Sydney Airport
The right future. Starting now.

19 June 2014

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Dear Mr Alexander

Re: Issue raised at the Sydney Airport Community Forum (SACF) meeting

You may recall that at the last SACF meeting, members discussed runway balancing at Sydney Airport. This occurred as part of a broader discussion about whether or not the new generation B787 Dreamliner should be allowed to use Sydney Airport's parallel north-south runway (also known as Runway 34R/16L).

Some members opposed this runway being used by B787s, despite the fact it is already being used by noisier wide-bodied twin engine aircraft of a similar size. I undertook to provide more information about this issue from Sydney Airport's perspective prior to SACF's next meeting.

Runway balancing and the B787

The balancing of the use of Sydney Airport's two parallel north-south runways is not new. Both of our previously approved master plans (2003/04 and 2009) assumed and highlighted the benefits of balancing air traffic demand between these runways, as does our current *Master Plan 2033*.

Opposing quieter B787s using Runway 34R/16L cannot be justified on noise grounds. Were they able to use this runway, the noise produced per flight, when compared to the noise produced by similarly sized aircraft already using the runway, would be less in areas to the south, east and north-east of the airport.

The air traffic forecasts used to prepare the *Master Plan 2033* – which were independently prepared for Sydney Airport in consultation with major international, domestic and regional airlines – assume that the B787 aircraft will, by 2033, replace the B767 aircraft currently operating.

The current *Master Plan 2033* confirms that, on the basis of independent modelling undertaken by Airbiz, and with an appropriate balancing of runway use, the proposed airfield layout is capable of efficiently handling the predicted volumes of air traffic. The modelling was reviewed by Airservices Australia as part of the technical endorsement process for the ANEF, and was peer reviewed by local Air Traffic Control staff as operational validation.

This conclusion is supported by the airfield modelling study carried out using the Comprehensive Airport Simulation Technology (CAST) fast time simulation model. The model is a gate-to-gate real time simulator of aircraft movements. The CAST simulation model was structured around the development plan for the airfield movement area layout and the 2033 representative busy day forecast schedule.

I refer SACF members to Chapter 6 of the *Master Plan 2033* for more information.

As I mentioned at the meeting, the ANEF includes a table showing aircraft movements by aircraft type, time of day and runway, including the expected use of Runway 34R/16L by B787 aircraft (see **Attachment A**). The detailed information sitting behind the data shown in this table is within the TNIP Compact files I provided to SACF a year ago. SACF members who wish to know more about the aircraft types we expect to be using Runway 34R/16L by 2033 should refer to this information.

Please note that, as I again mentioned at the meeting, when the ANEF was prepared, the most up-to-date version of the Integrated Noise Model (INM)[1] then available did *not* allow the quieter B787 to be modelled. So, for the purposes of preparing the ANEF, the noise profile of the A330-343 aircraft was used instead. The B787 is, of course, quieter than the A330-343, as the most recently available information reproduced in the table below shows.[2]

Aircraft type	Operation	Runway	Movements (Correlated noise events)	Mean maximum sound level dB(A) (std. dev.)	
				2013 (Q4)	2013 (Q3)
Sydenham					
Airbus A330	Arriving	16R	553 (551)	90.6 (1.9)	90.4 (2.1)
Boeing 787-800	Arriving	16R	36 (36)	88.1 (0.9)	88.1 (0.5)
Croydon					
Airbus A330	Departing	34L	715 (212)	76.2 (3.3)	75.2 (3.3)
Boeing 787-800	Departing	34L	53 (14)	70.6 (2.8)	69.7 (0.0)
Leichhardt					
Airbus A330	Arriving	16R	553 (553)	77.9 (1.9)	77.7 (1.8)
Boeing 787-800	Arriving	16R	36 (36)	76.7 (1.5)	75.8 (1.3)
Hunters Hill					
Airbus A330	Arriving	16R	553 (486)	74.6 (2.0)	74.4 (2.0)
Boeing 787-800	Arriving	16R	36 (31)	72.7 (1.8)	73.4 (1.2)

As Figure 14.3 in Sydney Airport's *Master Plan 2033* also shows, the noise footprint of the B787 is significantly smaller than that of the B767.

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[1] The INM is the internationally recognised computer program used to evaluate aircraft noise impacts in the vicinity of airports and prepare noise exposure forecasts like the ANEF.

[2] Data sourced from Airservices Australia website http://www.airservicesaustralia.com/publications/noise-reports/noise-and-flight-path-monitoring-system-reports/ (Sydney Airport 2013 4th quarter)

Introduction of Performance Based Navigation

For several years now, there has been considerable debate at SACF about the introduction of Performance Based Navigation (PBN) at Sydney Airport, including at the last meeting.

To inform future debate, SACF members may be interested in a draft report that was recently released by Auckland Airport, which contains information about the noise, carbon emission and fuel reduction benefits of PBN, including the use of so-called SMART technology. A copy can be downloaded at http://aucklandflightpathtrial.co.nz/.

The report (at page 27) indicates that SMART technology allows constant descent when aircraft are on final approach to a runway, allowing aircraft engines to run close to flight idle. This, the report says, almost eliminates the traditional "step-down" approach. Confirming the environmental benefits associated with using this technology, it concludes that:

> *"…the conventional step-down approach, which largely relies on ground-based navigational aids, is noisier, less fuel efficient and less environmentally friendly than a continuous descent using SMART technology."*

The benefits of using PBN are also highlighted in Sydney Airport's *Master Plan 2033* (at page 185).

I would appreciate it if you could circulate a copy of this letter to members of SACF. I would be happy to discuss them in more detail at the next meeting of SACF.

Yours sincerely

Ted Plummer
Head of Government and Community Relations

Attachment A

SYDNEY ANEF 2033 VB															
	Arrivals			Departures				Arrivals			Departures			
Aircraft	Day	Night	Total	Day	Night	Total	All	Day	Night	Total	Day	Night	Total	All
	Runway 07							Runway 25						
737300	0.03	0.01	0.04	0.00	0.03	0.03	**0.07**	0.04	0.02	0.05	0.00	0.09	0.09	**0.14**
737400	0.00	0.58	0.58	0.03	0.05	0.08	**0.67**	0.00	0.65	0.65	0.04	0.18	0.22	**0.86**
737800	1.72	1.93	3.65	0.65	0.35	1.00	**4.65**	1.97	1.71	3.68	1.98	3.30	5.28	**8.95**
747400	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.01	0.01	0.01	0.00	0.01	**0.02**
777200	0.29	0.58	0.87	0.13	0.19	0.32	**1.20**	0.40	0.60	1.00	0.40	0.27	0.67	**1.67**
777300	0.28	0.11	0.39	0.09	0.24	0.34	**0.72**	0.36	0.14	0.50	0.43	0.22	0.65	**1.15**
A319-131	0.16	0.23	0.39	0.12	0.05	0.17	**0.56**	0.32	0.20	0.53	0.39	0.05	0.44	**0.97**
A320-232	0.39	0.40	0.80	0.09	0.06	0.15	**0.95**	0.44	0.36	0.80	0.30	0.21	0.51	**1.31**
A321-232	1.00	2.17	3.17	0.40	0.42	0.83	**4.00**	1.26	2.05	3.31	0.94	2.78	3.72	**7.04**
A330-343	3.90	3.28	7.17	1.53	0.82	2.35	**9.52**	4.95	2.98	7.93	4.71	5.53	10.24	**18.17**
A340-642	0.17	0.05	0.22	0.02	0.10	0.12	**0.34**	0.11	0.05	0.16	0.02	0.15	0.17	**0.33**
A380-841	0.14	0.47	0.61	0.20	0.25	0.45	**1.06**	0.34	0.49	0.83	0.56	0.22	0.77	**1.60**
A380-861	0.23	0.02	0.25	0.14	0.00	0.14	**0.38**	0.23	0.02	0.26	0.39	0.00	0.39	**0.64**
DHC6	0.29	0.25	0.54	0.14	0.29	0.43	**0.97**	0.35	0.19	0.54	0.38	0.37	0.75	**1.29**
DHC830	2.40	0.23	2.63	0.63	0.14	0.77	**3.40**	2.61	0.20	2.82	2.21	0.72	2.93	**5.75**
GV	0.20	0.20	0.40	0.04	0.01	0.06	**0.46**	0.14	0.14	0.28	0.08	0.07	0.15	**0.44**
SF340	0.72	0.06	0.78	0.42	0.11	0.53	**1.31**	1.06	0.06	1.12	1.05	1.00	2.06	**3.18**
TOTAL	**11.92**	**10.58**	**22.50**	**4.65**	**3.12**	**7.77**	30.27	**14.59**	**9.87**	**24.46**	**13.88**	**15.16**	**29.04**	**53.50**
	Runway 16L							Runway 34R						
737300	0.02	0.26	0.28	0.00	0.30	0.30	**0.59**	0.01	0.22	0.23	0.00	0.28	0.28	**0.51**
737400	0.00	0.37	0.37	0.00	0.86	0.86	**1.23**	0.00	0.62	0.62	0.00	0.51	0.51	**1.13**
737800	15.43	5.29	20.72	16.77	5.74	22.52	**43.24**	14.88	5.55	20.43	20.53	5.54	26.06	**46.49**
777200	0.11	0.31	0.42	0.26	0.32	0.58	**1.00**	0.09	0.33	0.41	0.38	0.39	0.78	**1.19**
777300	0.14	0.17	0.31	0.26	0.00	0.26	**0.56**	0.13	0.19	0.32	0.55	0.00	0.55	**0.87**
A319-131	3.64	0.36	4.00	2.17	0.25	2.42	**6.42**	3.20	0.42	3.62	4.11	0.38	4.49	**8.12**
A320-232	1.99	0.67	2.66	2.53	1.06	3.58	**6.25**	1.75	0.94	2.69	2.46	0.99	3.45	**6.14**
A321-232	11.03	4.84	15.87	9.42	7.05	16.47	**32.34**	9.69	5.17	14.86	11.27	6.23	17.51	**32.37**
A330-343	29.70	7.57	37.27	29.47	6.65	36.13	**73.40**	29.19	7.97	37.15	38.56	7.41	45.96	**83.12**
A340-642	0.14	0.34	0.47	0.04	0.05	0.08	**0.56**	0.17	0.27	0.44	0.13	0.22	0.35	**0.79**
DHC6	2.99	1.90	4.89	2.46	2.62	5.09	**9.98**	2.75	2.09	4.83	2.33	2.31	4.64	**9.48**
DHC830	17.47	1.11	18.59	12.33	2.68	15.00	**33.59**	16.99	1.60	18.58	18.96	4.12	23.09	**41.67**
GV	0.59	0.21	0.79	0.62	0.61	1.23	**2.02**	0.47	0.38	0.84	0.40	0.29	0.69	**1.53**
SF340	7.30	0.80	8.10	4.33	0.92	5.25	**13.35**	6.92	0.58	7.50	4.23	0.67	4.89	**12.39**
TOTAL	**90.55**	**24.21**	**114.75**	**80.66**	**29.12**	**109.77**	224.53	**86.24**	**26.31**	**112.55**	**103.92**	**29.35**	**133.26**	245.81
	Runway 16R							Runway 34L						
737300	0.51	0.26	0.77	0.00	0.83	0.83	**1.60**	0.40	0.22	0.62	0.00	0.47	0.47	**1.09**
737400	0.00	0.29	0.29	0.53	0.34	0.87	**1.16**	0.00	0.49	0.49	0.41	0.05	0.46	**0.95**
737800	11.12	3.85	14.97	11.58	4.71	16.29	**31.26**	12.87	4.68	17.55	7.49	2.36	9.85	**27.40**
747400	0.00	0.37	0.37	0.41	0.00	0.41	**0.77**	0.00	0.62	0.62	0.58	0.00	0.58	**1.21**
777200	4.50	3.50	8.00	5.69	3.45	9.15	**17.15**	4.61	3.68	8.29	5.13	2.38	7.51	**15.80**
777300	4.69	4.27	8.96	7.02	3.10	10.13	**19.09**	5.41	5.12	10.53	6.64	2.43	9.07	**19.60**
A319-131	2.71	0.37	3.08	4.07	0.78	4.85	**7.93**	2.96	0.42	3.38	2.14	0.49	2.63	**6.01**
A320-232	1.18	0.69	1.87	1.55	0.58	2.14	**4.00**	1.24	0.94	2.18	1.07	0.10	1.17	**3.35**
A321-232	6.58	3.48	10.06	8.29	4.23	12.52	**22.58**	7.43	4.29	11.72	5.67	2.28	7.95	**19.67**
A330-343	38.26	11.49	49.75	44.47	12.96	57.43	**107.18**	41.01	14.72	55.72	34.26	8.63	42.90	**98.62**
A340-642	0.19	1.15	1.34	0.48	1.56	2.05	**3.38**	0.23	1.14	1.36	0.31	0.92	1.23	**2.60**
A380-841	6.72	5.10	11.82	9.94	3.38	13.31	**25.13**	6.79	7.95	14.74	10.30	3.16	13.46	**28.20**
A380-861	3.37	0.89	4.26	5.96	0.00	5.96	**10.22**	4.17	3.07	7.24	5.52	0.00	5.52	**12.76**
DHC6	1.30	0.29	1.59	2.91	4.47	7.38	**8.97**	1.32	8.28	9.60	2.77	0.93	3.70	**13.31**
DHC830	12.71	1.19	13.90	17.58	4.02	21.60	**35.50**	14.82	2.67	17.49	9.29	1.32	10.61	**28.09**
GV	0.26	0.02	0.29	0.44	3.00	3.44	**3.73**	0.34	3.05	3.40	0.42	0.01	0.43	**3.82**
LEAR35	0.00	0.00	0.00	0.00	2.00	2.00	**2.00**	0.00	2.00	2.00	0.00	0.00	0.00	**2.00**
SF340	11.99	1.30	13.29	13.15	3.72	16.86	**30.16**	14.00	1.20	15.21	12.82	3.58	16.41	**31.61**
TOTAL	**106.12**	**38.49**	**144.60**	**134.07**	**53.14**	**187.20**	331.81	**117.59**	**64.55**	**182.14**	**104.83**	**29.12**	**133.95**	**316.09**
														1202.00
	Runway H													
EC130	12.25	0.75	13.00	12.25	0.75	13.00	26.00							
Total	**12.25**	**0.75**	**13.00**	**12.25**	**0.75**	**13.00**	**26.00**							

Note:
Component items may not add to totals due to rounding.
Day is defined as 7 am to 7 pm (local) and night as 7 pm to 7 am (local).

Note: For reasons noted in the covering letter, the A330-343 aircraft shown in this table represents the B787 aircraft.