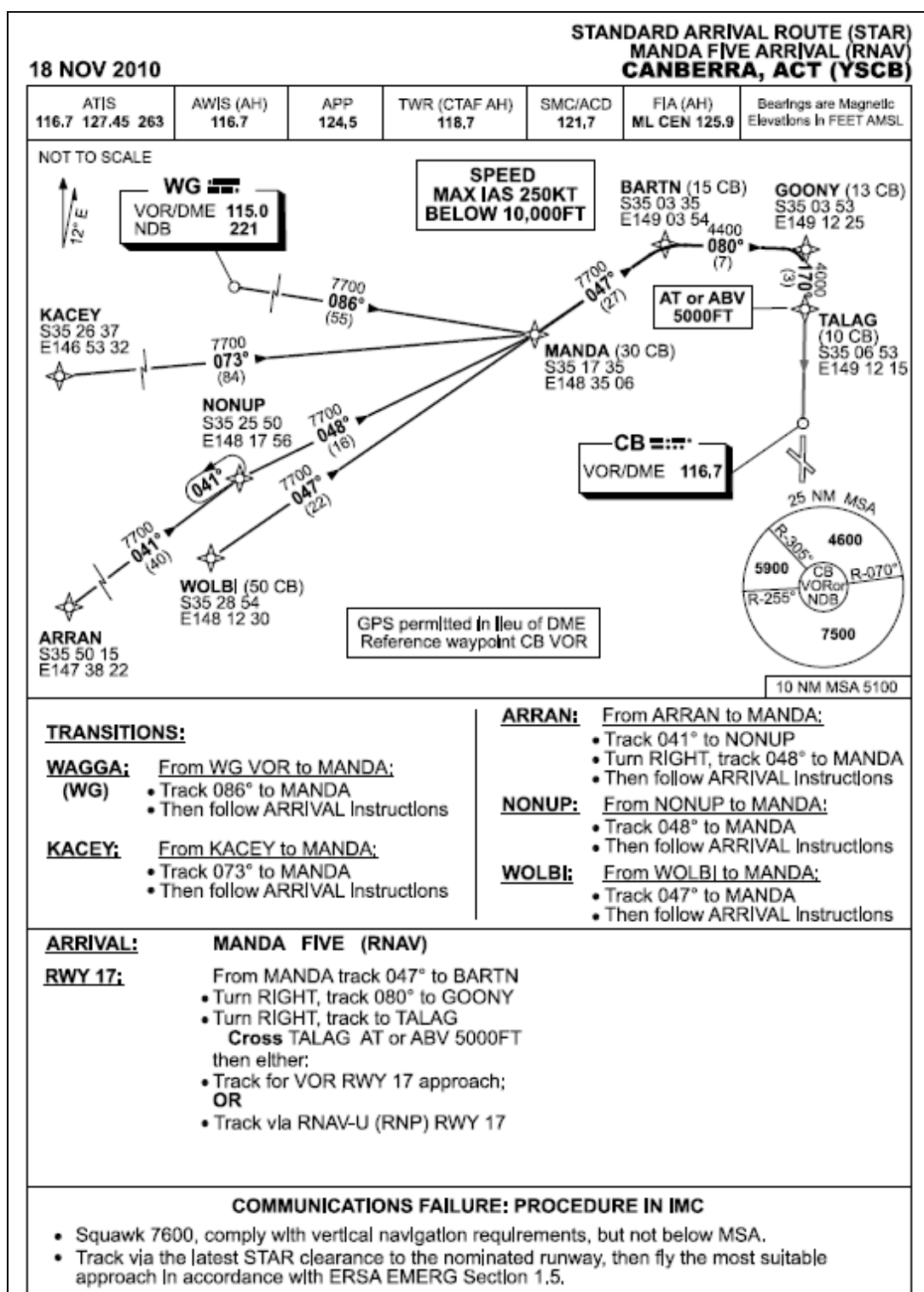


Figure C5 MANDA STAR

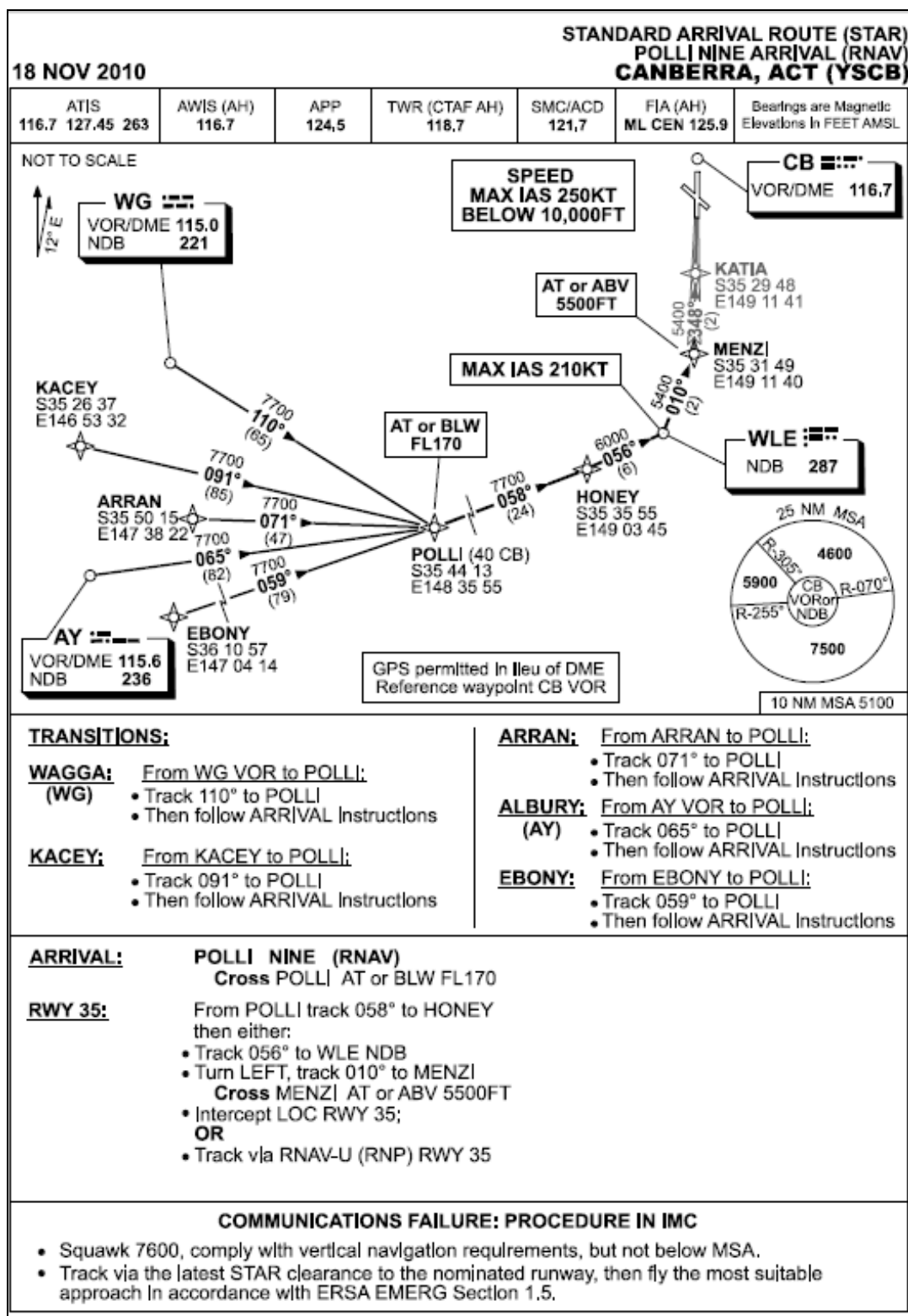


Figure C6 POLLI STAR

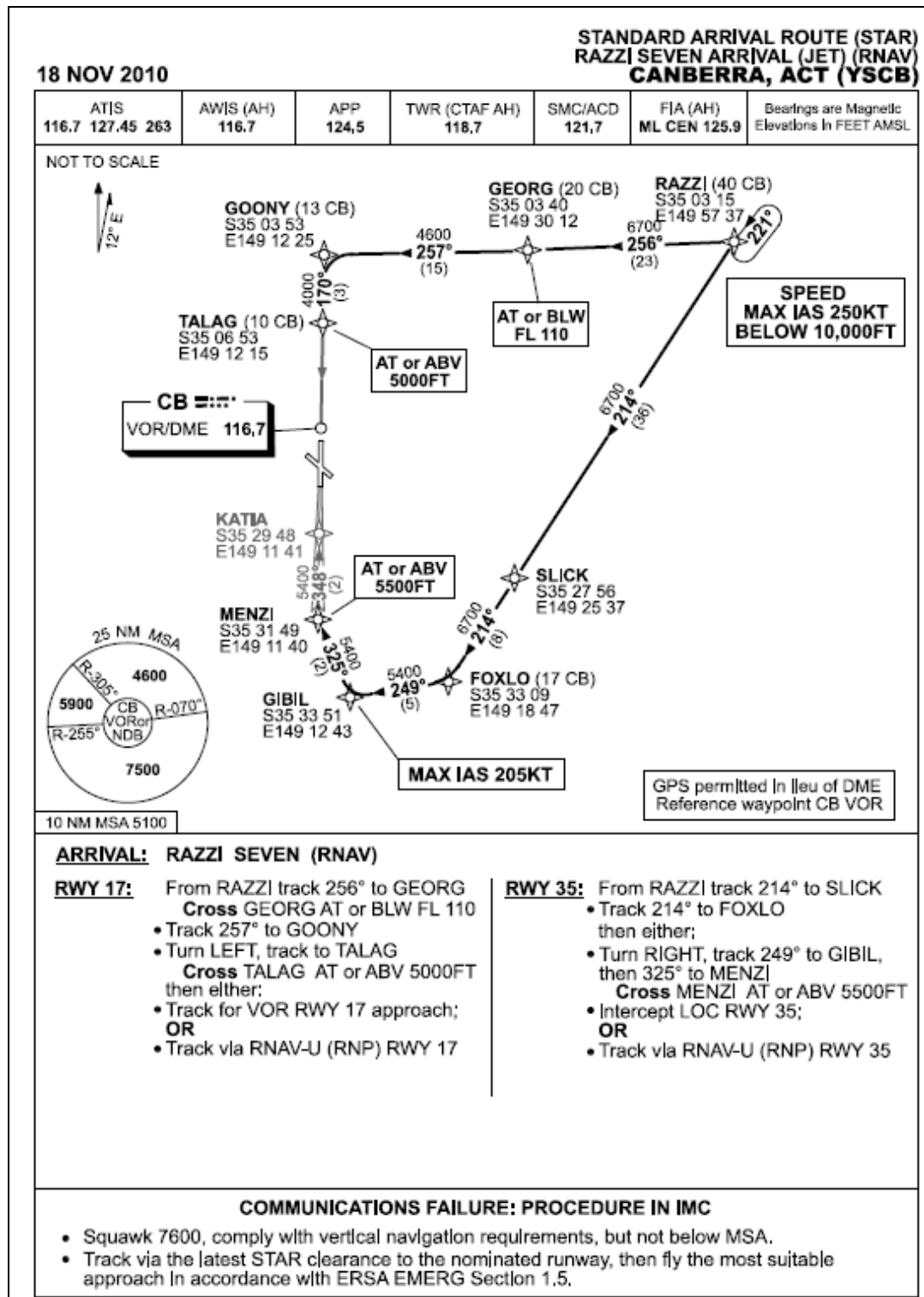


Figure C7 RAZZI STAR

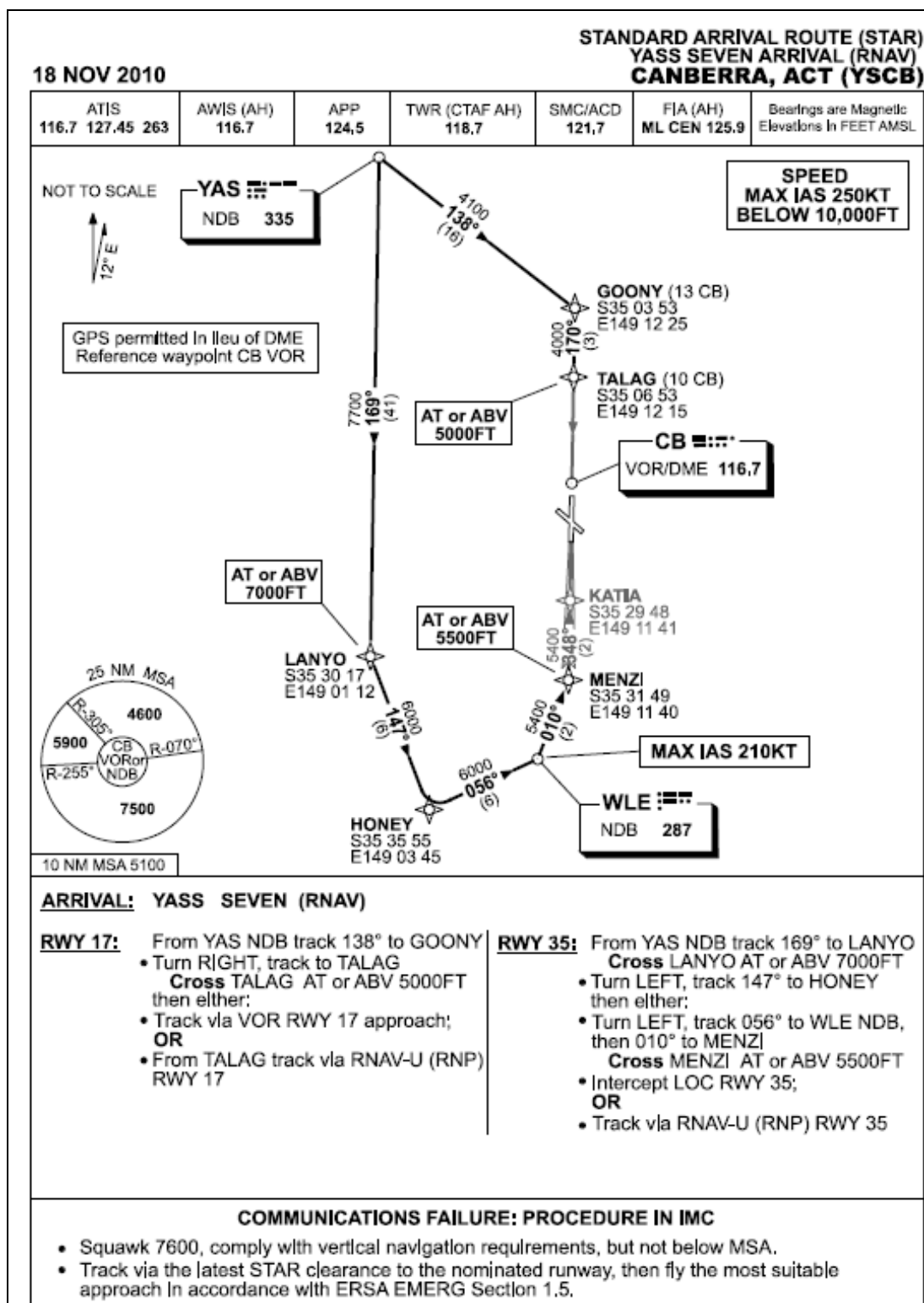


Figure C8 RAZZI STAR

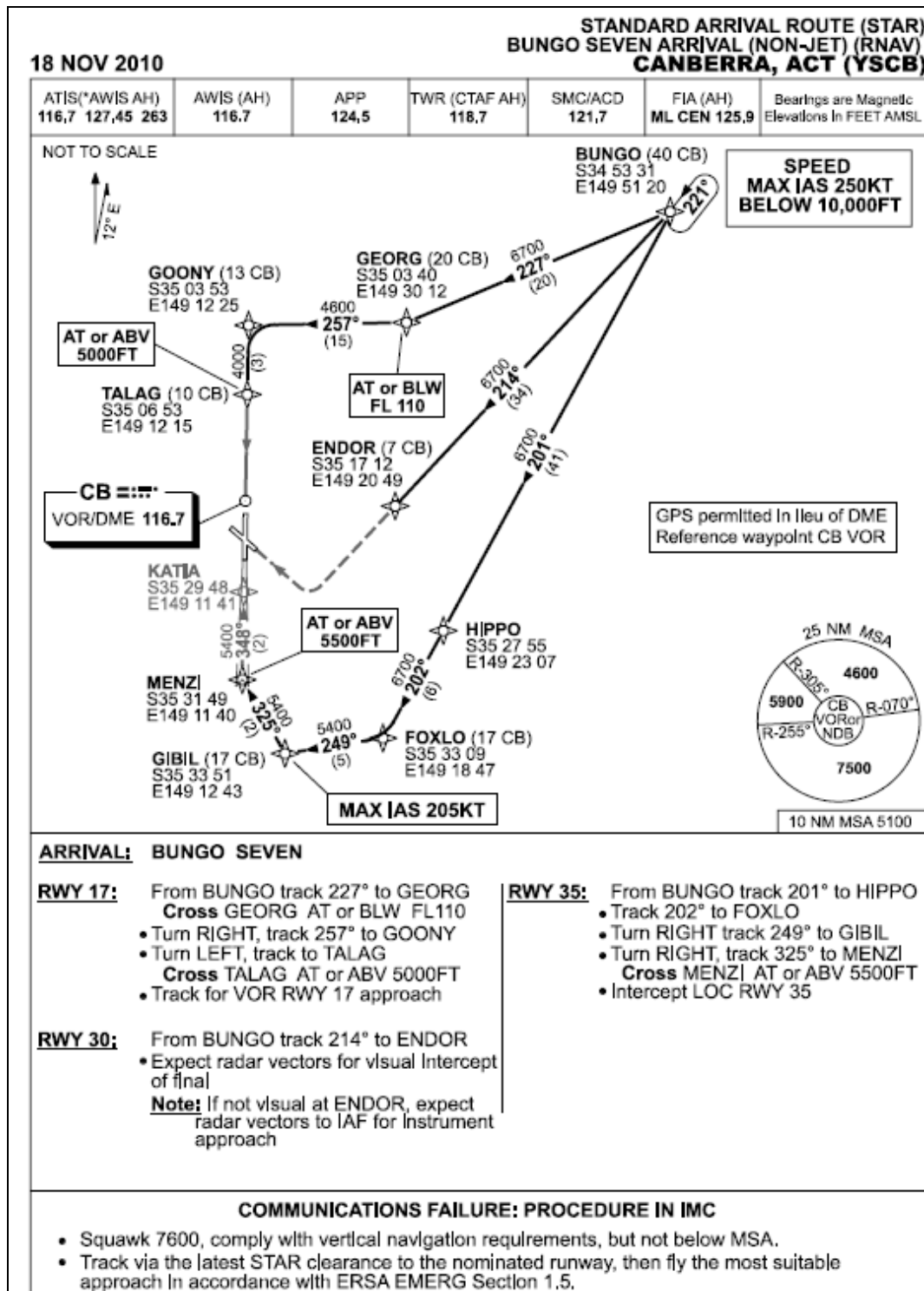


Figure C9 BUNGO STAR

Appendix D

Complaints

Recorded Complaints vs Complainants, by Month, January to December 2009

Suburb	Complaints	Complainants
Not Specified	1	1
Griffith	1	1
Hackett	17	1
Hughes	1	1
Total	20	4

Table D1 January 2009

Suburb	Complaints	Complainants
Not Specified	2	1
Campbell	2	2
Hackett	13	2
Jerrabomberra	3	1
Richardson	1	1
Total	21	7

Table D2 February 2009

Suburb	Complaints	Complainants
Not Specified	2	2
Acton	1	1
Bungendore	2	2
Cambell	1	1
Canberra	2	2
Hackett	28	1
Jerrabomberra	1	1
Queanbeyan	5	3
Total	41	15

Table D3 March 2009

Suburb	Complaints	Complainants
Downer	1	1
Griffith	4	1
Hackett	7	1
Jerrabomberra	2	2
Queanbeyan	1	1
Yarralumla	1	1
Total	16	7

Table D4 April 2009

Suburb	Complaints	Complainants
Campbell	1	1
Downer	1	1
Griffith	17	1
Jerrabomberra	1	1
Murrumbateman	1	1
Turner	1	1
Wamboin	1	1
Total	23	7

Table D5 May 2009

Suburb	Complaints	Complainants
Fraser	2	1
Griffith	5	1
Jerrabomberra	1	1
Total	8	3

Table D6 June 2009

Suburb	Complaints	Complainants
Griffith	10	1
Hackett	4	1
Jerrabomberra	1	1
Kaleen	2	1
Red Hill	1	1
Wamboin	1	1
Total	19	6

Table D7 July 2009

Suburb	Complaints	Complainants
Fyshwick	1	1
Griffith	8	1
Hackett	3	1
Hawker	1	1
Jerrabomberra	1	1
Narrabundah	1	1
Queanbeyan East	1	1
Total	16	7

Table C8 August 2009

Suburb	Complaints	Complainants
Amaroo	1	1
Campbell	2	1
Downer	1	1
Forde	4	1
Griffith	24	1
Hackett	4	1
Jerrabomberra	8	3
Narrabundah	1	1
Nicholls	1	1
Total	46	11

Table D9 September 2009

Suburb	Complaints	Complainants
Not Specified	2	2
Carwoola	1	1
Flynn	1	1
Forde	1	1
Griffith	6	1
Hackett	4	1
Jerrabomberra	2	2
Kambah	1	1
Karabar	1	1
Nicholls	1	1
Queanbeyan	4	3
Wanniassa	4	2
Watson	1	1
Total	29	18

Table D10 October 2009

Suburb	Complaints	Complainants
Not Specified	1	1
Carwoola	1	1
Dunlop	1	1
Forde	4	1
Griffith	11	1
Hackett	6	2
Jerrabomberra	7	5
Kaleen	1	1
Nicholls	1	1
Queanbeyan	1	1
Wanniassa	2	1
Total	36	16

Table D11 November 2009

Suburb	Complaints	Complainants
Chisholm	1	1
Downer	1	1
Forde	1	1
Griffith	9	1
Hackett	1	1
Jerrabomberra	3	3
Karabar	1	1
Wanniassa	3	1
Watson	1	1
Total	21	11

Table D12 December 2009

Complaint Details by Suburb

Date	Suburb	State	Runway/Operation	Issues	Category
10-Jan-09	GRIFFITH	ACT			Propeller
21-Apr-09	GRIFFITH	ACT		Aircraft Height, Increased Frequency	Propeller
21-Apr-09	GRIFFITH	ACT		Aircraft Height, Increased Frequency	Propeller
21-Apr-09	GRIFFITH	ACT		Aircraft Height	Propeller
28-Apr-09	GRIFFITH	ACT			Propeller
05-May-09	GRIFFITH	ACT		Aircraft Height	Propeller
09-May-09	GRIFFITH	ACT			Propeller
09-May-09	GRIFFITH	ACT		Aircraft Height	Propeller
09-May-09	GRIFFITH	ACT		Aircraft Height	Propeller
10-May-09	GRIFFITH	ACT	12 Arr, 12 Dep		Propeller
11-May-09	GRIFFITH	ACT			General
11-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
17-May-09	GRIFFITH	ACT			Propeller
21-May-09	GRIFFITH	ACT			Jet
21-May-09	GRIFFITH	ACT		Flight Paths	Propeller
30-May-09	GRIFFITH	ACT			Propeller
31-May-09	GRIFFITH	ACT	12 Dep		Propeller
02-Jun-09	GRIFFITH	ACT			General
02-Jun-09	GRIFFITH	ACT			General
08-Jun-09	GRIFFITH	ACT			Propeller
19-Jun-09	GRIFFITH	ACT		Aircraft Height, Flight Paths	Propeller
20-Jun-09	GRIFFITH	ACT	12 Dep	Aircraft Height	Propeller
17-Jul-09	GRIFFITH	ACT			Propeller
18-Jul-09	GRIFFITH	ACT		Aircraft Height	Propeller
24-Jul-09	GRIFFITH	ACT		Flight Paths	General
25-Jul-09	GRIFFITH	ACT			Propeller
25-Jul-09	GRIFFITH	ACT			Propeller
26-Jul-09	GRIFFITH	ACT			Propeller
26-Jul-09	GRIFFITH	ACT			Propeller
27-Jul-09	GRIFFITH	ACT		Aircraft Height	Propeller
27-Jul-09	GRIFFITH	ACT	30 Dep		Propeller
31-Jul-09	GRIFFITH	ACT		Flight Paths	Propeller
02-Aug-09	GRIFFITH	ACT	35 Arr		Propeller
02-Aug-09	GRIFFITH	ACT	35 Arr		Propeller
08-Aug-09	GRIFFITH	ACT			Propeller
09-Aug-09	GRIFFITH	ACT			Propeller

Table C13 Griffith Complaints

Date	Suburb	State	Runway/Operation	Issues	Category
09-Aug-09	GRIFFITH	ACT			Propeller
09-Aug-09	GRIFFITH	ACT			Propeller
09-Aug-09	GRIFFITH	ACT			Propeller
13-Aug-09	GRIFFITH	ACT			Propeller
03-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
05-Sep-09	GRIFFITH	ACT			Propeller
06-Sep-09	GRIFFITH	ACT		Aircraft Height	Propeller
06-Sep-09	GRIFFITH	ACT			Propeller
07-Sep-09	GRIFFITH	ACT			Propeller
09-Sep-09	GRIFFITH	ACT			General
11-Sep-09	GRIFFITH	ACT			General
12-Sep-09	GRIFFITH	ACT			Propeller
17-Sep-09	GRIFFITH	ACT			Propeller
18-Sep-09	GRIFFITH	ACT	30 Sep	Aircraft Height, Flight Paths	General
18-Sep-09	GRIFFITH	ACT			Propeller
18-Sep-09	GRIFFITH	ACT			Propeller
18-Sep-09	GRIFFITH	ACT			Propeller
19-Sep-09	GRIFFITH	ACT		Aircraft Height	Propeller
19-Sep-09	GRIFFITH	ACT			Propeller
20-Sep-09	GRIFFITH	ACT			Propeller
20-Sep-09	GRIFFITH	ACT			Propeller
20-Sep-09	GRIFFITH	ACT			Propeller
20-Sep-09	GRIFFITH	ACT		Aircraft Height	Propeller
02-Oct-09	GRIFFITH	ACT			Propeller
04-Oct-09	GRIFFITH	ACT			Propeller
08-Oct-09	GRIFFITH	ACT			Propeller
08-Oct-09	GRIFFITH	ACT			General
08-Oct-09	GRIFFITH	ACT			General
25-Oct-09	GRIFFITH	ACT			General
12-Nov-09	GRIFFITH	ACT			Jet
12-Nov-09	GRIFFITH	ACT			Jet
14-Nov-09	GRIFFITH	ACT			Jet
14-Nov-09	GRIFFITH	ACT			Jet
14-Nov-09	GRIFFITH	ACT			General
14-Nov-09	GRIFFITH	ACT			General

Table C13 Griffith Complaints (continued)

Date	Suburb	State	Runway/Operation	Issues	Category
14-Nov-09	GRIFFITH	ACT		Flight Paths, Increased Frequency	Propeller
19-Nov-09	GRIFFITH	ACT			General
19-Nov-09	GRIFFITH	ACT			General
21-Nov-09	GRIFFITH	ACT	17 Dep		Propeller
09-Dec-09	GRIFFITH	ACT			Propeller
09-Dec-09	GRIFFITH	ACT			Propeller
13-Dec-09	GRIFFITH	ACT			General
21-Dec-09	GRIFFITH	ACT		Flight Paths, Increased Frequency	General
22-Dec-09	GRIFFITH	ACT			General
22-Dec-09	GRIFFITH	ACT		Increased Frequency	General
23-Dec-09	GRIFFITH	ACT			Propeller
28-Dec-09	GRIFFITH	ACT			Propeller
30-Dec-09	GRIFFITH	ACT			Propeller

Table C13 Griffith Complaints (continued)

Date	Suburb	State	Runway/Operation	Issues	Category
05-Jan-09	HACKETT	ACT		Aircraft Height	General
06-Jan-09	HACKETT	ACT			Jet
07-Jan-09	HACKETT	ACT		Flight Paths	General
10-Jan-09	HACKETT	ACT			Propeller
10-Jan-09	HACKETT	ACT			Propeller
10-Jan-09	HACKETT	ACT			Propeller
11-Jan-09	HACKETT	ACT			Propeller
11-Jan-09	HACKETT	ACT			Propeller
11-Jan-09	HACKETT	ACT			Propeller
12-Jan-09	HACKETT	ACT			Jet
13-Jan-09	HACKETT	ACT			Jet
14-Jan-09	HACKETT	ACT			Jet
19-Jan-09	HACKETT	ACT			Jet
19-Jan-09	HACKETT	ACT			Jet
23-Jan-09	HACKETT	ACT		Flight Paths	Jet
26-Jan-09	HACKETT	ACT			Propeller
26-Jan-09	HACKETT	ACT			Jet
03-Feb-09	HACKETT	ACT			Jet
04-Feb-09	HACKETT	ACT			Jet
10-Feb-09	HACKETT	ACT			Jet
12-Feb-09	HACKETT	ACT	35 Dep		Jet
12-Feb-09	HACKETT	ACT			Jet
15-Feb-09	HACKETT	ACT			Jet
15-Feb-09	HACKETT	ACT			Jet
16-Feb-09	HACKETT	ACT	35 Dep	Flight Paths	General
22-Feb-09	HACKETT	ACT			Propeller
23-Feb-09	HACKETT	ACT			Jet
24-Feb-09	HACKETT	ACT			Propeller
24-Feb-09	HACKETT	ACT			Propeller

Table C 14 Hackett Complaints

Date	Suburb	State	Runway/Operation	Issues	Category
01-Mar-09	HACKETT	ACT			Propeller
01-Mar-09	HACKETT	ACT	35 Dep		Propeller
05-Mar-09	HACKETT	ACT			Propeller
05-Mar-09	HACKETT	ACT			Helicopter
06-Mar-09	HACKETT	ACT	35 Dep		Jet
07-Mar-09	HACKETT	ACT			Propeller
07-Mar-09	HACKETT	ACT			Propeller
07-Mar-09	HACKETT	ACT			Jet
07-Mar-09	HACKETT	ACT			Propeller
07-Mar-09	HACKETT	ACT			Propeller
08-Mar-09	HACKETT	ACT			Propeller
09-Mar-09	HACKETT	ACT			Propeller
10-Mar-09	HACKETT	ACT		Flight Paths	Jet
13-Mar-09	HACKETT	ACT		Flight Paths, Increased Frequency	Jet
13-Mar-09	HACKETT	ACT			Propeller
15-Mar-09	HACKETT	ACT			Helicopter
18-Mar-09	HACKETT	ACT			Propeller
22-Mar-09	HACKETT	ACT			Jet
23-Mar-09	HACKETT	ACT			Propeller
23-Mar-09	HACKETT	ACT	35 Dep	Flight Paths	Jet
24-Mar-09	HACKETT	ACT		Aircraft Height, Flight Paths	Jet
25-Mar-09	HACKETT	ACT			Jet
29-Mar-09	HACKETT	ACT			Propeller
31-Mar-09	HACKETT	ACT	17 Arr	Flight Paths	Jet
31-Mar-09	HACKETT	ACT		Flight Paths	Propeller
31-Mar-09	HACKETT	ACT		Flight Paths	Jet
31-Mar-09	HACKETT	ACT		Flight Paths	Helicopter
31-Mar-09	HACKETT	ACT			Jet
01-Apr-09	HACKETT	ACT			Propeller
02-Apr-09	HACKETT	ACT		Flight Paths	Propeller
03-Apr-09	HACKETT	ACT			Jet
08-Apr-09	HACKETT	ACT	35 Dep		Jet
08-Apr-09	HACKETT	ACT			Helicopter
08-Apr-09	HACKETT	ACT			Jet
10-Apr-09	HACKETT	ACT			Helicopter
13-Jul-09	HACKETT	ACT		Flight Paths	Helicopter
20-Jul-09	HACKETT	ACT		Flight Paths	General
30-Jul-09	HACKETT	ACT			Jet
31-Jul-09	HACKETT	ACT	35 Dep		Jet
25-Aug-09	HACKETT	ACT	30 Dep		Propeller
26-Aug-09	HACKETT	ACT		Flight Paths	General
26-Aug-09	HACKETT	ACT		Flight Paths, Runway Selection	General
22-Sep-09	HACKETT	ACT	35 Dep		Jet
23-Sep-09	HACKETT	ACT	35 Dep		Jet
24-Sep-09	HACKETT	ACT	35 Dep		Jet
30-Sep-09	HACKETT	ACT	35 Dep	Flight Paths	Jet

Table C14 Hackett Complaints (continued)

Date	Suburb	State	Runway/Operation	Issues	Category
02-Oct-09	HACKETT	ACT	35 Dep		Jet
06-Oct-09	HACKETT	ACT	35 Dep		Propeller
23-Oct-09	HACKETT	ACT			Jet
26-Oct-09	HACKETT	ACT			Propeller
03-Nov-09	HACKETT	ACT			Helicopter
18-Nov-09	HACKETT	ACT			Propeller
19-Nov-09	HACKETT	ACT	35 Dep		Jet
23-Nov-09	HACKETT	ACT		Increased Frequency	General
23-Nov-09	HACKETT	ACT	35 Dep		Jet
27-Nov-09	HACKETT	ACT		Flight Paths	Jet
23-Dec-09	HACKETT	ACT			General

Table C14 Hackett Complaints (continued)

Date	Suburb	State	Runway/Operation	Issues	Category
18-Feb-09	JERRABOMBERRA	NSW			Propeller
18-Feb-09	JERRABOMBERRA	NSW		Increased Frequency	General
18-Feb-09	JERRABOMBERRA	NSW		Aircraft Height, Flight Paths	Propeller
17-Mar-09	JERRABOMBERRA	NSW	35 Arr	Aircraft Height, Flight Paths	Propeller
19-Apr-09	JERRABOMBERRA	NSW			Propeller
23-Apr-09	JERRABOMBERRA	NSW	35 Arr	Flight Paths	General
17-May-09	JERRABOMBERRA	NSW		Flight Paths	Jet
10-Jun-09	JERRABOMBERRA	NSW	17 Dep	Aircraft Height	Jet
20-Jul-09	JERRABOMBERRA	NSW			General
30-Aug-09	JERRABOMBERRA	NSW	35 Arr	Increased Frequency	General
09-Sep-09	JERRABOMBERRA	NSW			General
09-Sep-09	JERRABOMBERRA	NSW			General
09-Sep-09	JERRABOMBERRA	NSW			General
09-Sep-09	JERRABOMBERRA	NSW			General
10-Sep-09	JERRABOMBERRA	NSW		Flight Paths	Jet
10-Sep-09	JERRABOMBERRA	NSW			Jet
18-Sep-09	JERRABOMBERRA	NSW	35 Arr		Jet
26-Sep-09	JERRABOMBERRA	NSW	35 Arr		Jet
06-Oct-09	JERRABOMBERRA	NSW			General
22-Oct-09	JERRABOMBERRA	NSW			General
03-Nov-09	JERRABOMBERRA	NSW	17 Dep		Jet
03-Nov-09	JERRABOMBERRA	NSW	17 Dep		Jet
15-Nov-09	JERRABOMBERRA	NSW	17 Arr	Flight Paths	Jet
15-Nov-09	JERRABOMBERRA	NSW	17 Arr	Flight Paths	Jet
15-Nov-09	JERRABOMBERRA	NSW	35 Arr	Flight Paths	Jet
16-Nov-09	JERRABOMBERRA	NSW	17 Arr	Flight Paths	Jet
18-Nov-09	JERRABOMBERRA	NSW	35 Arr	Flight Paths	Jet
09-Dec-09	JERRABOMBERRA	NSW	35 Arr	Flight Paths	General
10-Dec-09	JERRABOMBERRA	NSW			General
22-Dec-09	JERRABOMBERRA	NSW	35 Arr	Flight Paths	Jet

Table C15 Jerrabomberra Complaints

Date	Suburb	State	Rway/Op	Issues	Category
01-Mar-09	QUEANBEYAN	NSW	17 Dep	Aircraft Height, Runway Selection	General
19-Mar-09	QUEANBEYAN	NSW	35 Arr	Aircraft Height, Health, Increased Frequency	General
20-Mar-09	QUEANBEYAN	NSW		Flight Paths	General
27-Mar-09	QUEANBEYAN	NSW		Flight Paths	Jet
29-Mar-09	QUEANBEYAN	NSW	35 Arr	Flight Paths	General
22-Apr-09	QUEANBEYAN	NSW		Flight Paths, Increased Frequency	Helicopter
28-Aug-09	QBN EAST	NSW			General
19-Oct-09	QUEANBEYAN	NSW		Flight Paths, Increased Frequency	General
23-Oct-09	QUEANBEYAN	NSW	30 Arr		Propeller
27-Oct-09	QUEANBEYAN	NSW		Flight Paths	Jet
31-Oct-09	QUEANBEYAN	NSW			Jet
02-Nov-09	QUEANBEYAN	NSW	35 Arr		Jet

Table C16 Queanbeyan Complaints

Date	Suburb	State	Runway/Op	Issues	Category
09-Sep-09	FORDE	ACT			General
12-Sep-09	FORDE	ACT	35 Dep	Flight Paths	Jet
21-Sep-09	FORDE	ACT	35 Dep	Flight Paths	Jet
26-Sep-09	FORDE	ACT	35 Dep	Flight Paths	Jet
15-Oct-09	FORDE	ACT			General
03-Nov-09	FORDE	ACT		Aircraft Height	General
11-Nov-09	FORDE	ACT	35 Dep	Aircraft Height	Jet
15-Nov-09	FORDE	ACT		Flight Paths	Jet
22-Nov-09	FORDE	ACT	35 Dep	Flight Paths	Jet
30-Dec-09	FORDE	ACT	35 Dep	Flight Paths	Jet

Table C17 Forde Complaints

Date	Suburb	State	Runway/Op	Issues	Category
05-Oct-09	WANNIASSA	ACT	17 Arr		Propeller
14-Oct-09	WANNIASSA	ACT		Aircraft Height	Propeller
28-Oct-09	WANNIASSA	ACT	17 Dep	Flight Paths	Jet
28-Oct-09	WANNIASSA	ACT	17 Dep	Aircraft Height, Flight Paths	Jet
19-Nov-09	WANNIASSA	ACT	17 Dep	Flight Paths	Jet
19-Nov-09	WANNIASSA	ACT	17 Dep		Jet
08-Dec-09	WANNIASSA	ACT			General
08-Dec-09	WANNIASSA	ACT			General
08-Dec-09	WANNIASSA	ACT	17 Dep	Aircraft Height	General

Table C18 Wanniasa Complaints

Date	Suburb	State	Runway/Op	Issues	Category
05-Feb-09	CAMPBELL	ACT			Propeller
11-Feb-09	CAMPBELL	ACT			Jet
25-Mar-09	CAMPBELL	ACT			Propeller
06-May-09	CAMPBELL	ACT	30 Dep	Aircraft Height	Propeller
06-Sep-09	CAMPBELL	ACT	30 Dep	Runway Selection	Propeller
06-Sep-09	CAMPBELL	ACT			Helicopter

Table C19 Campbell Complaints

Date	Suburb	State	Runway/Op	Issues	Category
10-Jan-09	GRIFFITH	ACT			Propeller
13-Jan-09	Not Specified	ACT	17 Arr, 35 Dep	Flight Paths	General
27-Jan-09	HUGHES	ACT			Jet
04-Feb-09	Not Specified	NSW	35 Arr	Aircraft Height	Jet
04-Feb-09	Not Specified	NSW	35 Arr	Flight Paths	Jet
24-Feb-09	RICHARDSON	ACT		Aircraft Height	Helicopter
07-Mar-09	Not Specified	ACT			General
09-Mar-09	BUNGENDORE	NSW	12 Dep	Aircraft Height	Propeller
09-Mar-09	BUNGENDORE	NSW	12 Dep	Aircraft Height	Propeller
11-Mar-09	Not Specified	NSW	35 Dep	Aircraft Height	General
13-Mar-09	ACTON	ACT		Aircraft Height, Flight Paths, Increased Freq	Jet
02-Apr-09	YARRALUMLA	ACT			Helicopter
24-Apr-09	DOWNER	ACT	35 Dep	Flight Paths	General
03-May-09	TURNER	ACT		Aircraft Height	Helicopter
06-May-09	DOWNER	ACT	35 Dep		Jet
11-May-09	MURRUMBATEMAN	NSW			Propeller
16-May-09	WAMBOIN	NSW		Increased Frequency	Propeller
16-Jun-09	FRASER	ACT			Jet
17-Jun-09	FRASER	ACT	35 Dep	Aircraft Height, Flight Paths, Increased Freq	Jet
03-Jul-09	RED HILL	ACT			Jet
12-Jul-09	KALEEN	ACT	35 Dep		Propeller
12-Jul-09	KALEEN	ACT			Helicopter
13-Jul-09	WAMBOIN	NSW			Helicopter
04-Aug-09	HAWKER	ACT			Propeller
11-Aug-09	FYSHWICK	ACT		Aircraft Height	Propeller
31-Aug-09	NARRABUNDAH	ACT			Helicopter
17-Sep-09	DOWNER	ACT		Increased Frequency	General
17-Sep-09	NARRABUNDAH	ACT		Flight Paths	Jet
26-Sep-09	NICHOLLS	ACT	35 Dep		Jet
29-Sep-09	AMAROO	ACT	35 Dep		Jet
01-Oct-09	KAMBAH	ACT			Helicopter
02-Oct-09	Not Specified	ACT			Helicopter
08-Oct-09	CARWOOLA	NSW	17 Dep	Aircraft Height	Jet
16-Oct-09	NICHOLLS	ACT	35 Dep		Jet
26-Oct-09	FLYNN	ACT		Aircraft Height, Flight Paths	Helicopter
27-Oct-09	WATSON	ACT		Increased Frequency	General
29-Oct-09	KARABAR	NSW	17 Dep		Jet
30-Oct-09	Not Specified	ACT		Flight Paths	General
04-Nov-09	KALEEN	ACT			General
13-Nov-09	NICHOLLS	ACT	35 Dep	Flight Paths	Jet
15-Nov-09	CARWOOLA	NSW			Jet
18-Nov-09	Not Specified	ACT	35 Dep	Flight Paths	Jet
23-Nov-09	DUNLOP	ACT		Flight Paths, Increased Frequency	General
05-Dec-09	DOWNER	ACT		Flight Paths	Propeller
10-Dec-09	KARABAR	NSW			Jet
17-Dec-09	CHISHOLM	ACT	35 Arr	Aircraft Height	General
20-Dec-09	WATSON	ACT		Aircraft Height	Propeller

Table C20 All Other Complaints

Appendix E

Preferred Runway Compliance

A comparison of the weather data to the actual movements by runway on the sample days was used to determine the level of compliance. There is no weather data for the Night – Inner period (11pm to 6am).

January 2009

Time	Runway	Condition	Wind
5:58 AM	35 & 30		330/6
8:30 AM	35 & 30		VRBL 3 KTS
10:24 AM	35 & 30		300/15 KTS, XW MAX 15 KTS RWY 35
1:55 PM	35 & 30		280/15-25 KTS. ALL XW RWY 35. XW MAX 12 KTS RWY 30
3:34 PM	35 & 30		280/15-30 G 35 KTS. ALL XW RWY 35. XW MAX 15 RWY 30
7:08 PM	35 & 30		280/15-25, ALL XW RWY 35
7:51 PM	35 & 30		280/15-25, ALL XW RWY 35
8:41 PM	35 & 30		280/15-25, ALL XW RWY 35
9:28 PM	35 & 30		310/8

Table E1 ATIS Weather 1 January 2009

In the Day period, noise preferred runways are nominated for arrivals and departures.

Before 7am and after 8pm, the wind precluded nomination of Runway 17 for arrivals due excessive downwind, but noise preferred Runway 35 was nominated for departures, as was Runway 30.

	H24		Night		Night - Inner		Night - Outer		Day	
			8pm to 7am		11pm to 6am		8-11pm & 6-7am		7am to 8pm	
ARR	30		7		1		6		23	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	1	3%	1	14%	1	100%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	29	97%	6	86%	0	0%	6	100%	23	100%
DEP	27		8		0		8		19	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	27	100%	8	100%	0	0%	8	100%	19	100%
Total	57		15		1		14		42	

Table E2 Jets 1 January 2009

Preferred runway compliance during the Day for jets was 100% for arrivals and departures. Although Runway 30 was nominated it was not used for any jet operations, as it is of insufficient length for jet operations.

Preferred runway compliance during the Night - Outer for jets was not applicable for arrivals due to excessive downwind, and was 100% for departures.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	17		2		1		1		15	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	8	47%	0	0%	0	0%	0	0%	8	53%
30	1	6%	1	50%	0	0%	1	100%	0	0%
35	8	47%	1	50%	1	100%	0	0%	7	47%
DEP	16		0		0		0		16	
12	1	6%	0	0%	0	0%	0	0%	1	6%
17	7	44%	0	0%	0	0%	0	0%	7	44%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	8	50%	0	0%	0	0%	0	0%	8	50%
Total	33		2		1		1		31	

Table E3 Turboprops 1 January 2009

Preferred runway compliance during the Day for turboprops was 100% for arrivals and departures. Although Runway 30 was nominated it was not used for any turboprop departures.

Preferred runway compliance during the Night - Outer for turboprops was not applicable for arrivals due excessive downwind and there were no departures.

February 2009

Month	Time	Runway	Condition	Wind
Feb	5:59 AM	17 & 12		110/5 KTS
	7:21 AM	17 & 12		110/5 KTS
	9:37 AM	17 & 12		120/6 KTS
	11:25 AM	17 & 12		100/14 KTS. ALL XW RWY 17
	1:01 PM	17 & 12		080/12 KTS. ALL XW RWY 17
	1:46 PM	35		030-080/10-20 KTS. XW MAX 20 KTS
	5:18 PM	35 & 12		070/15, ALL XW RWY 35
	6:37 PM	35 & 12		060/15, ALL XW BOTH RUNWAYS
	7:32 PM	35 & 12		070/10-22. ALL XW RWY 35. XW MAX 15 KTS RWY 12
	8:10 PM	35 & 12		070/15, ALL XW RWY 35. XW MAX 12 KTS RWY 12
	9:03 PM	35		070/15, ALL XW
	10:00 PM	35		070/15, ALL XW
	11:01 PM	35		070/15, ALL XW

Table E4 ATIS Weather 1 February 2009

In the Day period, noise preferred Runways 17 and 35 are nominated for arrivals but for most of the period Runway 12 was also nominated. For departures, noise preferred Runway 35 was nominated from 1.46pm onward and Runway 12 was also nominated between 5.18pm and 9.03pm. The quoted winds resulted in downwind on Runway 35. This was less than 5 knots before 11.25am but then increased to more than 5 knots.

Before 7am noise preferred Runway 17 was nominated for arrivals, as was Runway 12. Noise preferred runway for departures, Runway 35, was not nominated - there was 3 knots downwind on Runway 35.

After 8pm, noise preferred Runway 17 was not nominated for arrivals - there was 2 knots of downwind. Noise preferred runway for departures, Runway 35, was nominated.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	42		11		3		8		31	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	12	29%	0	0%	0	0%	0	0%	12	39%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	30	71%	11	100%	3	100%	8	100%	19	61%
DEP	39		8		0		8		31	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	17	44%	5	63%	0	0%	5	63%	12	39%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	22	56%	3	38%	0	0%	3	38%	19	61%
Total	81		19		3		16		62	

Table E5 Jets 1 February 2009

Preferred runway compliance during the Day for jet arrivals was 100% as Runway 12 was nominated but not used by jets. Use of preferred Runway 35 for departures was 61% but of the 12 departures on Runway 17, 5 occurred when downwind exceeded 5 knots on Runway 35, and 7 occurred when Runway 35 was available with some downwind, so compliance was 77%.

Preferred runway compliance during the Night - Outer for jets was 0% for arrivals as they were all on Runway 35 when Runway 17 was available (with downwind), and 38% for departures as Runway 17 was used for 5 departures before 7am when Runway 35 was available.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	17		2		1		1		15	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	8	47%	0	0%	0	0%	0	0%	8	53%
30	1	6%	1	50%	0	0%	1	100%	0	0%
35	8	47%	1	50%	1	100%	0	0%	7	47%
DEP	16		0		0		0		16	
12	1	6%	0	0%	0	0%	0	0%	1	6%
17	7	44%	0	0%	0	0%	0	0%	7	44%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	8	50%	0	0%	0	0%	0	0%	8	50%
Total	33		2		1		1		31	

Table E6 Turboprops 1 February 2009

Preferred runway compliance during the Day for turboprops was 100% for arrivals and 81% for departures, as 3 of the departures on Runway 12/17 were before 11.25am, when Runway 35 was available, with some downwind.

Preferred runway compliance during the Night - Outer for turboprops was 0% for arrivals as the single arrival was on Runway 30 when Runway 17 was available (with downwind), and there were no departures.

March 2009

Month	Time	Runway	Condition	Wind
Mar	5:58 AM	35		VRB 3 KTS
	8:01 AM	35 & 30		VRB 3 KTS
	9:13 AM	35		080/6
	10:49 AM	35 & 30		350/8
	12:07 PM	35 & 30		350/8
	1:41 PM	35 & 30		340/8
	3:29 PM	35 & 30		340/8
	5:08 PM	35 & 30		VRB 6 KTS
	6:33 PM	35		060/15 KTS. ALL XW
	7:16 PM	35		070/15 KTS. ALL XW
	7:53 PM	35		060/12 KTS. ALL XW
	8:51 PM	35		060/12 KTS. ALL XW
	9:17 PM	35		080/8, ALL XW
	10:39 PM	35		080/8, ALL XW

Table E7 ATIS Weather 1 March 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, but for much of the day, Runway 30 was also nominated.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was less than 5 knots of downwind on Runway 17. The noise preferred runway for departures, Runway 35, was nominated for all operations.

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	43		11		1		10		32	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	43	100%	11	100%	1	100%	10	100%	32	100%
DEP	43		7		0		7		36	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	1	2%	0	0%	0	0%	0	0%	1	3%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	42	98%	7	100%	0	0%	7	100%	35	97%
Total	86		18		1		17		68	

Table E8 Jets 1 March 2009

Preferred runway compliance during the Day for jet arrivals was 100% and for jet departures was 97%.

Preferred runway compliance during the Night - Outer for jets was 0% for arrivals as they were all on Runway 35 when Runway 17 was available (with downwind), and 100% for departures.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	22		1		0		1		21	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	5	23%	0	0%	0	0%	0	0%	5	24%
35	17	77%	1	100%	0	0%	1	100%	16	76%
DEP	21		1		1		0		20	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	1	5%	0	0%	0	0%	0	0%	1	5%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	20	95%	1	100%	1	100%	0	0%	19	95%
Total	43		2		1		1		41	

Table E9 Turboprops 1 March 2009

Preferred runway compliance during the Day for turboprop arrivals was 100% and for departures was 95%.

Preferred runway compliance during the Night - Outer for turboprops was 0% for arrivals as the single arrival was on Runway 35 when Runway 17 was available (with downwind), and there were no departures.

April 2009

Month	Time	Runway	Condition	Wind
Apr	5:58 AM	17 & 12		140/6
	6:47 AM	17		150/10
	7:47 AM	17	WET	150/10
	8:25 AM	17		150/10
	9:17 AM	17		130/10
	9:44 AM	17		100/15, ALL XW
	10:06 AM	17 & 12		120/10-20 KTS. XW MAX 16 KTS RWY 17
	11:24 AM	17 & 12	DAMP	120/10-20 KTS. XW MAX 16 KTS RWY 17
	12:31 PM	17	DAMP	110/10-20 KTS. XW MAX 18 KTS
	12:53 PM	35A & 17D	DAMP	130/12 KTS. XW MAX 10 KTS. DW MAX 10 KTS RWY 35
	12:55 PM	35A & 17D	DAMP	130/12 KTS. XW MAX 10 KTS. DW MAX 10 KTS RWY 35
	1:08 PM	17 & 12	WET	110/12 KTS. ALL XW
	2:30 PM	17 & 12	WET	140/10 KTS
	4:58 PM	17 & 12		090/15 KTS, ALL XW RWY 17
	6:42 PM	17 & 12		090/15 KTS, ALL XW RWY 17
	8:36 PM	17 & 12		110/8 KTS

Table E10 ATIS Weather 1 April 2009

In the Day period, noise preferred runways for arrivals are nominated at all times, however Runway 12 was also nominated for the periods 10.06am to 12.31pm and 1.08pm to 8pm. The noise preferred runway for departures, Runway 35, was not nominated at any time – there was downwind on Runway 35 at all times, in excess of 5 knots. There was also rain, low cloud and poor visibility in parts of the day.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was nominated – as was Runway 12. The noise preferred runway for departures, Runway 35, was not nominated – downwind exceeds 5 knots.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	49		10		1		9		39	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	47	96%	8	80%	0	0%	8	89%	39	100%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	2	4%	2	20%	1	100%	1	11%	0	0%
DEP	50		9		1		8		41	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	49	98%	8	89%	0	0%	8	100%	41	100%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	1	2%	1	11%	1	100%	0	0%	0	0%
Total	99		19		2		17		80	

Table E11 Jets 1 April 2009

Preferred runway compliance during the Day for jet arrivals was 100%, and for jet departures was not applicable due excessive downwind. Although nominated, Runway 12 was not used for any jet operations.

Preferred runway compliance during the Night - Outer for jets was 89% for arrivals and not applicable for departures due excessive downwind.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	22		3		2		1		19	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	18	82%	2	67%	1	50%	1	100%	16	84%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	4	18%	1	33%	1	50%	0	0%	3	16%
DEP	22		3		1		2		19	
12	1	5%	1	33%	0	0%	1	50%	0	0%
17	19	86%	1	33%	1	100%	0	0%	18	95%
30	1	5%	0	0%	0	0%	0	0%	1	5%
35	1	5%	1	33%	0	0%	1	50%	0	0%
Total	44		6		3		3		38	

Table E12 Turboprops 1 April 2009

Preferred runway compliance during the Day for turboprop arrivals was 100%, and was not applicable to turboprop departures due excessive downwind.

Preferred runway compliance during the Night - Outer for turboprops was 100% for arrivals and 100% for departures before 7am and not applicable for departures after 8pm due to excessive downwind.

May 2009

Month	Time	Runway	Condition	Wind
May	5:59 AM	35		CALM
	7:40 AM	35		L&V
	8:39 AM	35		L&V
	9:46 AM	35		L&V
	10:34 AM	35		L&V
	10:53 AM	35 & 30		L&V
	11:53 AM	35 & 30		L&V
	12:50 PM	35 & 30		320/8
	1:29 PM	35 & 30		320/8
	4:12 PM	35 & 30		340/10
	5:21 PM	35 & 30		350/7
	7:03 PM	35 & 30		350/7
	9:31 PM	35 & 30		VRBL/4

Table E13 ATIS Weather 1 May 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, but for much of the day, Runway 30 was also nominated.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was less than 5 knots of downwind on Runway 17. The noise preferred runway for departures, Runway 35, was nominated for all operations, and Runway 30 was also nominated for all operations after 8pm.

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	53		11		1		10		42	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	3	6%	3	27%	1	100%	2	20%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	50	94%	8	73%	0	0%	8	80%	42	100%
DEP	53		13		1		12		40	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	53	100%	13	100%	1	100%	12	100%	40	100%
Total	106		24		2		22		82	

Table E14 Jets 1 May 2009

Preferred runway compliance during the Day for jets was 100% for arrivals and departures. Runway 30 was not used for any jet operations.

Preferred runway compliance during the Night - Outer for jet arrivals was 20% as Runway 17 was available with some downwind, and 100% for departures.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	19		1		1		0		18	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	6	32%	0	0%	0	0%	0	0%	6	33%
35	13	68%	1	100%	1	100%	0	0%	12	67%
DEP	22		3		1		2		19	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	22	100%	3	100%	1	100%	2	100%	19	100%
Total	41		4		2		2		37	

Table E15 Turboprops 1 May 2009

Preferred runway compliance during the Day for turboprops was 100% for arrivals and departures. Runway 30 was not used for any turboprop departures.

Preferred runway compliance during the Night - Outer for turboprops was 100% for departures, and there were no arrivals.

June 2009

Month	Time	Runway	Condition	Wind
Jun	5:59 AM	35 & 30		VRB 3 KTS
	8:13 AM	35 & 30		VRB 3 KTS
	9:13 AM	35		VRB 5 KTS, OCNL DW MAX 3 KTS
	10:04 AM	17 & 12		150/5
	10:28 AM	17 & 12		150/5
	11:47 AM	17 & 12		080/8, ALL XW RWY 17
	1:19 PM	35		050/5
	1:23 PM	35		050/5
	2:27 PM	35		070/6
	6:17 PM	35		070/6

Table E16 ATIS Weather 1 June 2009

In the Day period, noise preferred runways for arrivals are nominated, although between 10.04am and 1.19pm Runway 12 was nominated as well. Noise preferred Runway 35 was nominated for departures except for the period between 10.04am and 1.19pm – Runways 12 and 17 are nominated and the downwind on Runway 35 exceeds 5 knots.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was less than 5 knots of downwind on Runway 17. The noise preferred runway for departures, Runway 35, was nominated for all operations, and Runway 30 was also nominated for all operations prior to 7am.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	54		12		2		10		42	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	8	15%	1	8%	1	50%	0	0%	7	17%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	46	85%	11	92%	1	50%	10	100%	35	83%
DEP	52		8		0		8		44	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	8	15%	0	0%	0	0%	0	0%	8	18%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	44	85%	8	100%	0	0%	8	100%	36	82%
Total	106		20		2		18		86	

Table E17 Jets 1 June 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 100% as the departures on Runway 17 occurred during the period when there was excessive downwind on Runway 35.

Preferred runway compliance during the Night - Outer for jets was 0% as Runway 17 was available, and 100% for departures.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	24		1		0		1		23	
12	2	8%	0	0%	0	0%	0	0%	2	9%
17	7	29%	0	0%	0	0%	0	0%	7	30%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	15	63%	1	100%	0	0%	1	100%	14	61%
DEP	25		4		0		4		21	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	8	32%	0	0%	0	0%	0	0%	8	38%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	17	68%	4	100%	0	0%	4	100%	13	62%
Total	49		5		0		5		44	

Table E18 Turboprops 1 June 2009

Preferred runway compliance during the Day for turboprop arrivals was 91%. Preferred runway compliance during the Day for turboprop departures was 100% as the departures on Runway 17 occurred during the period when there was excess downwind on Runway 35.

Preferred runway compliance during the Night - Outer for turboprop arrivals was 0% as Runway 17 was available, and 100% for departures.

July 2009

Month	Time	Runway	Condition	Wind
Jul	6:47 AM	35	DAMP	310/15-25, XW 10-16
	7:57 AM	35	DAMP	310/15, XW 10 KTS
	8:34 AM	35 & 30	DAMP	310/15, XW 10 KTS
	9:39 AM	35	DAMP	320/15-25 KTS. XW MAX 15 RWY 35 XW MAX 12 RWY 30
	11:19 AM	35		290/15-25 G30 KTS XW MAX 27 RWY 35 XW MAX 15 RWY 30
	12:58 PM	35 & 30		290/20-30G35 KTS. XW MAX 30 KTS RWY 35
	2:14 PM	35 & 30		290/20-30G35 KTS. XW MAX 30 KTS RWY 35
	3:58 PM	35 & 30		280/15-25 ALL XW RWY 35
	4:36 PM	35 & 30		290/10-20 ALL XW RWY 35
	5:58 PM	35		290/15-25, XW MAX 22 KTS
	9:06 PM	35		290/10-25, XW MAX 20 KTS

Table E19 ATIS Weather 1 July 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, but for much of the day, Runway 30 was also nominated.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was excessive downwind on Runway 17. The noise preferred runway for departures, Runway 35, was nominated for all operations.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	48		10		1		9		38	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	48	100%	10	100%	1	100%	9	100%	38	100%
DEP	55		10		0		10		45	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	2	4%	0	0%	0	0%	0	0%	2	4%
35	53	96%	10	100%	0	0%	10	100%	43	96%
Total	103		20		1		19		83	

Table E20 Jets 1 July 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 96%.

Preferred runway compliance during the Night - Outer for jet arrivals was not applicable due to excess downwind on Runway 17, and 100% for departures.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	24		3		1		2		21	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	5	21%	0	0%	0	0%	0	0%	5	24%
35	19	79%	3	100%	1	100%	2	100%	16	76%
DEP	21		5		1		4		16	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	21	100%	5	100%	1	100%	4	100%	16	100%
Total	45		8		2		6		37	

Table E21 Turboprops 1 July 2009

Preferred runway compliance during the Day for turboprop arrivals was 100%. Preferred runway compliance during the Day for turboprop departures was 100%.

Preferred runway compliance during the Night - Outer for turboprop arrivals was not applicable due to excess downwind on Runway 17, and 100% for departures.

August 2009

Month	Time	Runway	Condition	Wind
Aug	5:59 AM	35 & 30		VRB 3 KTS
	6:45 AM	35 & 30		VRB 3 KTS
	8:51 AM	35 & 30		VRB 3 KTS
	10:01 AM	35 & 30		280/6 KTS
	10:27 AM	35 & 30		WND: 300/12, ALL XW RWY 35
	10:56 AM	35 & 30		300/14, ALL XW RWY 35
	12:04 PM	35		290/14, ALL XW RWY 35
	1:04 PM	35		270/18 KTS. ALL XW RWY 35
	1:32 PM	35 & 30		300/10-20 KTS. XW MAX 18 KTS RWY 35
	3:16 PM	35 & 30		300/10-20 KTS. XW MAX 18 KTS RWY 35
	4:09 PM	35 & 30		280/10-20 KTS. XW MAX 18 KTS RWY 35
	5:47 PM	35 & 30		290/12. XW MAX 12 KTS RWY 35
	7:39 PM	35 & 30		290/5
	9:29 PM	35 & 30		LV NORTHERLY

Table E22 ATIS Weather 1 August 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, but for much of the day, Runway 30 was also nominated.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was less than 5 knots of downwind on Runway 17. The noise preferred runway for departures, Runway 35 was nominated, as was Runway 30.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	30		6		0		6		24	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	30	100%	6	100%	0	0%	6	100%	24	100%
DEP	33		5		0		5		28	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	1	3%	0	0%	0	0%	0	0%	1	4%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	32	97%	5	100%	0	0%	5	100%	27	96%
Total	63		11		0		11		52	

Table E23 Jets 1 August 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 96% with one departure from Runway 17.

Preferred runway compliance during the Night - Outer for jets was 0% although Runway 17 was available, and 100% for departures.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	11		1		0		1		10	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	1	9%	0	0%	0	0%	0	0%	1	10%
35	10	91%	1	100%	0	0%	1	100%	9	90%
DEP	11		0		0		0		11	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	11	100%	0	0%	0	0%	0	0%	11	100%
Total	22		1		0		1		21	

Table E24 Turboprops 1 August 2009

Preferred runway compliance during the Day for turboprops was 100% for arrivals and departures.

Preferred runway compliance during the Night - Outer for turboprops was 0% for arrivals as the single arrival was on Runway 35 when Runway 17 was available, and there were no departures.

September 2009

Month	Time	Runway	Condition	Wind
Sep	5:59 AM	35 & 30		300/7
	7:44 AM	35 & 30		300/7
	8:38 AM	35 & 30		330/10
	9:58 AM	35 & 30		270/12 ALL XW RWY 35
	11:29 AM	35 & 30		270/12 ALL XW RWY 35
	12:47 PM	35 & 30		280/12 ALL XW RWY 35
	3:03 PM	35 & 30		290/14 XW MAX 13 KTS RWY 35
	4:12 PM	35 & 30		300/15 XW MAX 12 KTS RWY 35
	5:36 PM	35 & 30		310/12 XW MAX 12 KTS RWY 35
	6:56 PM	35 & 30		320/10 KTS

Table E25 ATIS Weather 1 September 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, and Runway 30 was also nominated.

Before 7am and after 8pm, the noise preferred runway for arrivals, Runway 17, was not nominated - there was excessive downwind on Runway 17. The noise preferred runway for departures, Runway 35, was nominated for all operations, and Runway 30 was also nominated.

	H24		Night		Night - Inner		Night - Outer		Day	
			8pm to 7am		11pm to 6am		8-11pm & 6-7am		7am to 8pm	
ARR	49		11		1		10		38	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	49	100%	11	100%	1	100%	10	100%	38	100%
DEP	48		9		0		9		39	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	48	100%	9	100%	0	0%	9	100%	39	100%
Total	97		20		2		19		77	

Table E26 Jets 1 September 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 100%. Runway 30 was not used for jet operations.

Preferred runway compliance during the Night - Outer for jet arrivals was not applicable due to excess downwind on Runway 17, and 100% for departures.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	22		1		1		0		21	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	5	23%	0	0%	0	0%	0	0%	5	24%
35	17	77%	1	100%	1	100%	0	0%	16	76%
DEP	23		3		0		3		20	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	23	100%	3	100%	0	0%	3	100%	20	100%
Total	45		4		1		3		41	

Table E27 Turboprops 1 September 2009

Preferred runway compliance during the Day for turboprop arrivals was 100%. Preferred runway compliance during the Day for turboprop departures was 100%. Runway 30 was not used for jet operations.

Preferred runway compliance during the Night - Outer for turboprop departures was 100% and there were no arrivals.

October 2009

Month	Time	Runway	Condition	Wind
Oct	5:58 AM	35 & 30		VRB 5KTS OCNL DW 2 KTS
	7:01 AM	35 & 30		330/6
	7:51 AM	35 & 30		320/12. XW MAX 10 KTS RWY 35
	9:23 AM	35 & 30		300/15. XW MAX 12 KTS RWY 35
	10:48 AM	35 & 30		300/15. XW MAX 12 KTS RWY 35
	11:09 AM	35 & 30		320/15-25 XW MAX 14
	12:56 PM	35 & 30		320/15-25 XW MAX 15 RWY 35, XW MAX 8 RWY 30
	1:52 PM	35 & 30		310/10-20 XW MAX 15 KTS RWY 35
	3:44 PM	35 & 30		310/10-20 KTS. XW MAX 15 KTS RWY 35
	5:01 PM	35 & 30		260/12 KTS. XW 12 KTS RWY 35. XW 8 KTS RWY 30
	6:22 PM	35 & 30		VRB 3 KTS
	6:50 PM	35 & 30		VRB 3 KTS
	8:45 PM	35 & 30		VRB 3 KTS
	9:34 PM	17		170/5

Table E28 ATIS Weather 1 October 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, and Runway 30 was also nominated.

Before 7am, the noise preferred runway for arrivals, Runway 17, was not nominated – downwind may have reached 5 knots. After 8pm and before 9.34pm, Runway 17 was not nominated and downwind was less than 5 knots. After 9.34pm, Runway 17 was nominated. The noise preferred runway for departures, Runway 35, was nominated for departures before 7am, and after 8pm and before 9.34pm - Runway 30 was also nominated. After 9.34pm, Runway 35 has excess downwind.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	52		11		2		9		41	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	4	8%	4	36%	1	50%	3	33%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	48	92%	7	64%	1	50%	6	67%	41	100%
DEP	52		11		0		11		41	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	52	100%	11	100%	0	0%	11	100%	41	100%
Total	104		22		2		20		82	

Table E29 Jets 1 October 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 100%. Runway 30 was not used for jet operations.

Preferred runway compliance during the Night - Outer for jet arrivals was 0% for the 6 arrivals in the period where Runway 17 was available, with some downwind, but not used, and 100% for departures.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	27		2		1		1		25	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	1	4%	0	0%	0	0%	0	0%	0	0%
30	6	22%	0	0%	0	0%	0	0%	6	24%
35	20	74%	2	100%	1	100%	1	100%	19	76%
DEP	24		4		0		4		20	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	24	100%	4	100%	0	0%	4	100%	20	100%
Total	51		6		1		5		45	

Table E30 Turboprops 1 October 2009

Preferred runway compliance during the Day for turboprop arrivals and departures was 100%. Runway 30 was not used for jet operations.

Preferred runway compliance during the Night - Outer for turboprop arrivals was 0% for the single turboprop arrival in the period where Runway 17 was available but not used, and 100% for departures.

November 2009

Month	Time	Runway	Condition	Wind
Nov	5:59 AM	35 & 30		VRB 3 KTS
	7:17 AM	35 & 30		LV
	9:59 AM	35 & 30		340/5
	11:12 AM	35 & 30		310/8 KTS
	12:27 PM	35 & 30		310/8 KTS
	1:36 PM	35 & 30		290/8 KTS, ALL XW RWY 35
	2:56 PM	35 & 30		290/8 KTS, ALL XW RWY 35
	3:47 PM	35 & 30		290/8 KTS, ALL XW RWY 35
	5:07 PM	35 & 30		290/12KTS, ALL XW RWY 35
	6:11 PM	17		120/12 ALL XW
	6:24 PM	17		100/18 ALL XW
	7:13 PM	17		070/6 OCNL DW 3
	7:39 PM	17		VRB EASTERLY 5 KTS OCNL DW 3 KTS
	8:11 PM	17		100/15 ALL XW
	9:42 PM	17		VRB 5 KNOTS

Table E31 ATIS Weather 1 November 2009

In the Day period, noise preferred runways for arrivals are nominated. Noise preferred Runway 35 was nominated for departures, until 6.11pm, and Runway 30 was also nominated. After 6.11pm there was excessive downwind on Runway 35.

Before 7am, the noise preferred runway for arrivals, Runway 17, was not nominated – downwind was less than 5 knots. After 8pm noise preferred Runway 17 was nominated. The noise preferred Runway 35 was nominated for departures before 7am - Runway 30 was also nominated. After 8pm Runway 35 has excessive downwind.

	H24		Night 8pm to 7am		Night - Inner 11pm to 6am		Night - Outer 8-11pm & 6-7am		Day 7am to 8pm	
ARR	36		8		2		6		28	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	12	33%	7	88%	1	50%	6	100%	5	18%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	24	67%	1	13%	1	50%	0	0%	23	82%
DEP	34		5		0		5		29	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	9	26%	1	20%	0	0%	1	20%	8	28%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	25	74%	4	80%	0	0%	4	80%	21	72%
Total	70		13		2		11		57	

Table E32 Jets 1 November 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Preferred runway compliance during the Day for jet departures was 100% when Runway 35 was available. Runway 30 was not used for jet operations.

Preferred runway compliance during the Night - Outer for jet arrivals was 100% and 100% for departures when Runway 35 was available.

	H24		Night		Night - Inner		Night - Outer		Day	
			<i>8pm to 7am</i>		<i>11pm to 6am</i>		<i>8-11pm & 6-7am</i>		<i>7am to 8pm</i>	
ARR	15		0		0		0		15	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	2	13%	0	0%	0	0%	0	0%	2	13%
30	2	13%	0	0%	0	0%	0	0%	2	13%
35	11	73%	0	0%	0	0%	0	0%	11	73%
DEP	14		0		0		0		14	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	0	0%	0	0%	0	0%	0	0%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	14	100%	0	0%	0	0%	0	0%	14	100%
Total	29		0		0		0		29	

Table E33 Turboprops 1 November 2009

Preferred runway compliance during the Day for turboprop arrivals and departures was 100%. Runway 30 was not used for turboprop departures.

There were no turboprop arrivals or departures in the Night - Outer period.

December 2009

Month	Time	Runway	Condition	Wind
Dec	5:58 AM	17 & 12		160/12 KTS, XW 8 KTS RWY 12
	6:55 AM	17 & 12		150/10
	8:41 AM	17 & 12		160/10-20 XW MAX 12 KTS RWY 12
	9:51 AM	17 & 12		170/10-22 XW MAX 15 KTS RWY 12
	12:28 PM	17 & 12		170/10-22 XW MAX 15 KTS RWY 12
	1:39 PM	17 & 12		170/10-22 XW MAX 15 KTS RWY 12
	3:32 PM	17 & 12		150/10 XW MAX 10 KTS RWY 12
	6:32 PM	17 & 12		120/8
	7:38 PM	17 & 12		110/12, ALL XW RWY 17
	8:50 PM	17 & 12		090/8, ALL XW RWY 17

Table E34 ATIS Weather 1 December 2009

In the Day period, noise preferred Runway 17 for arrivals was nominated, and Runway 12 was also nominated. Noise preferred Runway 35 was not nominated for departures - there was excessive downwind on Runway 35.

Before 7am, noise preferred Runway 17 for arrivals was nominated, and Runway 12 was also nominated. Noise preferred Runway 35 was not nominated for departures - there was excessive downwind on Runway 35. After 8pm noise preferred Runway 17 for arrivals was nominated, and Runway 12 was also nominated. Noise preferred Runway 35 was not nominated for departures - there was excessive downwind on Runway 35 until 8.50pm, after that there was downwind but less than 5 knots.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	52		12		2		10		40	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	52	100%	12	100%	2	100%	10	100%	40	100%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	0	0%	0	0%	0	0%	0	0%	0	0%
DEP	53		9		0		9		44	
12	0	0%	0	0%	0	0%	0	0%	0	0%
17	0	0%	9	100%	0	0%	9	100%	44	100%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	0	0%	0	0%	0	0%	0	0%	0	0%
Total	105		21		2		19		84	

Table E35 Jets 1 December 2009

Preferred runway compliance during the Day for jet arrivals was 100%. Runway 12 was not used for jet operations. Preferred runway compliance during the Day for jet departures was not applicable due to excessive downwind on Runway 35.

Preferred runway compliance during the Night - Outer for jet arrivals was 100%, and not applicable for the 5 departures before 7am due to excessive downwind on Runway 35 but was 0% for the 4 departures after 8.50pm when Runway 35 was available with some downwind.

	H24		Night <i>8pm to 7am</i>		Night - Inner <i>11pm to 6am</i>		Night - Outer <i>8-11pm & 6-7am</i>		Day <i>7am to 8pm</i>	
ARR	23		2		1		1		21	
12	1	4%	0	0%	0	0%	0	0%	1	5%
17	21	91%	1	50%	0	0%	1	100%	20	95%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	1	4%	1	50%	1	100%	0	0%	0	0%
DEP	23		4		0		4		19	
12	2	9%	1	25%	0	0%	1	25%	1	5%
17	21	91%	3	75%	0	0%	3	75%	18	95%
30	0	0%	0	0%	0	0%	0	0%	0	0%
35	0	0%	0	0%	0	0%	0	0%	0	0%
Total	46		6		1		5		40	

Table E36 Turboprops 1 December 2009

Preferred runway compliance during the Day for turboprop arrivals was 95%. Preferred runway compliance during the Day for turboprop departures was not applicable due to excessive downwind on Runway 35.

Preferred runway compliance during the Night - Outer for turboprop arrivals was 100%, and not applicable for the 3 departures before 7am due to excessive downwind on Runway 35 but was 0% for the single departure when Runway 35 was available with some downwind after 8.50pm.

Appendix F

ATIS Records for Flights Over NAAs

BKN	Broken (5-7 eighths of sky covered)
BLW	Below
BSE	Base
CB	Cumulonimbus cloud
CLD	Cloud
EXP	Expect
FCST	Forecast
FEW	Few (1-2 eighths of sky covered)
GR	Hail
OCNL	Occasional
RED	Reduced
SCT	Scattered (3-4 eighths of sky covered)
SEV	Severe
SFC	Surface
SH	Showers
TCU	Towering cumulus cloud
TS	Thunderstorm
TURB	Turbulence
VC	Vicinity
VIS	Visibility

Table F1 Meteorological Abbreviations

Table F2 Qantas Jet Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
23/01/2009 18:55	B734	35	ATIS YSCB J 230750 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: 320/10-20G25 KTS. XW MAX 18 KTS RWY 35. XW MAX 12 KTS RWY 30 VIS: GT 10 KM + WX: TS IN AREA SH IN AREA + CLD: FEW050CB + TMP: 30 + QNH: 1007 S
23/03/2009 18:15	B738	35	ATIS YSCB L 230712 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: 300/14, ALL XW RWY 35 + VIS: GT 10 KM + WX: SH IN AREA + CLD: + TMP: 28 QNH: 1015 SIGWX: EXP TURB OVER RWY 35, S OF RWY INT

11/08/2009 15:22	B734	35	<p>ATIS YSCB L 110425</p> <p>RWY: 35 FOR ARRIVALS AND DEPARTURES</p> <p>+ SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY K AND H DUE WORKS</p> <p>+ WND: VRB 6 OCNL DW 2 KTS</p> <p>+ VIS: 10 KM, REDUCED TO 6 KM TO E IN TS</p> <p>+ WX:</p> <p>+ CLD: SCT045, BKN CB 5000 FT TMP: 13</p> <p>QNH: 1009</p> <p>+ SIGWX:</p>
10/09/2009 17:46	B734	35	<p>ATIS YSCB G 100725</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 280/15, ALL XW RWY 35 VIS: GT 10 KM CLD: FEW040</p> <p>+ TMP: 12</p> <p>+ QNH: 1016</p> <p>+ SIGWX: EXP TURB O</p>
6/10/2009 17:26	B734	35	<p>ATIS YSCB K 060454</p> <p>APCH: JET ACFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN HOTEL AND KILO DUE WORKS</p> <p>+ WND: 270/18 KTS. ALL XW RWY 35, XW MAX 10 KTS RWY 30 VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: SCT020, SCT040</p> <p>+ TMP: 14 QNH: 1016</p> <p>+ SIGWX: EXP TURB OVER RWY 35 S OF RWY INT</p>
12/10/2009 20:18	B738	35	<p>ATIS YSCB L 120852</p> <p>APCH: EXP ILS APCH</p> <p>RWY: 35</p> <p>SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN HOTEL AND KILO DUE WORKS</p> <p>+ WND: 33/1-2</p> <p>IS G 1 K, EDCIG O K IN S</p> <p>+ CLD FEW02, SC02, SCTCB 040</p> <p>TMP: 13 QNH: 1002</p> <p>SIGWX: TS IN AREA, SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET</p>
16/10/2009 17:39	B734	35	<p>ATIS YSCB I 160630</p> <p>+ RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: DAMP</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN HOTEL AND KILO</p> <p>+ WND: 280/12, ALL XW RWY 35</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA+ CLD: FEW025 SCT040</p> <p>TMP: 12 QNH: 1014</p>

1/11/2009 18:22	B734	35	ATIS YSCB K 010711 + RWY: 17 + WND: 120/12 ALL XW VIS: GT 10 KM WX: TS AND SH TO EAST + CLD: SCT CB 5000+ TMP: 26 + QNH: METAR QNH 1020 + SIGWX:
12/11/2009 20:28	B734	35	ATIS YSCB R 120908 RWY: 35 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: TWY BRAVO CLOSED BTN BAY 3 AND TWY MIKE DUE WORKS + WND: 040/6 + VIS: GT 10 KM + WX: LIGHTNING OBS TO SOUTH + CLD: FEW CB 5000 TMP: 23+ QNH: 1018

Table F3 Virgin Blue Jet Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
23/01/2009 19:22	E190	35	ATIS YSCB H 230530 + APCH: RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: 320/15-25. XW MAX 18 KTS RWY 35. XW MAX 12 KTS RWY 30 VIS: GT 10 KM WX: SH IN AREA + CLD: SCT050 TMP: 31+ QNH: 1007 SIGWX: EXP TURB OVER RWY 35 S OF RWY INT
21/02/2009 16:18	B738	35	ATIS YSCB I 210500 + APCH: JET ACFT EXP ILS APCH RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 020/12, ALL XW RWY 30 VIS: GT 10 KM + CLD: SCT035 TMP: 27 QNH: 1013
23/02/2009 16:00	E190	35	ATIS YSCB I 230428 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + SFC COND: DAMP + WND: 310/10 VIS: GT 10 KM WX: SH IN AREA. CB VC CLD: FEW050 + TMP: 23 QNH: 1013 + SIGWX: SIGMET CURRENT FOR FREQUENT TS
13/03/2009 15:46	E190	35	ATIS YSCB I 130607 + APCH: RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: TWY B BETWEEN MIKE AND BAY 3 NOT AVBL + WND: 310/10 KTS VIS: GT 10 KM+ CLD: FEW025, SCT040 + TMP: 23+ QNH: 1016

20/03/2009 16:29	E190	35	<p>ATIS YSCB J 200453</p> <p>RWY: 35</p> <p>+ OPR INFO: START UP APPROVAL RQ FOR ALL NORTH BOUND DEPARTURES</p> <p>WND: 060/8 ALL XW</p> <p>VIS: GT 10 KM CLD: FEW050</p> <p>TMP: 30 QNH: 1016</p>
20/03/2009 19:23	E190	35	<p>ATIS YSCB L 200725</p> <p>RWY: 35</p> <p>OPR INFO: START UP APPROVAL RQ FOR ALL NORTH BOUND DEPARTURES</p> <p>WND: 060/12 ALL XW</p> <p>+ VIS: + CLD: CAVOK + TMP: 24</p> <p>+ QNH: 1017</p>
17/05/2009 14:39	E170	35	<p>ATIS YSCB F 170316</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES+ WND: VRB 3 KTS</p> <p>CLD: CAVOK+ TMP: 15 + QNH: 1018</p>
11/08/2009 15:36	B737	35	<p>ATIS YSCB L 110425</p> <p>RWY: 35 FOR ARRIVALS AND DEPARTURES</p> <p>+ SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY K AND H DUE WORKS</p> <p>+ WND: VRB 6 OCNL DW 2 KTS</p> <p>+ VIS: 10 KM, REDUCED TO 6 KM TO E IN TS</p> <p>+ WX: + CLD: SCT045, BKN CB 5000 FT</p> <p>TMP: 13 QNH: 1009+ SIGWX:</p>
8/09/2009 15:31	E190	35	<p>ATIS YSCB H 080517</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS + WND: 320/15</p> <p>VIS: GT 10 KM WX: SH IN AREA</p> <p>+ CLD: FEW025, SCT035</p> <p>+ TMP: 12 + QNH: 1007</p>
8/09/2009 16:52	E190	35	<p>ATIS YSCB I 080610</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 280/12 KTS. ALL XW RWY 35</p> <p>VIS: GT 10 KM WX: SH IN AREA</p> <p>CLD: FEW025, SCT035 + TMP: 10</p> <p>QNH: 1007</p> <p>+ SIGWX: EXP TURB OVER RWY 35 S OF RWY INT</p>
13/09/2009 11:38	E170	35	<p>ATIS YSCB G 130126</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>WND: 300/15-25 MAX XW 20 KTS RWY 35</p> <p>CLD: CAVOK+ TMP: 22</p> <p>+ QNH: 1018 SIGWX: SIGMET CURRENT FOR SEV TURB FCST BLW 8000 FEET.</p> <p>EXP TURB OVER RWY 35 S OF RWY INT</p>

5/10/2009 16:57	E190	17	ATIS YSCB I 050528 + APCH: JET ACFT EXP VOR APCH + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: START UP APPROVAL RQ FOR SYDNEY BOUND FLIGHTS TAXIWAY C CLOSED BETWEEN HOTEL AND KILO DUE WORKS + WND: 140/5 VIS: REDUCING TO 8 KM IN PASSING SH + WX: TS IN AREA + CLD: FEW020, FEW040, FEW CB BASE 5000 FT + TMP: 15 + QNH: 1017
31/10/2009 13:26	E170	35	ATIS YSCB G 310429 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 010/6 + VIS: GT 10 KM + WX: SH IN AREA + CLD: TCU IN AREA + TMP: 28 + QNH: 1020
31/10/2009 17:43	E170	17	ATIS YSCB I 310641 + RWY: 17 + WND: 180/12 VIS: GT 10 KM WX: TS IN AREA + CLD: FEW CB 5000 FT + TMP: 24 QNH: 102

Table F4 Military Jet Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
26/02/2009 18:49	B737	35	ATIS YSCB J 260640 RWY: 35 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 050/20, ALL XW BOTH RWYS CLD: CAVOK+ TMP: 23 QNH: 1019
31/10/2009 15:18	CL60	35	ATIS YSCB G 310429 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 010/6 + VIS: GT 10 KM + WX: SH IN AREA + CLD: TCU IN AREA + TMP: 28 + QNH: 1020
2/11/2009 18:25	B737	17	ATIS YSCB N 020725 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO CONTACT WITH CANBERRA APPROACH, CONTACT CANBERRA TOWER FREQUENCY 118.7 + WND: 260/8, XW 8 KTS RWY 35 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050 TMP: METAR 31 QNH: METAR 1016

Table F5 Other Jet Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
28/03/2009 3:20	C550	35	ATIS YSCB N 271048 RWY: 35 + WND: 080/10, ALL XW VIS: GT 10 KM + CLD: SCT015 + TMP: 13 + QNH: 1026
13/07/2009 8:36	BE40	35	ATIS YSCB C 122244 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 330/15 VIS: GT 10 KM + CLD: FEW040 + TMP: 9 QNH: 1006 SIGWX: SIGMET CURRENT FOR SEV TURB FCST BLW 10000 FEET
15/07/2009 18:52	BE40	35	ATIS YSCB I 150800 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: VRB 4 KTS VIS: GT 10 KM WX: SH IN AREA CLD: FEW TCU 5000, FEW035 + TMP: 6+ QNH: 1010
17/12/2009 20:18	A320	35	ATIS YSCB P 171015 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 260/5-15, ALL XW RWY 35. XW MAX 10 KTS RWY 30 + VIS: GT 10 KM IN SMOKE CLD: FEW050 + TMP: 27 + QNH: 1010 SIGWX: EXP TURB OVER RWY 35, S OF RWY INT. SIGMET CURRENT FOR SEV TURB FCST BLW 10000 FEET

Table F6 Qantas Jet Departures over Flying NAA

Date/Time	Type	Runway	Weather
20/01/2009 19:23	B734	17	ATIS YSCB P 200807 RWY: 17 SFC COND: WET + WND: 180/15-25 VIS: GT 10 KM WX: SH IN AREA + CLD: SCT050, CB IN AREA. FREQUENT LIGHTNING OBSERVED TO S AND SW + TMP: 21+ QNH: 1013
20/01/2009 20:56	B734	17	ATIS YSCB S 200931 APCH: EXP VOR APCH RWY: 17 SFC COND: WET + WND: 090-150/5-15, XW MAX 15 KTS VIS: GT 10 KM WX: SH IN AREA + CLD: SCT050, CB IN AREA. LIGHTNING OBSERVED TO S AND E + TMP: 18 QNH: 1013
4/02/2009 19:30	B734	35	ATIS YSCB M 040813 + RWY: 35 FOR ARRIVALS AND DEPARTURES + WND: 060/15 KTS. ALL XW VIS: GT 10 KM + WX: CB IN AREA + TMP: 28 QNH: 1008

16/02/2009 16:08	B734	17	<p>ATIS YSCB M 151012 RWY: 17</p> <p>+ WND: 110/12 KTS VIS: GT 10 KM+ CLD: FEW035</p> <p>+ TMP: 14+ QNH: 1020</p> <p>+ SIGWX: SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET</p>
23/02/2009 17:12	B734	35	<p>ATIS YSCB J 230520</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: DAMP + WND: 330/15 VIS: GT 10 KM</p> <p>WX: SH IN AREA. CB VC</p> <p>CLD: FEW050+ TMP: 22 + QNH: 1014</p> <p>SIGWX: SIGMET CURRENT FOR FREQUENT TS</p>
12/03/2009 21:06	B734	17	<p>ATIS YSCB I 120919+ RWY: 35</p> <p>OPR INFO: TWY B BETWEEN MIKE AND BAY 3 NOT AVBL</p> <p>+ WND: 040/10, XW MAX 10+ VIS: GT 10 KM</p> <p>+ CLD: BKN065+ TMP: 22 QNH: 1018</p> <p>+ SIGWX: TS TO N AND SE</p> <p>SIGMET CURRENT FOR TS IN THE AREA</p>
23/03/2009 19:30	B738	35	<p>ATIS YSCB M 230814</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 320/12 + VIS: + WX: + CLD: CAVOK + TMP: 25</p> <p>+ QNH: 1016 + SIGWX:</p>
29/03/2009 19:52	B738	17	<p>ATIS YSCB I 290802</p> <p>RWY: 35 WND: 060/15 ALL XW CLD: CAVOK</p> <p>+ TMP: 23+ QNH: 1022</p>
21/05/2009 9:59	B734	17	<p>ATIS YSCB C 192353</p> <p>APCH: EXP VOR APCH</p> <p>RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>WND: 100/8 VIS: GT 10 KM + CLD: SCT025</p> <p>+ TMP: 14 QNH: 1024</p>
22/05/2009 18:19	B734	17	<p>ATIS YSCB K 220812</p> <p>+ APCH: EXP INSTRUMENT APCH</p> <p>+ RWY: 35 ARRIVALS RWY 17 DEPARTURES + SFC COND: DAMP</p> <p>+ OPR INFO: START UP APPROVAL RQ FOR SYDNEY ACFT</p> <p>HIAL ON</p> <p>+ WND: 130/10, DW MAX 8 KTS RWY 35</p> <p>+ VIS: REDUCED TO 5000M IN PASSING SH</p> <p>+ CLD: SCT013, SCT025 TMP: 11 QNH: 1024</p>
2/06/2009 20:02	B738	17	<p>ATIS YSCB I 020958</p> <p>RWY: 35 + WND: VRB 4 KTS VIS: GT 10 KM</p> <p>+ WX: SH IN AREA CLD: SCT030 + TMP: 10</p> <p>+ QNH: 1029</p> <p>SIGWX: SIGMET CURRENT FOR SEV ICING FROM 8 THOUSAND FT TO FL180</p>
22/09/2009 17:23	B734	35	<p>ATIS YSCB L 220710</p> <p>APCH: EXP ILS APCH</p> <p>RWY: 35 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: START CLEARANCES REQUIRED FOR ALL DEPARTURES TO THE NORTH.</p> <p>HIAL ON.</p> <p>WND: 320/10 VIS: REDUCED TO 3000M IN DU</p> <p>CLD: SCT030 + TMP: 19 + QNH: 998</p>

			SIGWX: SIGMET CURRENT FOR SEV TURB FCST BLW 10000 FEET. SIGMET CURRENT FOR FRQ TSGR OBS N OF CANBERRA
--	--	--	--

22/09/2009 20:11	B734	35	<p>ATIS YSCB P 220953</p> <p>APCH: EXP ILS APCH</p> <p>RWY: 35 FOR ARRIVALS AND DEPARTURES SFC COND: WET</p> <p>OPR INFO: START CLEARANCES REQUIRED FOR ALL DEPARTURES TO THE NORTH.</p> <p>TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 050/8 VIS: REDUCED TO 6 KM IN PASSING SHOWERS</p> <p>WX: FREQUENT LIGHTNING OBS AROUND AIRPORT</p> <p>+ CLD: FEW CB 3500, SCT040+ TMP: 13</p> <p>QNH: 1000+ SIGWX: SEV TURB FCST BLW 10000 FEET. AND FRQ TSGR OBS N OF CANBERRA</p>
2/10/2009 19:19	B734	17	<p>ATIS YSCB P 020915</p> <p>+ APCH: EXP VOR APCH + RWY: 17 SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS + WND: 110/10,ALL XW</p> <p>VIS: GT 10 KM WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035 + TMP: 10 + QNH: 1008</p>
2/10/2009 19:37	B734	17	<p>ATIS YSCB P 020915</p> <p>+ APCH: EXP VOR APCH + RWY: 17 SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS + WND: 110/10,ALL XW</p> <p>VIS: GT 10 KM WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035 + TMP: 10 + QNH: 1008</p>
2/10/2009 20:01	B734	17	<p>ATIS YSCB P 020915</p> <p>+ APCH: EXP VOR APCH + RWY: 17 SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS + WND: 110/10,ALL XW</p> <p>VIS: GT 10 KM WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035 + TMP: 10 + QNH: 1008</p>
2/10/2009 20:28	B738	17	<p>ATIS YSCB Q 021009</p> <p>APCH: EXP VOR APCH RWY: 17 SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>WND: 130/8 VIS: GT 10 K WX: SH AND TS IN AREA CLD: SCT018, SCT022, FEW035</p>
25/10/2009 18:22	B734	17	<p>ATIS YSCB K 250612</p> <p>+ APCH: EXP ILS APCH RWY 35</p> <p>+ RWY: 17 FOR DEPARTURES 35 FOR ARRIVALS</p> <p>SFC COND: WET + OPR INFO: HIAL ON</p> <p>+ WND: 150/5-15 MAX DW 10 RWY 35</p> <p>+ VIS: REDUCED TO 4000 M IN RAIN</p> <p>WX: TS IN AREA CLD: FEW008, SCT015, SCT025</p> <p>+ TMP: 11 + QNH: 1017</p>
25/10/2009 18:35	B734	17	<p>ATIS YSCB L 250728</p> <p>APCH: EXP ILS APCH RWY 35</p> <p>RWY: 17 FOR DEPARTURES 35 FOR ARRIVALS</p> <p>SFC COND: WET OPR INFO: HIAL ON</p> <p>+ WND: 160/12 ALL DW RWY 35+ VIS: REDUCED TO 6 KM IN RAIN</p> <p>WX: TS IN AREA CLD: FEW008, SCT015, SCT025</p> <p>+ TMP: 10+ QNH: 1018</p> <p>+ SIGWX: SIGMET CURRENT FOR OBS AND FCST SEV ICING, BETWEEN 6000 AND FL160</p>
28/10/2009 17:58	B734	17	<p>ATIS YSCB J 280353</p> <p>+ RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 100/15 KTS, ALL XW RWY 17 VIS: GT 10 KM</p>

			WX: SH IN AREA+ CLD: FEW025, SCT040+ TMP: 22+ QNH: 1022
--	--	--	---

29/10/2009 16:39	B734	17	ATIS YSCB H 290424 + APCH:+ RWY: 17+ WND: 150/7 VIS: GT 10 KM WX: TS AND SH IN AREA CLD: FEW025 TMP: 20 QNH: 1023
31/10/2009 19:06	B734	17	ATIS YSCB J 310757 RWY: 17+ WND: 120/12, XW 8 KTS VIS: GT 10 KM + WX: SH IN AREA+ CLD: FEW045+ TMP: 21+ QNH: 1022
1/11/2009 18:34	B734	17	ATIS YSCB L 010724 RWY: 17 + OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 100/18 ALL XW VIS: GT 10 KM WX: TS AND SH TO EAST CLD: SCT CB 5000 TMP: 26 QNH: METAR QNH 1020
1/11/2009 19:16	B734	17	ATIS YSCB M 010813 RWY: 17 OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 070/6 OCNL DW 3 VIS: GT 10 KM WX: TS AND SH TO EAST CLD: SCT CB 5000 TMP: 26 QNH: METAR QNH 1020
2/11/2009 19:09	B734	17	ATIS YSCB O 020735 + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 100/15, XW MAX 15 KTS RWY 17 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050+ TMP: METAR 30+ QNH: METAR 1017
2/11/2009 19:37	B738	17	ATIS YSCB P 020815 RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 090/18, ALL XW RWY 17. XW MAX 10 KTS RWY 12 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050+ TMP: METAR 26 QNH: METAR 1017
2/11/2009 19:43	B734	17	ATIS YSCB Q 020840 RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 110/18, XW 16 KTS RWY 17 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050+ TMP: METAR 25 + QNH: METAR 1018
2/11/2009 21:24	B734	17	ATIS YSCB Q 020840 RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO + WND: 110/18, XW 16 KTS RWY 17 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050+ TMP: METAR 25 + QNH: METAR 1018

3/11/2009 18:00	B734	35	<p>ATIS YSCB J 030612</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ SFC COND: DAMP+ WND: 300/15-30 KTS.</p> <p>XW MAX 25 KTS RWY 35+ VIS: GT 10 KM</p> <p>+ WX: SH IN AREA+ CLD:+ TMP: 24+ QNH: 1012</p> <p>SIGWX: EXP TURB OVER RWY 35, S OF RWY INT.</p> <p>SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET</p>
19/11/2009 18:59	B734	17	<p>ATIS YSCB O 190744</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 280/5-10 ALL XW RWY 35+ VIS: REDUCED TO 9 KM IN DU</p> <p>+ TMP: 33 QNH: 1010+ SIGWX:</p>
20/11/2009 18:28	B738	17	<p>ATIS YSCB S 200728</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 320/12</p> <p>VIS: GT 10 KM, REDUCING TO 8 KM IN SMOKE AND HAZE</p> <p>+ WX: SH IN AREA+ TMP: 34 QNH: 1007</p>
30/11/2009 12:31	B734	17	<p>ATIS YSCB G 300113</p> <p>APCH: JET ACFT EXP VOR APCH</p> <p>RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 090/15 ALL XW RWY 17 VIS: GT 10 KM</p> <p>WX: SH IN AREA CLD: FEW022 SCT030+ TMP: 18</p> <p>QNH: 1010</p>
30/11/2009 16:13	B734	17	<p>ATIS YSCB K 300435</p> <p>APCH: EXP VOR APCH RWY: 17+ SFC COND: WET</p> <p>+ WND: 120/10 XW 8 KTS VIS: GT 10 KM+ WX: SH IN AREA</p> <p>+ CLD: FEW018, SCT025+ TMP: 15 QNH: 1011</p>
30/11/2009 16:20	B763	17	<p>ATIS YSCB L 300519</p> <p>APCH: EXP VOR APCH RWY: 17 SFC COND: WET</p> <p>+ WND: 150/10-20 XW MAX 8 KTS</p> <p>+ VIS: 10 KM, REDUCING TO 8 KM IN PASSING SH</p> <p>+ WX:+ CLD: FEW020, SCT040+ TMP: 13+ QNH: 1012</p>
14/12/2009 20:41	B734	17	<p>ATIS YSCB M 140915</p> <p>APCH: EXP VOR APCH+ RWY: 17+ WND: 090/15, ALL XW</p> <p>VIS: GT 10 KM+ CLD: BKN018+ TMP: 14+ QNH: 1023</p>

Table E7 Virgin Blue Jet Departures over Flying NAA

Date/Time	Type	Runway	Weather
20/01/2009 21:00	E190	17	ATIS YSCB S 200931 APCH: EXP VOR APCH RWY: 17 SFC COND: WET + WND: 090-150/5-15, XW MAX 15 KTS VIS: GT 10 KM WX: SH IN AREA + CLD: SCT050, CB IN AREA. LIGHTNING OBSERVED TO S AND E + TMP: 18 QNH: 1013
22/01/2009 20:35	E190	35	ATIS YSCB L 220917 APCH: EXP ILS APCH + RWY: 35 + SFC OND: WET + WND: 29/10-2, ALL XW + VS: 8 M, REDUCD TO 00 MINSH W: S N RE + LD FW00, SC03, CT45 TP:19 QNH:108 +SIWX EXP URB OERRWY 3 S OF RWY INT. SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 8000 FEET
22/01/2009 20:38	E190	35	ATIS YSCB L 220917 APCH: EXP ILS APCH + RWY: 35 + SFC OND: WET + WND: 29/10-2, ALL XW + VS: 8 M, REDUCD TO 00 MINSH W: S N RE + LD FW00, SC03, CT45 TP:19 QNH:108 +SIWX EXP URB OERRWY 3 S OF RWY INT. SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 8000 FEET
2/02/2009 19:56	E170	17	ATIS YSCB N 020829 + RWY: 17 OPR INFO: APP FREQUENCY 125.9 NOT AVBL. USE APP FREQUENCY 124.5 + WND: 170/18 + VIS: GT 10 KM + WX: SH IN AREA + CLD: TOWERING CU OBS TO THE SOUTH AND EAST + TMP: 30 + QNH: 1011

3/02/2009 16:31	B737	17	<p>ATIS YSCB J 030520</p> <p>+ RWY: 17</p> <p>+ WND: 110/15, XW 13 KTS</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: FEW TCU 6000 FT, FEW CB 6000 FT</p> <p>+ TMP: 24</p> <p>+ QNH: 1011</p>
23/02/2009 16:47	E190	35	<p>ATIS YSCB J 230520</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: DAMP</p> <p>+ WND: 330/15</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA.</p> <p>CB VC</p> <p>CLD: FEW050</p> <p>+ TMP: 22</p> <p>+ QNH: 1014</p> <p>SIGWX: SIGMET CURRENT FOR FREQUENT TS</p>
23/02/2009 17:09	E170	35	<p>ATIS YSCB J 230520</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: DAMP</p> <p>+ WND: 330/15</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA.</p> <p>CB VC</p> <p>CLD: FEW050</p> <p>+ TMP: 22</p> <p>+ QNH: 1014</p> <p>SIGWX: SIGMET CURRENT FOR FREQUENT TS</p>
23/02/2009 17:17	B737	35	<p>ATIS YSCB J 230520</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: DAMP</p> <p>+ WND: 330/15</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA.</p> <p>CB VC</p> <p>CLD: FEW050</p> <p>+ TMP: 22</p> <p>+ QNH: 1014</p> <p>SIGWX: SIGMET CURRENT FOR FREQUENT TS</p>

26/03/2009 16:28	E190	35	<p>ATIS YSCB L 260516</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ SFC COND: WET</p> <p>+ WND: 280/15-25 KTS, ALL XW RWY 35</p> <p>+ VIS: REDUCING TO 8 KM IN PASSING SH</p> <p>+ WX:</p> <p>+ CLD: FEW025, SCT040</p> <p>+ TMP: 25</p> <p>QNH: 1019</p> <p>SIGWX: EXP TURB OVER RWY 35. S OF RWY INT</p>
1/04/2009 12:39	E170	17	<p>ATIS YSCB N 010330</p> <p>APCH: EXP VOR APCH</p> <p>RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>SFC COND: WET</p> <p>+ WND: 140/10 KTS</p> <p>VIS: 10 KM, REDUCED TO 8 KM IN PASSING SH</p> <p>+ CLD: FEW014, SCT022, SCT030</p> <p>+ TMP: 20</p> <p>+ QNH: 1024</p> <p>+ SIGWX: SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET AND FOR OCNL SEV ICING FCST BTN FL130 AND FL185</p>
21/05/2009 9:46	E170	17	<p>ATIS YSCB E 202335</p> <p>+ APCH: EXP ILS APCH</p> <p>+ RWY: 17 OR RWY 12 FOR DEPARTURES AND RWY 35 FOR ARRIVALS</p> <p>OPR INFO: START UP APPROVAL RQ FOR MELBOURNE AND ESSENDON ACFT</p> <p>+ WND: 120/15 ALL XW RWY 17 AND RWY 35, DW 8 KTS RWY 35</p> <p>+ VIS: 10 KM, REDUCED TO 5000 M TO NORTH IN PASSING SH</p> <p>CLD: FEW015 FEW025, SCT035</p> <p>TMP: 13</p> <p>QNH: 1026</p>
21/05/2009 9:57	E170	17	<p>ATIS YSCB F 202350</p> <p>APCH: EXP ILS APCH</p> <p>RWY: 17 OR RWY 12 FOR DEPARTURES AND RWY 35 FOR ARRIVALS</p> <p>OPR INFO: START UP APPROVAL RQ FOR MELBOURNE AND ESSENDON ACFT</p> <p>WND: 120/15 ALL XW RWY 17 AND RWY 35, DW 8 KTS RWY 35</p> <p>VIS: 10 KM, REDUCED TO 5000 M TO NORTH IN PASSING SH</p> <p>+ CLD: SCT015 FEW020, SCT035</p> <p>+ TMP: 14</p> <p>QNH: 1026</p>

22/05/2009 18:35	E190	17	<p>ATIS YSCB K 220812</p> <p>+ APCH: EXP INSTRUMENT APCH</p> <p>+ RWY: 35 ARRIVALS RWY 17 DEPARTURES</p> <p>+ SFC COND: DAMP</p> <p>+ OPR INFO: START UP APPROVAL RQ FOR SYDNEY ACFT HIAL ON</p> <p>+ WND: 130/10, DW MAX 8 KTS RWY 35</p> <p>+ VIS: REDUCED TO 5000M IN PASSING SH</p> <p>+ CLD: SCT013, SCT025</p> <p>TMP: 11</p> <p>QNH: 1024</p>
8/09/2009 17:30	E190	35	<p>ATIS YSCB J 080653</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 280/10-20 KTS. ALL XW RWY 35</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: FEW025, SCT035</p> <p>+ TMP: 8</p> <p>+ QNH: 1008</p> <p>SIGWX: EXP TURB OVER RWY 35 S OF RWY INT</p>
2/10/2009 18:29	E190	17	<p>ATIS YSCB O 020828</p> <p>+ APCH: EXP ILS APCH</p> <p>+ RWY: 35</p> <p>SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 110/12 ALL XW, DW MAX 7 KTS</p> <p>VIS: GT 10 KM</p> <p>+ WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035</p> <p>+ TMP: 11</p> <p>+ QNH: 1009</p>
2/10/2009 19:31	E170	17	<p>ATIS YSCB P 020915</p> <p>+ APCH: EXP VOR APCH</p> <p>+ RWY: 17</p> <p>SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 110/10, ALL XW</p> <p>VIS: GT 10 KM</p> <p>WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035</p> <p>+ TMP: 10</p> <p>+ QNH: 1008</p>

2/10/2009 19:43	B737	17	<p>ATIS YSCB P 020915</p> <p>+ APCH: EXP VOR APCH</p> <p>+ RWY: 17</p> <p>SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 110/10, ALL XW</p> <p>VIS: GT 10 KM</p> <p>WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035</p> <p>+ TMP: 10</p> <p>+ QNH: 1008</p>
2/10/2009 20:21	E170	17	<p>ATIS YSCB Q 021009</p> <p>APCH: EXP VOR APCH</p> <p>RWY: 17</p> <p>SFC COND: WET</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 130/8</p> <p>VIS: GT 10 KM</p> <p>WX: SH AND TS IN AREA</p> <p>CLD: SCT018, SCT022, FEW035</p> <p>+ TMP: 11</p> <p>+ QNH: 1009</p>
5/10/2009 17:02	B737	17	<p>ATIS YSCB I 050528</p> <p>+ APCH: JET ACFT EXP VOR APCH</p> <p>+ RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: START UP APPROVAL RQ FOR SYDNEY BOUND FLIGHTS</p> <p>TAXIWAY C CLOSED BETWEEN HOTEL AND KILO DUE WORKS</p> <p>+ WND: 140/5</p> <p>VIS: REDUCING TO 8 KM IN PASSING SH</p> <p>+ WX: TS IN AREA</p> <p>+ CLD: FEW020, FEW040, FEW CB BASE 5000 FT</p> <p>+ TMP: 15</p> <p>+ QNH: 1017</p>
5/10/2009 17:40	E190	35	<p>ATIS YSCB I 050528</p> <p>+ APCH: JET ACFT EXP VOR APCH</p> <p>+ RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: START UP APPROVAL RQ FOR SYDNEY BOUND FLIGHTS</p> <p>TAXIWAY C CLOSED BETWEEN HOTEL AND KILO DUE WORKS</p> <p>+ WND: 140/5</p> <p>VIS: REDUCING TO 8 KM IN PASSING SH</p> <p>+ WX: TS IN AREA</p> <p>+ CLD: FEW020, FEW040, FEW CB BASE 5000 FT</p> <p>+ TMP: 15</p> <p>+ QNH: 1017</p>

25/10/2009 17:22	B738	17	ATIS YSCB G 250309 APCH: EXP ILS APCH RWY: 35 + WND: 340/6 VIS: GT 10 KM WX: SH IN AREA CLD: FEW018, BKN025 + TMP: 18
			+ QNH: 1015
28/10/2009 17:09	E170	17	ATIS YSCB J 280353 + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 100/15 KTS, ALL XW RWY 17 VIS: GT 10 KM WX: SH IN AREA + CLD: FEW025, SCT040 + TMP: 22 + QNH: 1022
28/10/2009 17:16	B738	17	ATIS YSCB J 280353 + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 100/15 KTS, ALL XW RWY 17 VIS: GT 10 KM WX: SH IN AREA + CLD: FEW025, SCT040 + TMP: 22 + QNH: 1022
31/10/2009 18:15	E170	17	ATIS YSCB I 310641 + RWY: 17 + WND: 180/12 VIS: GT 10 KM WX: TS IN AREA + CLD: FEW CB 5000 FT + TMP: 24 QNH: 1021
1/11/2009 18:36	E190	17	ATIS YSCB K 010711 + RWY: 17 + WND: 120/12 ALL XW VIS: GT 10 KM WX: TS AND SH TO EAST + CLD: SCT CB 5000 + TMP: 26 + QNH: METAR QNH 1020 + SIGWX:

2/11/2009 19:11	E170	17	<p>ATIS YSCB O 020735</p> <p>+ RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO CONTACT WITH CANBERRA APPROACH, CONTACT CANBERRA TOWER FREQUENCY 118.7</p> <p>+ WND: 100/15, XW MAX 15 KTS RWY 17</p> <p>VIS: GT 10 KM</p> <p>WX: CB AND SHOWERS IN AREA</p> <p>CLD: FEW050</p> <p>+ TMP: METAR 30</p> <p>+ QNH: METAR 1017</p>
2/11/2009 19:39	B738	17	<p>ATIS YSCB P 020815</p> <p>RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO CONTACT WITH CANBERRA APPROACH, CONTACT CANBERRA TOWER FREQUENCY 118.7</p> <p>+ WND: 090/18, ALL XW RWY 17. XW MAX 10 KTS RWY 12</p> <p>VIS: GT 10 KM</p> <p>WX: CB AND SHOWERS IN AREA</p> <p>CLD: FEW050</p> <p>+ TMP: METAR 26</p> <p>QNH: METAR 1017</p>
30/11/2009 12:59	E190	17	<p>ATIS YSCB G 300113</p> <p>APCH: JET ACFT EXP VOR APCH</p> <p>RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 090/15 ALL XW RWY 17</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: FEW022 SCT030</p> <p>+ TMP: 18</p> <p>QNH: 1010</p>
30/11/2009 13:04	E170	17	<p>ATIS YSCB H 300204</p> <p>+ APCH: EXP VOR APCH</p> <p>+ RWY: 17</p> <p>+ WND: 130/18 XW 12 KTS</p> <p>VIS: GT 10 KM</p> <p>+ WX: SH IN AREA.</p> <p>CB IN AREA</p> <p>+ CLD: FEW018 SCT030</p> <p>+ TMP: 15</p> <p>+ QNH: 1011</p>

30/11/2009 14:08	E170	17	ATIS YSCB I 300242 APCH: EXP VOR APCH RWY: 17 + SFC COND: DAMP + WND: 110/15 ALL XW VIS: GT 10 KM + WX: SH AND CB IN AREA + CLD: FEW018, FEW022, SCT030 + TMP: 14 QNH: 1011
30/11/2009 14:17	E190	17	ATIS YSCB I 300242 APCH: EXP VOR APCH RWY: 17 + SFC COND: DAMP + WND: 110/15 ALL XW VIS: GT 10 KM + WX: SH AND CB IN AREA + CLD: FEW018, FEW022, SCT030 + TMP: 14 QNH: 1011
30/11/2009 15:55	E170	17	ATIS YSCB K 300435 APCH: EXP VOR APCH RWY: 17 + SFC COND: WET + WND: 120/10 XW 8 KTS VIS: GT 10 KM + WX: SH IN AREA + CLD: FEW018, SCT025 + TMP: 15 QNH: 1011
30/11/2009 16:05	E170	17	ATIS YSCB K 300435 APCH: EXP VOR APCH RWY: 17 + SFC COND: WET + WND: 120/10 XW 8 KTS VIS: GT 10 KM + WX: SH IN AREA + CLD: FEW018, SCT025 + TMP: 15 QNH: 1011
30/11/2009 17:42	E190	17	ATIS YSCB M 300551 APCH: EXP VOR APCH RWY: 17 SFC COND: WET + WND: 080/6 VIS: 10 KM, REDUCING TO 8 KM IN PASSING SH + CLD: FEW020, SCT035 + TMP: 11

			QNH: 1012
--	--	--	-----------

30/11/2009 18:04	E190	17	ATIS YSCB M 300551 APCH: EXP VOR APCH RWY: 17 SFC COND: WET + WND: 080/6 VIS: 10 KM, REDUCING TO 8 KM IN PASSING SH + CLD: FEW020, SCT035 + TMP: 11 QNH: 1012
8/12/2009 19:58	E170	17	ATIS YSCB S 080831 RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 080/12, ALL XW RWY 17 VIS: GT 10 KM WX: SH IN AREA CLD: FEW050 TMP: 19 + QNH: 1007 SIGWX: SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET
31/12/2009 17:31	E190	35	ATIS YSCB L 310552 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 290/12, ALL XW RWY 35 VIS: GT 10 KM WX: SH IN AREA CLD: FEW030, SCT040 + TMP: 22 QNH: 1015 + SIGWX: EXP TURB OVER RWY 35 S OF RWY INT

Table E8 Military Jet Departures over Flying NAA

Date/Time	Type	Runway	Weather
24/01/2009 11:10	CL60	30	ATIS YSCB F 232316 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 270/15-30, ALL XW RWY 35, XW MAX 15 KTS RWY 30 VIS: GT 10 KM + CLD: FEW025 TMP: 27 + QNH: 1007 SIGWX: EXP TURB OVER RWY 35, S OF RWY INT. SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET
15/04/2009 15:37	CL60	30	ATIS YSCB N 150432 + APCH: EXP ILS APCH RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 280/20-30 G40 KTS. XW MEAN 26 KTS, MAX 37 KTS RWY 35, XW MAX 16 KTS RWY 30 + VIS: REDUCED TO 4000 M IN DUST CLD: FEW040 + TMP: 22 QNH: 1007 SIGWX: EXP TURB OVER RWY 35 S OF RWY INT.

--	--	--

SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET

--

1/07/2009 13:15	CL60	30	<p>ATIS YSCB G 010258</p> <p>+ APCH: JET ACFT EXP ILS APCH</p> <p>+ RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TWY A BTN TWY DELTA AND TWY F NOT AVBL</p> <p>+ WND: 290/20-30G35 KTS.</p> <p>XW MAX 30 KTS RWY 35</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: FEW020, SCT030</p> <p>+ TMP: 13</p> <p>+ QNH: 1004</p> <p>SIGWX: SIGMET CURRENT FOR SEV TURB FCST B100.</p> <p>EXP TURB OVER RWY 35 S OF RWY INT</p>
1/07/2009 16:13	CL60	30	<p>ATIS YSCB I 010558</p> <p>+ APCH:</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TWY A BTN TWY DELTA AND TWY F NOT AVBL</p> <p>+ WND: 280/15-25</p> <p>ALL XW RWY 35</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>+ CLD: FEW020, FEW030</p> <p>+ TMP: 9</p> <p>+ QNH: 1006</p> <p>SIGWX: SIGMET CURRENT FOR SEV TURB FCST B100.</p> <p>EXP TURB OVER RWY 35 S OF RWY INT</p>
3/08/2009 10:12	CL60	30	<p>ATIS YSCB F 022344</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 270/15-30, ALL XW RWY 35, XW 15 KTS RWY 30</p> <p>VIS: GT 10 KM</p> <p>+ WX:</p> <p>CLD: SCT035</p> <p>+ TMP: 12</p> <p>+ QNH: 1020</p> <p>SIGWX: EXP TURB OVER RWY 35, S OF RWY INT.</p> <p>SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET</p>
29/11/2009 12:34	CL60	30	<p>ATIS YSCB E 290058</p> <p>+ APCH: EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ SFC COND: WET</p> <p>+ WND: 300/15-25, MAX XW 20 KTS RWY 35</p> <p>+ VIS: 10 KM, REDUCED TO 6 KM IN PASSING SH</p> <p>WX: SH IN AREA</p> <p>CLD: FEW022, SCT030, SCT045</p> <p>+ TMP: 15</p> <p>QNH: 1002</p> <p>SIGWX: SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FEET.</p> <p>EXP TURB OVER RWY 35 S OF RWY INT</p>

30/11/2009 13:08	CL60	17	ATIS YSCB H 300204 + APCH: EXP VOR APCH + RWY: 17 + WND: 130/18 XW 12 KTS VIS: GT 10 KM + WX: SH IN AREA. CB IN AREA + CLD: FEW018 SCT030 + TMP: 15 + QNH: 1011
------------------	------	----	--

Table E9 Other Jet Departures over Flying NAA

Date/Time	Type	Runway	Weather
6/01/2009 16:36	C52S5	30	ATIS YSCB J 060533 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 260/12, ALL XW RWY 35, OCNL DW MAX 4 KTS RWY 35, XW MAX 10 KTS RWY 30 CLD: CAVOK TMP: 34 + QNH: 1009 SIGWX: EXP TURB OVER RWY 35, S OF RWY INT
23/02/2009 15:43	CL60	35	ATIS YSCB I 230428 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + SFC COND: DAMP + WND: 310/10 VIS: GT 10 KM WX: SH IN AREA. CB VC CLD: FEW050 + TMP: 23 QNH: 1013 + SIGWX: SIGMET CURRENT FOR FREQUENT TS
23/02/2009 16:54	C550	30	ATIS YSCB J 230520 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES SFC COND: DAMP + WND: 330/15 VIS: GT 10 KM WX: SH IN AREA. CB VC CLD: FEW050 + TMP: 22 + QNH: 1014 SIGWX: SIGMET CURRENT FOR FREQUENT TS

30/11/2009 12:43	F2TH	17	ATIS YSCB G 300113 APCH: JET ACFT EXP VOR APCH RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 090/15 ALL XW RWY 17 VIS: GT 10 KM WX: SH IN AREA CLD: FEW022 SCT030 + TMP: 18 QNH: 1010
2/11/2009 18:59	A320	17	ATIS YSCB O 020735 + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES OPR INFO: CANBERRA APPROACH FREQUENCIES UNRELIABLE. IF NO CONTACT WITH CANBERRA APPROACH, CONTACT CANBERRA TOWER FREQUENCY 118.7 + WND: 100/15, XW MAX 15 KTS RWY 17 VIS: GT 10 KM WX: CB AND SHOWERS IN AREA CLD: FEW050 + TMP: METAR 30 + QNH: METAR 1017

Table E10 Qantas Link Turboprop Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
16/01/2009 20:58	DH8D	17	ATIS YSCB J 160948 + RWY: 17 + WND: 100/12, ALL XW VIS: GT 10 KM CLD: FEW020 + TMP: 16 + QNH: 1014
14/04/2009 14:16	DH8D	35	ATIS YSCB G 140333 APCH: JET ACFT EXP ILS APCH RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + WND: 330/7 VIS: GT 10 KM + WX: TS IN AREA SH IN AREA + CLD: FEW020, SCT030 + TMP: 20 + QNH: 1013
16/04/2009 12:14	DH8B	35	ATIS YSCB F 160131 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: MEN AND EQPT OPERATING WI RWS 35 OUTSIDE RWY SIDE STRIPE WND: 330/8 CLD: CAVOK + TMP: 16 + QNH: 1014

24/08/2009 10:38	DH8D	35	<p>ATIS YSCB D 232335</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY K AND H DUE WORKS</p> <p>+ WND: 320/10-20 KTS.</p> <p>XW MAX 10 KTS RWY 35</p> <p>VIS: GT 10 KM</p> <p>CLD: FEW025 FEW035</p> <p>+ TMP: 14</p> <p>+ QNH: 1005</p> <p>SIGWX: SIGMET CURRENT FOR SEV TURB FCST BLW 10000 FEET</p>
------------------	------	----	---

Table E11 Other Turboprop Arrivals – over Flying NAA

Date/Time	Type	Runway	Weather
2/03/2009 16:46	SW4	12	<p>ATIS YSCB G 020016</p> <p>+ APCH: JET ACFT EXP ILS APCH</p> <p>RWY: 35 FOR ARRIVALS AND DEPARTURES</p> <p>+ OPR INFO:</p> <p>+ WND: 060/8 KTS. ALL XW</p> <p>VIS: GT 10 KM</p> <p>+ CLD: BKN035</p> <p>+ TMP: 24</p> <p>QNH: 1018</p>
27/05/2009 16:06	SW4	30	<p>ATIS YSCB G 270445</p> <p>APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: START UP APPROVAL RQ FOR ALL NORTH BOUND ACFT</p> <p>+ WND: 300/12, XW 10 KNOTS RWY 35</p> <p>VIS: GT 10 KM</p> <p>+ CLD: SCT030</p> <p>TMP: 16</p> <p>QNH: 1018</p>
11/09/2009 12:17	SW3	35	<p>ATIS YSCB G 110206</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>+ WND: 300/10, MAX XW 8 KTS RWY 35</p> <p>CLD: CAVOK</p> <p>+ TMP: 15</p> <p>QNH: 1021</p>
11/12/2009 13:42	SW4	30	<p>ATIS YSCB F 110213</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>WND: 270/10-20 KTS, ALL XW RWY 35, XW MAX 10 KTS RWY 30</p> <p>CLD: CAVOK</p> <p>+ TMP: 22</p> <p>+ QNH: 1014</p> <p>SIGWX: EXP TURB OVER RWY 35 S OF RWY INT</p>

20/12/2009 20:51	SW4	35	ATIS YSCB M 200901 RWY: 35 + WND: 030/18, XW MAX 12 KTS VIS: GT 10 KM CLD: FEW045 + TMP: 21 + QNH: 1016
------------------	-----	----	---

Table E12 Brindabella Turboprop Arrivals over Flying NAA

Date/Time	Type	Runway	Weather
8/01/2009 15:59	JS41	35	ATIS YSCB L 080452 RWY: 35 + WND: 060/10-20, ALL XW VIS: GT 10 KM CLD: FEW040 + TMP: 25 QNH: 1011
18/01/2009 20:05	JS41	35	ATIS YSCB H 180358 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + OPR INFO: WND: VRB 6 KTS. OCNL DW MAX 3 KTS CLD: CAVOK + TMP: 28 QNH: 1019
23/02/2009 16:08	SW4	30	ATIS YSCB I 230428 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + SFC COND: DAMP + WND: 310/10 VIS: GT 10 KM WX: SH IN AREA. CB VC CLD: FEW050+ TMP: 23 QNH: 1013 + SIGWX: SIGMET CURRENT FOR FREQUENT TS
10/03/2009 9:02	JS41	35	ATIS YSCB C 092110 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: TWY B BETWEEN MIKE AND BAY 3 NOT AVBL WND: VRB 4 KTS VIS: GT 10 KM CLD: FEW025 + TMP: 16 + QNH: 1023
19/06/2009 15:52	SW4	35	ATIS YSCB I 190336 RWY: 35 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 060/8 KTS. ALL XW VIS: GT 10 KM + CLD: SCT045 TMP: 14 + QNH: 1028

3/09/2009 19:43	JS41	30	<p>ATIS YSCB L 030824</p> <p>+ APCH: EXP ILS APCH</p> <p>+ RWY: 35 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS</p> <p>WND: 360/8</p> <p>VIS: GT 10 KM</p> <p>+ WX: SH IN AREA</p> <p>+ CLD: FEW018, SCT026</p> <p>TMP: 12</p> <p>QNH: 1014</p> <p>SIGWX: SIGMET CURRENT FOR OCNL SEV TURB FCST BLW 10000 FE</p>
6/11/2009 15:43	JS41	35	<p>ATIS YSCB G 060411</p> <p>+ APCH: JETS EXP ILS APCH RWY 35</p> <p>+ RWY: 35 AND RWY 12 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 060/12 ALL XW RWY 35</p> <p>VIS: GT 10 KM</p> <p>+ CLD: FEW025, SCT035</p> <p>+ TMP: 17</p> <p>+ QNH: 1026</p>

Table E13 Qantas Link Turboprop Departures over Flying NAA

Date/Time	Type	Runway	Weather
11/01/2009 14:09	DH8C	17	<p>ATIS YSCB E 110159</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 310/8KTS</p> <p>+ VIS: GT 10 KM</p> <p>+ WX: CB IN AREA</p> <p>+ CLD:</p> <p>+ TMP: 28</p> <p>+ QNH: 1011</p>
20/01/2009 15:11	DH8D	17	<p>ATIS YSCB G 200345</p> <p>+ RWY: 17</p> <p>+ WND: 180/12 KTS</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>+ CLD: SCT050, CB TO THE WEST</p> <p>+ TMP: 31</p> <p>+ QNH: 1011</p>
20/01/2009 19:49	DH8D	17	<p>ATIS YSCB Q 200832</p> <p>RWY: 17</p> <p>SFC COND: WET</p> <p>+ WND: 150/12</p> <p>VIS: GT 10 KM</p> <p>WX: SH IN AREA</p> <p>CLD: SCT050, CB IN AREA.</p> <p>FREQUENT LIGHTNING OBSERVED TO S AND SW</p> <p>+ TMP: 19</p>

		+ QNH: 1014
--	--	-------------

25/10/2009 15:53	DH8C	17	<p>ATIS YSCB H 250434</p> <p>APCH: EXP ILS APCH</p> <p>RWY: 35</p> <p>+ SFC COND: WET</p> <p>+ WND: 360/10</p> <p>+ VIS: REDUCING TO 8 KM IN PASSING SH</p> <p>+ WX: TS IN AREA</p> <p>+ CLD: FEW010, SCT020, SCT030</p> <p>+ TMP: 16</p> <p>+ QNH: 1014</p>
30/10/2009 13:58	DH8C	17	<p>ATIS YSCB J 300301</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>OPR INFO: ILS ON TEST DO NOT USE. FALSE INDICATIONS POSSIBLE.</p> <p>START CLEARANCE REQUIRED FOR CIRCUIT TRAINING</p> <p>+ WND: VRB 6 KTS, OCNL DW 4 KTS</p> <p>VIS: GT 10 KM</p> <p>+ WX: SH IN AREA</p> <p>CLD: FEW040 FEW TCU 4500 FT</p> <p>+ TMP: 28</p> <p>QNH: 1021</p>
20/11/2009 17:26	DH8C	17	<p>ATIS YSCB Q 200612</p> <p>+ APCH: JET AIRCRAFT EXP ILS APCH</p> <p>RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES</p> <p>+ WND: 250/15, DW 3 KTS AND XW MAX 15 KTS RWY 35. XW MAX 12 KTS RWY 30</p> <p>+ VIS: 10 KM, REDUCED TO 8 KM IN SMOKE</p> <p>+ WX: SH IN AREA</p> <p>+ TMP: 34</p> <p>QNH: 1007</p> <p>SIGWX: EXP TURB OVER RWY 35 S OF RWY INT</p>
30/11/2009 14:04	DH8C	17	<p>ATIS YSCB I 300242</p> <p>APCH: EXP VOR APCH</p> <p>RWY: 17</p> <p>+ SFC COND: DAMP</p> <p>+ WND: 110/15 ALL XW</p> <p>VIS: GT 10 KM</p> <p>+ WX: SH AND CB IN AREA</p> <p>+ CLD: FEW018, FEW022, SCT030</p> <p>+ TMP: 14</p> <p>QNH: 1011</p>

Table E14 Brindabella Turboprop Departures over Flying NAA

Date/Time	Type	Runway	Weather
17/02/2009 10:55	SW4	17	ATIS YSCB D 162335 APCH: JET AIRCRAFT EXP VOR APCH RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES WND: 150/10 VIS: GT 10 KM + CLD: FEW025, FEW033 + TMP: 20 QNH: 1020
31/03/2009 10:58	SW4	17	ATIS YSCB I 302358 + APCH: EXP ILS APCH + RWY: 35 SFC COND: WET + OPR INO: HIAL N + WND: 10/13, AL XW,DW MA 9 KT + IS 8KM RDUE TO 400 MIN PASIG H WX SH I AEA CD: SC01 BN05 TMP: 7 QN: 102
8/09/2009 17:09	SW4	35	ATIS YSCB J 080653 APCH: JET AIRCRAFT EXP ILS APCH RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: TAXIWAY C CLOSED BETWEEN TAXIWAY H AND K DUE WORKS + WND: 280/10-20 KTS. ALL XW RWY 35 VIS: GT 10 KM WX: SH IN AREA CLD: FEW025, SCT035 + TMP: 8 + QNH: 1008 SIGWX: EXP TURB OVER RWY 35 S OF RWY INT
26/11/2009 11:31	JS41	35	ATIS YSCB D 260007 RWY: 35 + WND: 320/6 CLD: CAVOK + TMP: 28 + QNH: 1016

Table E 15 Other Turboprop Departures over Flying NAA

Actual Date/Time	Aircraft Type	Runway Name	Weather
16/01/2009 16:09	BE20	30	ATIS YSCB G 160333 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: 270/15-25 KTS, ALL XW RWY 35, XW 12 KTS RWY 30 CLD: CAVOK + TMP: 29 + QNH: 1011 SIGWX: EXP TURB OVER RWY 35 S OF RWY INT
21/01/2009 14:03	BE20	30	ATIS YSCB G 210217 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES WND: 320/10-20. XW MAX 12 KTS RWY 35 CLD: CAVOK + TMP: 32 + QNH: 1012 SIGWX: EXP TURB OVER RWY 35 S OF RWY INT
20/03/2009 14:20	BE20	35	ATIS YSCB G 200312 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES + OPR INFO: START CLEARANCE REQUIRED + WND: VRB 5 KTS CLD: CAVOK TMP: 29 QNH: 1017
6/03/2009 15:17	SW4	30	ATIS YSCB I 060249 RWY: 35 AND RWY 30 FOR ARRIVALS AND DEPARTURES OPR INFO: TWY B BETWEEN MIKE AND BAY 3 NOT AVBL + WND: 290/10 KTS, ALL XW RWY 35 CLD: CAVOK + TMP: 22 + QNH: 1012 + SIGWX:
8/11/2009 15:56	SW4	17	ATIS YSCB I 080434 + RWY: 17 AND RWY 12 FOR ARRIVALS AND DEPARTURES + WND: 120/10, XW 8KTS RWY 17 CLD: CAVOK TMP: 29 + QNH: 1026