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Sydney Airport Community Forum

16th November 2018

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Mr Ted Plummer
Manager – Government and Community Relations
Sydney Airport Corporation Limited (SACL)
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SYDNEY INTERNATIONAL AIRPORT
NSW 2020

Dear Mr Plummer

On behalf of the Sydney Airport Community Forum (SACF) I would like to submit the attached comments on the Preliminary Draft Master Plan for Sydney Airport for 2019-2039. The Forum met on 9 November 2018 to finalise this SACF submission.

I acknowledge that as the SACL representative, you declared a conflict of interest and abstained from the vote.

All members at the meeting supported the submission. I trust that SACL will give due consideration to the comments put forward by the Forum in finalising the Sydney Airport Master Plan for 2019-2039.

Regards

John Alexander

John Alexander MP
Chair, Sydney Airport Community Forum

Sydney Airport Community Forum

Sydney Airport Community Forum Submission in response to the Sydney Airport Preliminary Draft Master Plan 2039

13 November 2018

1.0 Introduction

This Sydney Airport Preliminary Draft Master Plan (PDMP) recognises the huge changes that will be necessary at Sydney Airport over the coming two decades to meet the expected demand from Sydney's economic and population growth. The Sydney Airport Community Forum (SACF) recognises these competing demands, but calls on the airport to ensure that these demands do not negatively impact the living conditions of Sydneysiders.

As the forum for all community concerns that people may have regarding the airport, SACF is obviously most interested in the broader environmental aspects of this master plan. In this we include road management, ground transportation options, but most importantly, noise considerations. While the ground transportation may affect the usability of nearby roads, noise can affect the liveability of suburbs many kilometres from the airport land. SACF is very keen to ensure that this Master Plan examines the needs of these residents and where possible mitigates the effects of the noise caused by aircraft by ensuring the maintenance of mechanisms like the Long Term Operating Plan (LTOP).

SACF remains highly concerned about the noise sharing arrangements in this PDMP. The PDMP does not meet its statutory requirements concerning reporting and examining airport noise as set out in the *Airports Act 1996* or the NASF guidelines. This is particularly concerning with regard to the management of the LTOP considering the expected growth in flights over the coming years. There is a particular lack of information for residents about how airport noise will affect them in the coming years. Ultimately, there is a considerable gulf between best practice as seen in the Melbourne Airport Master Plan and this PDMP.

This submission brings together themes from individual submissions made by members of SACF. As such it offers a good snapshot of the views of various members, from Local Councils, Members of Parliament and community representatives. To present the full picture, these individual submissions will be attached as Addenda at the end of this main submission.

Noise sharing and management of flight numbers occupy a large amount of this submission, but we will also look at ground transportation, and other environmental considerations. As such, the main focus of this submission will be chapters 6 and 15 of the PDMP, (Air Traffic Forecasts and Aircraft

Noise respectively) with some attention on chapters 11 and 14 (Ground Transport Development Plan and Environment respectively). The implications inherent with the opening of Western Sydney Airport will also be examined (chapter 3.6 and 6).

Please note that this submission focusses on the areas that SACF has concerns or issues with the masterplan. There is a lot which SACF approves of, but in the interests of brevity we have not listed all these points. As a result this submission can seem opposed to the PDMP, but this resistance is largely confined to areas regarding noise, where we feel this masterplan is not up to standard.

2.0 Airport growth and its implications for noise sharing

Whilst the PDMP forecasts a 51% increase in passengers, aircraft movements are forecast to increase by a relatively lesser 17% to 408,260 in 2039 (up from 348,520 in 2017). The average number of passengers per movement will be up 30% to 160, and the average number of movements per non-curfew hour will rise to 65.8. All these statistics point to an increase in aeroplane size and seat density, as the PDMP acknowledges. This will also lead to an automatic increase in noise output.

It is pleasing to see that in the summary on page 27, the airport has written this PDMP in the expectation that current restrictions including the curfew, movement caps and noise sharing arrangements will still be in place. It is also pleasing to see it is looking to 'Continuing to provide and maintain the necessary on-airport infrastructure that allows noise sharing to be implemented'

That said, SACF remains very concerned about the practicalities of implementing these broad statements and the level of commitment to them in the later sections of the PDMP.

The Long Term Operating Plan was set up in 1996 following the community backlash after the opening of the Third Runway and changes in operations that saw the almost exclusive use of the new parallel runways, and mandated north south flight corridors that concentrated aircraft and noise pollution over residents north and south of the airport. The LTOP combatted this problem by setting out the principles to minimize residential overflights by maximizing flights over water and non-residential areas and fairly sharing the unavoidable residual noise so as to avoid concentration over particular populations. The LTOP has been a bipartisan commitment ever since.

Growing numbers of aeroplane movements suggests that the amount of time in which the two parallel runways will be needed simultaneously will grow over the next 20 years. This will inevitably lead to the east west runway being used less, and the principles of noise sharing as set out in the LTOP no longer being viable. Noise sharing modes have current operating capacities of only around 40 – 60 per hour. This means under current practices that noise sharing will be impossible for most hours of the day as more periods require 80 movements per hour and the overall average of 65.8 movements. At this rate, LTOP will not be viable by (and probably well before) 2039.

SACF also notes that while seat density and aeroplane size will undoubtedly increase for international flights and those between major cities, many of the intra state domestic flights will

not see the same level of increased demand and will continue to fly smaller propeller driven aircraft for the foreseeable future. This has not been acknowledged in the masterplan, and nor has the obvious link that aircraft movements could therefore increase more than expected.

Another ramification of the growth in aircraft movement is the amount of time designated 'peak hours.' Airservices Australia currently defines peak hours as 7am – 11am and 3pm – 8pm, or 9 hours out of the 17hour non-curfew period. The increase in expected freight flights by 58% will add to this demand. It is easily foreseeable using the numbers in this PDMP that more hours will become peak and the peak period is likely to stretch to encompass most of the day. The PDMP itself states: "The changes to the aviation industry, together with the maturation of specific routes, are also supporting the spreading of the existing morning and afternoon peaks at Sydney Airport."

Page 72 of the PDMP provides a Busy Day Forecast which demonstrates noise sharing modes can only be used for a short period of time between 12:00 and 13:45 and after 20:15. The remaining time the forecast movement rate is higher than the levels possible to maintain noise sharing modes. Even then, during the 12:00 to 13:45 period Figure 15-8 (p233) shows that the forecast movement rate dips to just below 60, potentially allowing the use of Modes 5 and 14A as the only noise sharing modes capable of handling this number of aircraft.

However, even the very limited use of Modes 5 and 14A during these times is doubtful in practice for the following reasons:

- The forecast movements are close to the capacity that these modes are currently achieving.
- The forecast movements are an average over the hour. There invariably will be times within the hour when the movements exceed the average and the modes will not be able to be used. Airservices Australia as demonstrated that it will not change to using a noise sharing mode for the brief corresponding periods when the movements are less than the average due to the time and effort that is necessary to do so.
- The shift to larger aircraft, if it occurs, means that there is going to be greater demand for the long runway (16R/34L) than modes 5 and 14A can handle, even if the overall capacity of these modes is not exceeded.

Unless something is done the community is therefore going to be faced with the near constant use of the parallel runways during the 17 non-curfew hours of every day. For many people this will mean their life being disrupted by a noisy aircraft overhead every 90 seconds throughout the day. If aircraft noise cannot be fairly and equitably shared, then this must be specifically acknowledged in the PDMP.

If noise sharing modes are not likely to be possible under current practices for most of the time because the forecast high demand necessitates movement rates above the limited noise sharing mode capacities, the only alternative to the much despised and unfair parallel flight paths is for there to be a concerted effort to increase the

capacity of the noise sharing modes. Sydney Airport should commit to a plan to work with Airservices Australia, SACF and other relevant stakeholders to raise the capacity of the noise sharing modes to allow noise sharing for much of the time as LTOP envisaged.

2.1 Other practical noise related matters

There were a number of comparative tools that would have been useful to see in the PDMP to put into proper context what the PDMP proposes. These include:

- Comparative data between the jet aircraft movement data for 2039 and current jet movements.
- N70 contours which are not only compared against the 2033 Master plan, but also the most recent N70 data from 2017.
- The 2017 ANEI should be included in the PDMP to allow comparison between it and the 2039 ANEF.

The PDMP often mentions that there are continuing improvements to the sound output of newer aircraft. It is worth noting that there is no such thing as a quiet aeroplane and these small improvements in no way compensate for the significant increase in aircraft movements that will be imposed on the aircraft noise affected residents of Sydney. Furthermore the PDMP suggests that smaller aircraft will be replaced by larger and heavier international aircraft. Even if this forecast is correct, and these new international aircraft are quieter than the equivalent previous generation, they are likely to be significantly more noisy than the much smaller aircraft they actually replace. These larger international aircraft will also require the full length of long parallel runway (16R/34L) thus further diminishing opportunities for noise sharing.

2.2 Comparisons with Melbourne Master Plan

SACF considers the Melbourne Airport Master Plan to be current best practice in the information provided regarding airport noise and its community impact. Melbourne Airport's document is clear, detailed and objective. There is a considerable gulf between the two plans. Particularly useful in the Melbourne plan but omitted from the Sydney one were the following sections:

- Flight Paths – out more than 50 km (the Sydney Airport PDMP shows only the final approach and does not show the routes taken over many kilometres of suburban Sydney to get on to the final approach.)
- In addition to Ultimate Capacity ANEF – Short Term ANEC's
- Explanation in plain language of ANEF, ANEI and ANEC
- Comparisons between noise exposure maps

- Comprehensive review of compliance with Airports Act 1993

2.3 ANEF Concerns

Many members of SACF raised issues with the manner that the ANEF was treated in this PDMP. A precis of these concerns is below, but for full details of these technical concerns, please see the individual submissions included at the end of this submission.

The ANEF is considered amongst the committee to be the most useful noise metric available to the airport and residents of Sydney. It is essential for land planning by councils and state governments, but it also is the basis for environmental impact assessments and community understanding about noise exposure. As such it demands to be included as a priority metric in this PDMP.

It is concerning to see that the ANEF discussion does not appear in Section 15 under "Aircraft Noise," instead featuring on pages 256, 257 and 258 under Section 16, "Safeguarding Sydney Airport." This underlines the view stated in the PDMP that ANEF is solely a land planning tool for land around the airport, which is not the case and should be corrected. The ANEF is, and was, developed as the primary and most useful tool for measuring and mapping current and future aircraft noise exposure patterns. Self-evidently, 'noise exposure' is a matter for any discussion on airport noise and it is unhelpful to see it elsewhere.

Many of the people affected by airport noise live in areas far removed from the airport across many of the suburbs of Sydney. Many SACF members pointed out the recommendations of the Senate Select Committee on Aircraft Noise from 1995, *Falling on Deaf Ears* which discussed the importance of contours lower than ANEF 20. The inquiry recommended ANEF 15 should be shown on ANEF maps and this should be adopted in the Sydney Airport Master Plan. It is worth noting that in this inquiry, the designer of ANEF, Professor Hede discussed the potential importance of ANEF as low as 10.

A further recommendation from the *Falling on Deaf Ears* report is that contour maps should be produced that show the percentage of the population seriously and moderately affected by aircraft noise, such as "20% moderately affected" and "10% seriously effected" to directly describe the impact of a proposal. These are easily produced from the ANEF and should be included in the PDMP to help describe the aircraft noise impacts of Sydney Airport in 2039.

There are also strong concerns that this PDMP does not meet its requirements under the *Airport Act 1996* regarding ANEF levels. Section 71 specifies that the master plan must include plans for management of aircraft noise above ANEF 30 contours, but this is missing in the PDMP. Furthermore the discussion of the environmental impacts appears to be limited to comparison with the master plan of 2033 on page 258, which simply lists 2 dot points explaining that the contours will grow to the north and shrink to the east, south and west. While this is expected considering the discussion above regarding the implied need to return to almost exclusive use of the parallel runways, it is not helpful for management purposes. It is in the interests of residents to the north that the PDMP clearly state that it is now predicted that resident will be affected by more noise.

The ANEF reporting maps provided in the PDMP are also at a scale and clarity insufficient for their purposes. Even if we were to concede that ANEF is purely a land use planning tool, the scale on the maps provided are not helpful for anyone seeking to use the ANEF at a street by street level. As discussed above, providing current ANEI maps for comparison would also be incredibly useful.

SACF is also concerned about the relevance of the Integrated Noise Model (INM) – the most recent Version 7.0d which was used for the modelling of ANEF's became obsolete in May 2015, when it was replaced by the FAA with the Aviation Environmental Design Tool (AEDT). It has not been updated since September 2013 which calls into question the reliability for environmental impact assessment or for land use planning purposes. It is unacceptable that the PDMP does not use the most up to date data for its forecasting and this should be rectified.

2.4 National Airports Safeguarding Framework (NASF)

The PDMP makes a great deal about the NASF guidelines, however SACF is concerned that behind the glossy diagrams, the NASF has not received the treatment it demands. Particularly concerning is the way the PDMP ignores certain requirements under Guideline A, Measures for Managing Impacts of Aircraft Noise. The following parts of the NASF have not been followed, and are quoted in full for completeness:

- Ultimate Capacity ANEF: *"Airport lease holders under the Airports Act have the responsibility of publishing as part of the five-yearly Master Plans, endorsed Aircraft Noise Exposure Forecast (ANEF) information. These ANEFs may be standard (up to 20 years) long range (20 year +) or ultimate capacity. The preference for land use planning purposes is to use ultimate capacity or long range forecasts."* [Principle 9]

- ANEF Contour 15: *"There are three different types of aircraft noise contour charts produced using the ANEF system. All three types of charts are prepared using the same computational procedures. The differences arise from the types of data which have been input to produce the maps. The noise exposure contours for each type of map are expressed in increments of five from 15 through to 40 (the higher the ANEF value the greater the forecast noise exposure)."* [Attachment page 2 par 2]

- Single Event Contours: *"Another useful way of presenting the impact of aircraft noise is to show the noise level of individual flight movements through the use of single event noise contours ... It is possible to give an indication of how many of these flights will occur in a typical day."* [Attachment page 8 par 1]

- Number Above Contours: *"An approach that combines the information in a single event noise contour with the ability to consolidate this information into a description of high noise 'zones' is available. Information on the number of noise events is termed the 'Number Above' noise metric. In Australia, this is commonly called the N70 (or N65 or N60) where N70 is the number of aircraft noise events louder than 70 dB(A)."* [Attachment page 9 par 1]
  "Use of the 70, 65 and 60 decibel contours allows a balanced and comprehensive view of the impacts residents are likely to experience from aircraft noise. These measures better reflect high-frequency flight paths and known areas of sensitivity at existing airports, and are more easily understood by potential residents and land use planners who are not noise experts." [Attachment page 12 last paragraph]

> *"The ultimate capacity model from the 2009 Brisbane Airport Master has been used to model the effects of aircraft noise around the Brisbane Airport ... which complements the ANEF modelling ... the 20 event N70 contour, the 50 event N65 contour and the 100 event N60 contour for the average day when the airport reaches its ultimate operating capacity."* [Attachment page 10 par 1]
> *"The night time (10pm to 6am) noise exposure patterns at Brisbane have been illustrated using N60 contours, at the 3, 6 and 12 event levels ..."* [Attachment page 11 par 2]

It is imperative that the PDMP meets the requirements it has under the NASF. SACF recommends these shortfalls be fixed before the final Master Plan is published.

2.5 Required Navigation Performance (RNP)

In section 9.6.2, the PDMP discusses the benefits that RNP has on the environment through providing predictability. As it states: "Such predictability delivers environmental benefits by reducing aircraft fuel burn and allowing for more flexible tracking in airspace around the airport, thus improving noise outcomes for some communities in the vicinity of the airport."

What is not mentioned is the benefit to some communities is currently at the significant cost to others, as flights are concentrated into paths of greatest efficiency. This could easily see a return to the 'Bennelong Funnel' flight path which is by its very nature opposed to the principles of noise sharing as set out in the LTOP. There may be a place for RNP if it can be used to spread flight paths as proposed by the LTOP. However, as this seems unlikely with the growth in proposed flight numbers to the north, the PDMP should acknowledge that RNP does not at this stage meet the requirements set out by the LTOP.

3.0 Land Transportation

SACF is very pleased to see the level of commitment to improving ground based transport. Representatives of nearby government organisations were particularly impressed with the ongoing commitment to managing the expected increase in numbers of passengers and freight. If anything, some members of the committee would like more detail on how this would be managed and what extra infrastructure would be required.

Specific areas that the committee would like to see emphasised includes what methods could the airport look at to further encouraging the recent growth in alternative methods to getting to the airport, especially increasing the number of commuters who travel by bicycle and train. Parking was also raised as a perennial problem, and some members of the committee were interested to see what specific measures the airport was looking to use in the future to continue to manage this. The commitment to additional bus services is also welcome.

Sydney Gateway Tunnel, connecting WestConnex to the Airport was announced in the weeks following the publication of the PDMP so obviously is not featured heavily in this document; indeed

it is impressive that it is mentioned at all. But obviously this piece of infrastructure will have huge implications on the manner in which people drive to the airport and will be established well before 2039. If possible, it would be very helpful to see more detail about this important road connector in the final Master Plan.

SACF also notes that many of these ground transportation issues are not solely in the purview of the airport. It is imperative that the Airport works closely with the state and local governments to create a masterplan of ground transport that takes into account the needs of other large pieces of infrastructure nearby particularly Port Botany.

4.0 Environment and sustainability

SACF is pleased to see the ongoing commitment to sustainability in the PDMP, especially recognising the great steps already taken by SACL to manage their emissions, air quality, water quality and other sustainable systems. One area that could be improved is simply increasing the co-ordination and data sharing with local councils, particularly on issues like water quality in the Cooks River, which could benefit from a broader collaboration between the Airport and branches of government.

5.0 Western Sydney Airport (WSA)

We recognise that planning for the Western Sydney Airport is in its infancy, which makes planning this PDMP somewhat difficult. Obviously we know that WSA should be up and running by 2026, but in the absence of more detailed plans, (including flight routes, fuel lines, etc), the level of planning that this masterplan can include is somewhat limited. WSA may have effects on Sydney Airport by 2039 that are unforeseen at this time.

Having noted this, members of the committee did feel that the PDMP sounded fairly conservative with the level of demand that it expects in the wake of WSA opening, especially regarding the levels of freight that it expects to lose to the new airport.

6.0 Conclusions

The implications of the PDMP are inescapable and the prognosis is not good for aircraft noise. Unless radical change occurs by 2039 Sydney will return to the nightmare scenario which followed the opening of the Third Runway with almost exclusive parallel operations, the Bennelong Funnel and noise concentration. This is unacceptable to SACF.
SACF is committed to maintaining the curfew, flight limits and other agreed methods of managing the number of aircraft movements over residential areas of Sydney, and demands SACL supports maintaining these critical measures.

SACF is concerned that the PDMP has a number of serious deficiencies when it comes to describing aircraft noise impacts of the airport in 2039 which need to be addressed to adequately describe the effect that aircraft noise will have on the daily lives of residents. These are summarised in the Recommendations.

7.0 Recommendations

7.1	There should be greater emphasis in the Master Plan on the importance of noise sharing, the principles outlined in the LTOP and how this will be achieved.
7.2	If use of the LTOP noise sharing modes is not possible under current practices for most of the time Sydney Airport should commit to a plan to work with Airservices Australia, SACF and other stakeholders to raise the capacity of the noise sharing modes to avoid the excessive use of parallel operations.
7.3	If the airport's forecast expansion and the absence of any additional initiatives to improve noise sharing means that LTOP is not going to be viable in 2039, then the Airport should acknowledge this in the PDMP.
7.4	Comparative aircraft noise information should be provided including: • Comparative data between the jet aircraft movement data for 2039 and current. • N70 contours compared against the 2033 Master plan and the most recent N70 data from 2017. • The 2017 ANEI to allow comparison between it and the 2039 ANEF.
7.5	Sydney Airport should note the presentation and information in the Melbourne Airport Master Plan and review and amend the Sydney Airport Master Plan to provide an at least equal standard document, and in particular: • Flight paths out to more than 50 km • An Ultimate Capacity ANEF and Short Term ANEC's • Explanation in plain language of ANEF, ANEI and ANEC • Comparisons between noise exposure maps • Comprehensive review of compliance with Airports Act 1993
7.6	In addition to the equivalent information provided in the Melbourne Airport Master Plan the Sydney Airport Master Plan should include in its Master Plan the following specific aircraft noise information as specified in the National Airports Safeguarding Framework: • ANEF to Contour15 • Single event contours • Daytime N60, N65 and N70
7.7	Further, as recommended in the Falling on Deaf Ears report contour maps should be produced that show the percentage of the population seriously and moderately affected by aircraft noise.

7.8	The ANEF is an aircraft noise descriptor and not just solely a "land planning tool." This should be corrected in the Master Plan and the ANEF contour maps and discussion moved to the Aircraft Noise Chapter.
7.9	The Master Plan should include a proper plan to manage and mitigate Aircraft Noise in the 30 ANEF contour as required by the Airports Act.
7.10	ANEF maps need to be provided to a sufficient scale to enable street level information to be discerned.
7.11	ANEF should be re-done using the current AEDT rather than the redundant INM input model.
7.12	The Master Plan should emphasise alternate means of transport to the Airport such as bicycle and train.

8.0 Addenda

The following documents are submissions completed by individual members of SACF which have been included to provide more detail on the issues raised above.

SUBMISSION ON SYDNEY AIRPORT PRELIMINARY DRAFT MASTER PLAN 2039 (PDMP)

MR ROBERT HAYES

SYDNEY AIRPORT COMMUNITY FORUM (SACF) - COMMUNITY REPRESENTATIVE FOR THE NORTH

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Introduction

Aircraft noise is serious, unacceptable pollution, just like air and waterway pollution. However, to date, it has not been treated as such. It should be.

Sydney Airport is clearly an important resource for Sydney and Australia. But it has to be something the Sydney population can live with. Aircraft noise already imposes a major environmental cost on Sydney's population (see the attached N70 map). During the 20 year period covered by this PDMP its impact on Sydney's population will inevitably worsen to the point where, unless offsetting measures are developed and implemented, Sydney Airport will become untenable in its current location. Arguably, it is already very close to that situation.

This submission argues that Sydney Airport and the way associated aircraft operations are managed must radically change to become environmentally sustainable in the near term from an aircraft noise point of view. Otherwise, within the next decade or two, Sydney Airport will not remain acceptable to the Sydney population in its current location or viable as an operating entity.

No other forms of pollution on this scale would be accepted by modern society, or indeed, legal.

Critical statistics underlying the PDMP

The PDMP is based on the following critical statistics (2039 figures compared with 2017):

- Total air passengers 65.6 million (up 51%)
- International passengers 31.5M (up 98%)
- Number of aircraft movements 408260 (up 17%)

- **Average passengers per movement 160 (up 30%)**
- **Average movements per non-curfew hour 65.8**
- Badgery's Creek (WSA) is assumed to open in 2026 and handle 10M passengers a year (compared with KSA 65.6M).

What do these statistics mean?

- **Large increase in overall passengers**

  Sydney Airport is already close to its usable capacity (refer the "Joint Study on Aviation Capacity in the Sydney Region" March 2012). The forecast 51% growth rate is large, but it implies an annual average growth rate of only 2%, which is quite possibly an underestimate. If the average annual growth is higher than that then the impacts on the Sydney population will be even more severe.

- **Large increase in international passengers**

  The forecast 98% increase in international passengers will result in many more large international planes rather than the smaller domestic ones. Despite the claims of quieter aircraft technology – larger planes are noisier than smaller ones (see below).

- **Bigger, noisier planes (and more passengers per plane)**

  Average passengers per movement are forecast to rise by 30%. With most flights currently full, this again implies larger noisier aircraft.

- **Current noise sharing will be almost impossible by 2039 under current noise sharing mode capacity limitations – LTOP probably no longer viable**

  Average movements per non-curfew hour will be 65.8 (408260 / 365 days / 17 non-curfew hours).

  Government (bipartisan) policy is embodied in the Long Term Operating Plan (LTOP). Its principles are to minimize residential overflights by maximizing flights over water and non-residential areas and fairly sharing the unavoidable residual noise so as to avoid concentration over particular populations. However, noise sharing modes have current operating capacities of only around 40 – 60 per hour. This means that noise sharing will be impossible for most hours of the day as more periods require 80/hour and the overall average is 65.8. LTOP will no longer be viable by (and probably well before) 2039.

- **Peak hours will extend to cover most of the day**

  Currently Peak Hours cover 9 hours of the day (out of the 17 non-curfew hours), as defined by Airservices (namely, 7am – 11am and 3pm – 8pm). As demand grows,

more hours will become peak and the peak period is likely to stretch to encompass most of the day.

- **Parallel flight paths almost inevitable much of the time**

  If noise sharing modes are not possible because high demand necessitates movement rates above the limited noise sharing mode capacities, the only alternative is the much despised and unfair parallel flight paths – the Mode 10 "Bennelong Funnel". These flight paths concentrate the noise, particularly on landing from the north, by flying over the same populations of people with little or no deviation as often as every 90 seconds.

  Due to the growth in traffic and extension of peak hours, a return is inevitable to this nightmare which moderately to severely affects hundreds of thousands of people in Sydney (refer "*Aircraft Noise to the Year 2000*", Australian Acoustical Society Symposium, 1982). That number would be even greater now given Sydney's recent population growth and the increased density of Sydney's population in the suburbs under the parallel flight paths.

- **Landings are concentrated over Hunters Hill at 2000 feet (600m) (likely from north of Pymble to KSA).**

  In my own suburb of Hunters Hill, landings on the 16R flight path are 2000ft (600m) overhead and only 1km west of the 16L flight path which is almost equally noisy. Individual noise events range from 70-90dBA, often starting from 6am and with overflights are every 90 seconds in peak hour. Aircraft noise cuts a swathe at least 2km wide from at least Pymble through to the airport. Over Hunters Hill aircraft mostly have their wheels down and are on final approach. There is therefore no natural spread and concentration of the noise is extreme, all the way to the airport.

- **Likely 80 movements / hour most hours even if legislated hourly cap is retained (ie. an aircraft every 90 seconds)**

  After the Third Runway was opened in November 1994, 17 hours a day of parallel flight paths caused massive pain and community reaction in Sydney. Some people literally became mentally ill due to aircraft noise; others took to civil disturbance and riots around the airport. The relentless march towards 80 movements per hour implied by the PDMP inevitably means a return to parallels and the destruction of LTOP. There is even a push from time to time from those whose interest is purely profit-driven to lift the legislated hourly movement cap and tamper with the curfew. A return to all parallels, a higher cap or reduction of the curfew would be catastrophic for the long suffering Sydney population and have the same disastrous effects and reaction as previously.

- **Large increase in freight**

  The increase in freight of 58% means that there will be pressure for many more "during shoulder period / curfew" freight-only flights. Passenger services are unlikely to meet demand, particularly given that half the predicted growth is from international flights.

- **The inevitable conclusion**

  The implications of the PDMP statistics are inescapable. The prognosis is not good for aircraft noise. Unless radical change occurs, Sydney will return to the nightmare scenario which followed the opening of the Third Runway with almost exclusive parallel operations and noise concentration.

Other observations regarding the PDMP

ANEF - the Noise Measure

- **Location of the ANEF noise maps and associated "analysis" within the PDMP**

  It is bizarre and unacceptable that the ANEF 2039 and the PDMP's "analysis" of it (2 dot points) are in Section 16, "Safeguarding Sydney Airport" (pages 256, 257 and 258) – and not in Section 15 "Aircraft Noise". They are not even listed in the Index to Section 16 on page 170.

  The ANEF maps and related analysis are probably the most crucial pieces of information in the PDMP. They describe the future of aircraft noise in Sydney and are used for multiple other purposes. They underpin local Government statutory obligations, which commence upon the approval date for a new ANEF. However, they appear to be almost "hidden" in the PDMP. Most people would expect them to be highlighted in the "Aircraft Noise" section. This would appear to be non-compliant with the requirements of the Airports Act 1996 regarding Master Plan content.

- **Does Sydney Airport's PDMP comply with Statutory Requirements?**

  The Airports Act 1996, Sections 71(2) (f) and (g) require Sydney Airport to adequately incorporate an assessment of environmental issues and its plans for dealing with them. The Act states:

  "71 Contents of draft or final master plan

  "...This section specifies the matters that must be set out in each draft or final master plan for an airport...

(f) the airport-lessee company's assessment of environmental issues that might reasonably be expected to be associated with the implementation of the plan; and

(g) the airport-lessee company's plans for dealing with theenvironmental issues mentioned in paragraph (f) (including plans for ameliorating or preventing environmental impacts..."

The PDMP's analysis of the ANEF contours appears to consist of only two brief dot points under the heading **"Comparison with Master Plan 2033" (p258). This states that**

"... Map 30 (ANEF 2033&2039) shows that:

- *In some areas to the north, north-east and south-east of the airport, the noise contours move further away from the airport"*
- *In some areas to the east, south and west of the airport the contours move closer to the airport."*

These euphemistic statements (which basically say that noise is getting worse in some areas and better in some others) do not appear to meet the Statutory Requirements of adequate analysis.

Further, the level of detail and resolution in the ANEF map (Map 29 p256) is insufficient for users (including local Government) who need to know if particular residences lie within the contours or not.

It is also noted that the PDMP does not include the latest ANEI map (Sydney-N506-Annual Report 2017 dated August 2018 – p20), which shows actual current noise contours. The latest (2017) actual ANEI 20 contour only extends to Drummoyne.

The location of the ANEF maps within the PDMP, the absence of ANEI and the trivial level of analysis calls into question the PDMP's compliance with the Airport Act's requirements.

- **ANEF 2039 implications**

This PDMP shows an updated ANEF measure for 2039 (*"endorsed for technical accuracy by Airservices Australia"* (p255) – whatever that means) which displays contours for ANEF 20 and above which are larger (ie. longer North / South) and wider (East / West) than the ANEF 2033 ANEF. In other words, the impact of Sydney Airport's operations on aircraft noise over Sydney is expected to worsen beyond previously forecast levels (compared with the ANEF 2033 levels). See Map 30.

The PDMP should clearly state that, to the north, it is now predicted that more people in Sydney will be affected by more noise.

- **Use of the ANEF**

The PDMP states (on p255) that "*The ANEF, which was developed as a land use planning tool to manage noise sensitive land uses around the airport, provides guidance for the NSW Government and local councils to make informed planning and development decisions*". In fact, it is not the case that the ANEF was developed as a land use management tool and that assertion undervalues the ANEF.

The ANEF is, and was, developed as the primary and most useful tool for measuring and mapping current and future aircraft noise exposure patterns. That is its primary purpose. Consequently, it is also used as a land use planning tool and underpins AS2021:2000.

Another repeatedly misused statement is that the ANEF is useful for managing land "*surrounding*" or "*in the vicinity of*" the airport. Aircraft noise is not just an issue in the immediate airport environs – it's effects are Sydney-wide - out to, for example, Hornsby, Parramatta and Coogee - nowhere near the airport. The ANEF 20 contours may stop at around 10km from the runway but the noise has impacts for tens of kilometres and in most directions.

In fact the 1996 Senate Inquiry recommended that ANEF 15 contours should also be shown on ANEF maps as noise effects in that contour are also significant. Aircraft noise impacts are felt way beyond ANEF 20 and in fact there have been periods when most of the noise complaints in Sydney have come from outside ANEF 20.

- **ANEF adequacy and need for update**

The ANEF measure is the best tool currently available for measuring and displaying the distribution and severity of aircraft noise and as a tool for land use planning and management. However, it is currently flawed and in need of an update.

The issues with the current ANEF measure are:
- it is based on a major socio-acoustic ("Dose – Response') survey of aircraft noise impacts carried out in 1980. The Government claims to have insufficient funds to update this 38 year old study, despite the widespread reliance on the ANEF (including its reference in Statutory Obligations).
- it is based on the Integrated Noise Model, which became obsolete in 2015. It should be based on the Airport Environment Design Tool (AEDT) which is the accepted international model for aircraft noise.
- the current ANEF algorithm is insensitive to the number of overflights.
- it is assumed that aircraft movements follow a sloped flight path, whereas often planes fly level over areas of Sydney.

- the fleet mix has changed dramatically over time and may not be adequately represented.
- the population density has changed dramatically in overflown areas.

The PDMP states on several occasions that "The updated Sydney Airport ANEF 2039 (*has been*) endorsed for technical accuracy by Airservices Australia" (P255). But what does that mean? It is not explained.

The ANEF needs to be reviewed and updated in light of the above and based on a new socio-acoustic Dose-Response survey and on the AEDT.

The PDMP's suggested aircraft noise solutions

- **Quieter planes?**

Unfortunately, whilst it is true that some modern aircraft are somewhat quieter, the difference is barely perceptible and the future need for larger planes is likely to offset any benefit. The Australian Newspaper reported in July 4 2008 on a test by Airservices Australia using its Noise and Flight Path Monitoring System on a Singapore Airlines A380 prior to its introduction as a commercial service. This showed that, on arrival the A380 was only between 2.1 and 3.7 dB(A) quieter than a 747-400. Even the PDMP admits that a drop of 3dB(A) on landing is barely perceptible in humans (see PDMP p224), let alone when noise events are between 70-90 dB(A).

The fact is, larger planes are noisier than smaller ones and the PDMP predicts that larger ones are replacing the smaller ones. Another factor is that well serviced aircraft keep flying and it will take decades to fully replace the current fleet.

The reliance on planes becoming quieter is a largely a furphy.

- **Performance Based Navigation (PBN)?**

PBN is the recognised regulatory framework for implementing area navigation. Required Navigation Performance (RNP) is a type of PBN that allows an aircraft to fly a precise flight path with a high degree of accuracy. Proponents of this technology claim that it reduces aircraft noise by allowing more precise flight paths over non-residential areas.

However, the reality is that PBN's very precision and its inability to naturally spread the noise actually *causes* extreme noise concentration over specific populations (eg. those living under the Boree 4 flight path), which is precisely what LTOP was designed to avoid. Until "PBN can be used for good", its implementation in Sydney is therefore strongly opposed by Sydney Airport Community Forum community representatives.

- **Western Sydney Airport (WSA)?**

  The 2039 PDMP is the first to take into account the future operations of WSA. It is assumed that WSA will open in 2026 and handle 10 million passengers a year by 2039. However, Sydney Airport will be handling 65.6 million passengers by that time, **so WSA's ability to take the relentlessly increasing pressure off Sydney Airport will be very limited**.

  It is not clear why, 13 years after opening, WSA's traffic will be so relatively small when Western Sydney is one of the fastest growing metropolises in the world. One limitation is that the Government has (in my view, unreasonably) constrained the airport to have only a single runway in the first stage. **Why not break the tradition of under-sizing critical infrastructure and build the WSA second runway in Stage 1 when it is cheaper?**

- **Land use planning and acoustic standards?**

  The PDMP states on page 255 that *"The most effective way to manage aircraft noise intrusion in areas forecast to be exposed to high levels of aircraft noise is to implement effective and appropriate land use and planning controls and acoustic standards for such areas."*

  This ignores that fact that most of the areas within ANEF 20 and above are already densely populated with existing dwellings. Some affected suburbs are amongst the oldest in Sydney. It is too late for land use planning to change that and too costly to acoustically insulate the massive numbers of dwellings affected.

  The "most effective way" to manage aircraft noise is, in fact, to take the planes elsewhere.

The issues in a nutshell

- There is little cause for optimism regarding Sydney's aircraft noise problem going forward.
- By 2039, and probably much sooner, LTOP and the concept of noise sharing will no longer be viable, because demand will only be met by parallel flight path operations, due to current noise sharing mode capacity limitations.
- Passenger and movement growth at Sydney Airport will force a return to parallel flight paths, concentrating aircraft over long-suffering Sydney populations.
- It cannot be overstated what a disaster that will be. Hundreds of thousands of Sydney residents will remain moderately to severely impacted by aircraft noise

indefinitely. There will be a relentless assault of aircraft noise similar to the despised Bennelong Funnel. Community reaction is inevitable.

- Sydney Airport will no longer be something Sydney's population can live with, so there will be mounting pressure for it to go.
- The new WSA will do relative little to offset this trend.
- **Aircraft noise is not yet recognized, prohibited and controlled like other forms of pollution** and yet it is pervasive, damaging to humans and widespread. It should not be tolerated.

Recommended way forward

Radical change is necessary. Continuation of the current paradigm - the current mindset, will result in an inevitable environmental and human disaster for Sydney.

The recommended way forward is proposed as follows:

- **Change the current paradigm and mindset**

  The Government, the authorities (in particular Airservices Australia and the responsible department), SACL, the airlines and the public must change their mindset from acceptance of aircraft noise as a necessary evil to a genuine belief that aircraft noise represents unacceptable pollution which must be avoided and minimised.

- **Legislation**

  This paradigm must be supported by legislation, similar to that which currently applies to other forms of pollution.

  For example, the NSW EPA website (www.epa.nsw.gov.au/your-environment/air/industrial-emissions) states (in regard to air pollution):

  "Industries play an important role in reducing (air) pollution in NSW by complying with legislation, (air) emissions standards and licence conditions; and by using best practice methods to prevent and minimise (air) pollution. Industrial activities listed in Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act) are those with the potential to have a significant impact on the environment. The EPA regulates these activities through environment protection licences, pollution reduction programs, load-based licensing (also applies to water pollution), and targeted policies.

Surely a similar regime (legislation, emission standards, licences, reduction programs and targeted policies), could and should be applied to aircraft noise, which is an equally important and pervasive form of pollution.

- **Urgently form a willing coalition of the Government, the community and other relevant stakeholders to address and resolve the problem**

It is absolutely imperative that the Government (in particular, authorities such as Airservices Australia and the Department of Infrastructure), as well as other stakeholders including Sydney Airport and the airlines, work in consultation with SACF to resolve these issues and do so urgently.

- **Make Sydney Airport something Sydney can live with sustainably**

History shows that the community will not accept excessive parallel flight path operations and aircraft noise concentration. The Government should apply the environmental controls recommended above to Sydney Airport and its associated aircraft movements to ensure aircraft noise pollution is minimised over Sydney and Sydney Airport becomes environmentally sustainable.

- **Lower the movement cap during non-peak hours at Sydney Airport**

If the above recommendations are not adopted, then it appears inevitable that the growth in movements at KSA will mean that noise sharing mode capacity is no longer sufficient and parallels will become the only option. In that case, the Government should legislate to mandate a lower movement cap during a minimum number of off-peak hours to stop aircraft noise from getting worse than it is now. That cap should be at or less than the current noise sharing mode capacities so as to allow noise sharing to continue.

If demand exceeds the capacity of Sydney Airport at these times, flights should be transferred to WSA which is in a more sustainable location and unencumbered by a cap and curfew.

- **Initiate a major exercise to increase the capacity of noise sharing modes**

If the non-peak hourly caps are not reduced to allow noise sharing then there is only remaining one solution – to increase the capacity of noise sharing modes to levels which are comparable to parallel operations.

Airservices Australia, in consultation with SACF, Sydney Airport and other relevant stakeholders should do whatever is necessary to safely raise the capacity of the noise sharing modes to allow noise sharing at least most of the time. This should involve technological, procedural and safety reviews and be conducted or managed by the (LTOP) Implementation and Monitoring Committee (IMC). Precision Based Navigation should not be ruled out on the condition that it does not worsen flight path and noise concentration over populations.

- **Encourage fast tracking of WSA and remove limitations**

  Government policy should allow, indeed encourage, WSA to grow without restriction. It should ideally be built in Stage 1 with two runways as ultimately planned. It should be allowed and able to absorb any flights which are transferred from Sydney Airport in order to meet the lower movement capacities of noise sharing modes.

- **Move the ANEF and associated analysis into the PDMP "Aircraft Noise" section and improve the analysis in the PDMP to comply with Statutory Requirements**

  The ANEF maps should be relocated to be prominently displayed and thoroughly analysed in PDMP Section 15 "Aircraft Noise".

  Further, Sydney Airport should satisfy its statutory requirements under the Airports Act 1996, Sections 71 (f) and (g) which require Sydney Airport to adequately incorporate an assessment of environmental issues and its plans for dealing with them. The current level of analysis on page 258 is trivial. The latest ANEI map should also be shown and discussed.

- **ANEF should be updated**

  The ANEF should be reviewed and updated to:
  - make it more soundly based on an up-to-date socio-acoustic (dose response) survey (the current survey which underpins the ANEF is 38 years old),
  - replace the Integrated Noise Model with the ICAO Airport Environment Design Tool,
  - make the algorithm more sensitive ("elastic") to, for example, the number of overflights at various (particularly noise-sensitive) times,
  - reflect modern airspace, fleet mix and demographic reality.

- **Improve the information processes for local Government relating to ANEF changes**

  Local Councils should be provided with higher resolution ANEF maps which clearly show whether individual properties are within an ANEF contour or not.

  The obligations of local government should be simplified, clarified and a model approach provided to ensure consistency across affected councils regarding land use and required provisions and controls arising from changes in ANEF contours.

- **The Aviation Community Advocate (ACA) position should be reinstated**

  The ACA position focused on reducing aircraft noise and its impact on Sydney residents. The position existed and was filled between 2007-2009, after which it was abolished for "Budgetary reasons" and remains so, despite repeated requests from

the SACF Community Members for reinstatement. This position allowed the community to have access to technical expertise to examine complex airport issues and information on a par with the authorities and the aviation industry.

The ACA also effectively advocated on behalf of the community to represent and pursue their interests on a level playing field. The occupant of the position technically analysed information and proposals, researched issues and discovered significant errors, made submissions and proposals on the community's behalf and interacted on an equal basis with aviation authorities. All of these things are largely impossible for volunteer community members. No other airport in Australia has the complexity and extent of aircraft noise issues as Sydney.

This unique position is desperately needed and should be reinstated. It is crucial for the successful implementation of the other recommendations listed above.

Final comment

The attached N70 map is an indicator of the extent of aircraft noise impacts in Sydney.

If Sydney Airport was a factory and this map showed its resulting air pollution, that factory would certainly be closed down.

The current and predicted level of aircraft noise pollution cannot continue. Radical action is required – NOW.

Robert Hayes

SACF Community Representative for the North
28 October 2018

(Address provided on covering email)

Input to Proposed SACF Submission to SACL on Sydney Airport 2039 Preliminary Draft Master Plan

By John Clarke, SACF Representative for the Member for Bennelong

31 October 2018

Introduction

The following provides comments for a proposed SACF submission in response to the Sydney Airport 2039 Preliminary Draft Master Plan. I am aware of the considered and detailed submission by Mr Hayes, which I endorse, and will not seek to replicate all of the issues he raises.

The 2039 Preliminary Draft Master Plan (PDMP) confirms that Sydney Airport will have exceeded its environmental capacity and should be ringing alarm bells for all residents of Sydney. The overwhelming impact of an airport is the aircraft noise pollution from aircraft arriving and departing the airport and with Sydney Airport's unchecked growth this is set to substantially increase by 2039.

Aircraft Noise Impact of the Forecast Increase in Movements

Whilst the PDMP forecasts a 51% increase in passengers, aircraft movements are forecast to increase by a relatively lesser 17% to 408,260 in 2039 (up from 348,520 in 2017) due to larger airplanes and increased seat densities. The combined effect of increasing movements and the shift to larger airplanes will in practice result in the death of the Long Term Operating Plan (LTOP).

The Busy Day Forecast on page 72 shows that there is only a brief period between about 12:00 and 13:45 when noise sharing modes might be able to be used during the day, and after 20:15 when they might be able to be used at night. Outside these times the forecast movement rate exceeds the capacity of the LTOP noise sharing modes (45 to 60 movements per hour). Even then, during the 12:00 to 13:45 period Figure 15-8 (p233) shows that the forecast movement rate dips to just below 60 potentially allowing the use of Modes 5 and 14A as the only noise sharing modes capable of handling this number of aircraft. It is notable that the most environmentally friendly and preferred mode of operation, SODPROPS will not be able to be used at all outside curfew hours.

However, even the very limited use of Modes 5 and 14A during these times is doubtful in practice for the following reasons:

- The forecast movements are close to the capacity that these modes are currently achieving.

- The forecast movements are an average over the hour. There invariably will be times within the hour when the movements exceed the average and the modes will not be

able to be used. Airservices Australia as demonstrated that it will not change to using a noise sharing mode for the brief corresponding periods when the movements are less than the average due to the time and effort that is necessary to do so.

- The shift to larger aircraft means that there is going to be greater demand for the long runway (16R/34L) than modes 5 and 14A can handle, even if the overall capacity of these modes is not exceeded.

The community is therefore going to be faced with the near constant use of the parallel runways during the 17 non-curfew hours of every day. For many people this will mean their life being disrupted by a noisy aircraft overhead every 90 seconds throughout the day. If aircraft noise cannot be fairly and equitably shared, then this must be specifically acknowledged in the PDMP.

Further Effects on Noise of the Changing Aircraft Fleet Mix

Much is made in the PDMP that there will be a change in the fleet mix to quieter modern aircraft, although it is acknowledged that a 3dBA change of noise is barely perceptible. However, it should also be acknowledged that there is no such thing as a quiet aircraft and aircraft noise is going to substantially increase. A 2015 study at Heathrow Airport by PA Consulting concluded that despite claims that the new generation of aircraft would reduce noise the increasing use of larger aircraft like the Airbus A380 meant that they were flying lower on takeoff increasing the level of disturbance. [*Areas Near Heathrow Suffer More Noise Despite Claims of Quieter Planes*, The Guardian (on-line edition), 24 October 2015]

Furthermore, whilst modern aircraft might have quieter engines, larger aircraft generate more airframe noise as they push through the air, which is particularly a problem on final approach when the landing gear is down.

Presentation of Aircraft Noise Information

SACL's use of a busy day forecast in the PDMP is good. However, some aspects of the busy day forecast and mode use are overly simplistic and it falls short in a number of key areas. It should present a detailed analysis of demand with arrivals and departures considered separately. Availability of runways and operational modes due to weather and capacity constraints should be quantified along with the utilisation for each runway and operational mode. These figures should show over the time leading up to 2039 the effect that the increase and distribution of aircraft movements will have on LTOP targets. In the absence of this information the PDMP just presents an outcome.

The flight path maps (Maps 23 and 24, pp236 and 237) are very deceptive. They do not show all of the flight paths for Sydney Airport. For landings they only show part of the final approach and do not show the routes taken over many kilometres of suburban Sydney to get on to the final approaches. The maps need to cover an area of at least 12 nautical miles north, south and west of the airport and for arrivals to include the band in which it would be expected that the aircraft would fly, in the same manner as it is represented for departures. Anything less is a clear misrepresentation of the facts.

A significant omission in the PDMP is the absence of comparative data when it comes to the presentation of noise impacts. Notable in its absence in particular in the *Average daily jet aircraft movement 2039* and *Average daily jet respite periods 2039* is any comparison with the most recent data to provide any sense of relativity. Similarly the N70 contours compares to only the 2033 Master Plan not to the most current data, being for the 2017 calendar year. Also the PDMP should present the 2017 ANEI along with the 2039 ANEF to enable a comparison of the noise contours to be made. These are serious and obvious omissions in the presentation of aircraft noise information in the PDMP.

SACL Seeking to Remove the Movement Cap

In the PDMP SACL seeks to remove or substantially increase the cap that applies at Sydney Airport to allow movements to grow unhindered, although it does not say so directly. The movement cap of 80 per hour was put into place to provide some semblance of an upper environmental limit at the airport. SACL's call for "*modernisation of the operating restrictions that govern Sydney Airport*" (p 72) is simply code for removing or increasing the cap. The claim that it would allow for a reduction in the number of aircraft movements during the off peak period to increase opportunities for noise sharing will by 2039 be a furphy. As mentioned above, the move to larger aircraft alone means that by 2039, even if the overall movement rate is low enough to allow an opportunity to use the noise sharing modes, the likely demand by larger aircraft for the long runway (16R/34L) will preclude their use. There is also no indication that airlines would shift planes scheduled for the off-peak periods to the peak periods if they were able to do so. Indeed to the contrary, the PDMP itself states: *"The changes to the aviation industry, together with the maturation of specific routes, are also supporting the spreading of the existing morning and afternoon peaks at Sydney Airport."* and goes on to say that of all the new seats added in 2017 60% were for off peak periods (p58). Euphemistic calls for removal or increase of the cap and for that to be justified on the erroneous basis that it will provide additional opportunities for noise sharing should be removed from the DMP.

Requirements of the Airports Act 1996 - Aircraft Noise Intrusion

The Airports Act 1996 Section 71 specifies that a Master Plan must state:

> 71(2)(e) *the airport-lessee company's plans, developed following consultations with the airlines that use the airport and local government bodies in the vicinity of the airport, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels; [defined as above 30 ANEF in Section 5 Definitions]*

At Appendix D where SACL cross references the PDMP with the requirements of the Act, it states that this section of the Act is addressed in Chapters 13, 15 and 16. In none of these sections is there a plan for the management of aircraft noise within the 30 ANEF Contour. There is no indication that the 30 ANEF Contour for 2039 is entirely within the boundaries of the Sydney Airport Aircraft Noise Insulation Program (ANIP) (both of which must be shown on a map), and if it is not, what it is planning to do to address this. There is a brief discussion of the principles of land use planning as it applies to the problem of aircraft noise (Section 15.6.2), and a discussion of the NASF Guideline A for Safeguarding

the Airport with regards aircraft noise in Chapter 16, but these are not an actual plan for dealing with noise exposure above ANEF 30 as required by the Act. SACL would seem to not want to take responsibility of even the most extreme aircraft noise pollution caused by its operations. For SACL to meet its Legislative obligations for a management plan such a plan should include, amongst other things provision for funding of the insulation of all public and private buildings in accordance with Australian Standard AS-2021.

Concluding Comments

The Sydney Airport 2039 PDMP paints a disturbing picture for residents impacted by the aircraft noise pollution caused by its operations. While the PDMP acknowledges that Sydney Airport's growth will be effected by the new Western Sydney Airport its on-going expansion will continue. The PDMP has a number of serious deficiencies when it comes to describing the aircraft noise impact of the airport in 2039 which need to be addressed for the subsequent DMP.

The 2039 PDMP should also be a wake-up call to Government to fast-track mechanisms to encourage aircraft away from Sydney Airport to the new Western Sydney Airport to enable genuine aircraft noise sharing to not only continue but improve at Sydney Airport.

The following recommendations for submission by the Sydney Airport Community Forum to the Sydney Airport Preliminary Draft Master Plan are based on US and Australian Government documentation - specifically the extracts from those documents which are all in italic text within quotation marks.

A. FEDERAL AVIATION ADMINISTRATION (FAA)

1. Integrated Noise Model (IINM) Replaced by Aviation Environmental Design Tool (AEDT)

Version 7.0d of the Integrated Noise Model, which has been used in the Sydney Airport PDMP for the computer modelling of aircraft noise exposure, was released by the FAA on 27 September 2013. This version has not been updated and no subsequent version has been released. It is now obsolete and should no longer be used to model aircraft noise exposure.

"The Integrated Noise Model (INM) has been replaced by the Aviation Environmental Design Tool (AEDT) as of May 2015."

https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/inm_model/ [2018-11-01 20:22:52]

***"AEDT 2d** was released on September 27, 2017."*

"More details about the differences between INM, EDMS, and AEDT versions are summarized in the AEDT Functionality Comparison chart."

https://aedt.faa.gov/2d_information.aspx [2018-11-01 20:36:39]

Development of the AEDT as a replacement for the INM was well underway as long ago as 2004.

The AEDT was first released as Version 2a Service Pack 1 in September 2012.

The Integrated Noise Model has been used in Australia for 50 years, initially for the purpose of producing Noise Exposure Forecast (NEF) Maps.

In its report in 1970 the House of Representatives Select Committee on Aircraft Noise recommended that:

> *"there is a need for a social survey in Australia to obtain factual data on the magnitude of unrest and disturbance attributable to aircraft noise. It is recommended that this should be conducted in the areas surrounding Sydney Airport as being the area of greatest exposure."*

This recommendation resulted in the 1982 National Acoustics Laboratory Report – ***Aircraft Noise in Australia*** – which recommended modification of the NEF formula to produce Australian Noise Exposure Forecast (ANEF) units as a more appropriate measure of aircraft noise.

2. Recommendations

SACF should submit with respect to the Sydney Airport 2039 PDMP that:

A.1 The current version of the internationally accepted Aviation Environmental Design Tool (AEDT) should be used for the purpose of computer modelling of Australian Noise Exposure Forecast (ANEF) levels.

A.2 Use of any version of the Integrated Noise Model (INM) including the most recent Version 7.0d for the modelling of ANEF's is unacceptable because this computer model became obsolete in May 2015. It has not been updated since September 2013 and any output in the context of the PDMP cannot currently be relied upon for environmental impact assessment or for land use planning purposes.

B. NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK (NASF)

https://infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/nasf_principles_guidelines.aspx

The NASF credits the 1995 Senate Report ***Falling on Deaf Ears*** for identifying the need for additional noise information to be provided to communities around airports resulting in the development of measures by which this can be achieved (Guideline A - Attachment p 6).

The SACL PDMP acknowledges that the NASF applies to all airports including Sydney Airport (p 247). The Framework is addressed in detail but selectively in Section 16 with a large diagram representing NASF Guidelines as Fig 16-2 (p 254).

NASF Guideline A: Measures for Managing Impacts of Aircraft Noise

1. Ultimate Capacity ANEF

"Airport lease holders under the Airports Act have the responsibility of publishing as part of the five-yearly Master Plans, endorsed Aircraft Noise Exposure Forecast (ANEF) information. These ANEFs may be standard (up to 20 years) long range (20 year +) or ultimate capacity. The preference for land use planning purposes is to use ultimate capacity or long range forecasts." [Principle 9]

"This is a forecast of aviation noise exposure levels that are expected to exist when the airport is developed to its ultimate practical capacity. An estimated date of when the airport is expected to reach its ultimate practical capacity must be stated. Forecasts have regard to present and anticipated future trends and may take account of predicted future aircraft types, movement numbers, flight paths and runway configurations that are expected to occur at the point of the airports ultimate practical capacity." [Attachment page 4 par 1]

2. ANEF Contour 15

"There are three different types of aircraft noise contour charts produced using the ANEF system. All three types of charts are prepared using the same computational procedures. The differences arise from the types of data which have been input to produce the maps. The noise exposure contours for each type of map are expressed in increments of five from 15 through to 40 (the higher the ANEF value the greater the forecast noise exposure)." [Attachment page 2 par 2]

3. Single Event Contours

"Another useful way of presenting the impact of aircraft noise is to show the noise level of individual flight movements through the use of single event noise contours ... It is possible to give an indication of how many of these flights will occur in a typical day." [Attachment page 8 par 1]

4. Number Above Contours

"An approach that combines the information in a single event noise contour with the ability to consolidate this information into a description of high noise 'zones' is available. Information on the number of noise events is termed the 'Number Above' noise metric. In Australia, this is commonly called the N70 (or N65 or N60) where N70 is the number of aircraft noise events louder than 70 dB(A)." [Attachment page 9 par 1]

"Use of the 70, 65 and 60 decibel contours allows a balanced and comprehensive view of the impacts residents are likely to experience from aircraft noise. These measures better reflect high - frequency flight paths and known areas of sensitivity at existing airports, and are more easily understood by potential residents and land use planners who are not noise experts." [Attachment page 12 last paragraph]

"The ultimate capacity model from the 2009 Brisbane Airport Master has been used to model the effects of aircraft noise around the Brisbane Airport ... which complements the ANEF modelling ... the 20 event N70 contour, the 50 event N65 contour and the 100 event N60 contour for the average day when the airport reaches its ultimate operating capacity." [Attachment page 10 par 1]

"The night time (10pm to 6am) noise exposure patterns at Brisbane have been illustrated using N60 contours, at the 3, 6 and 12 event levels ..." [Attachment page 11 par 2]

5. Recommendations

SACF should submit with respect to the Sydney Airport 2039 PDMP that:

B.1 The ANEF which is provided should be an Ultimate Capacity ANEF.

B.2 The provision of a Standard ANEF is inadequate for land use planning purposes and is therefore unacceptable.

B.3 The ANEF, ANEI and all ANEC's which are provided should include a 15 ANEF contour.

B.4 Single event contours should be provided for the most noisy aircraft arrival and departure on each flight path.

B.5 The PDMP should include Number Above contours for both day and night at each of the 60, 65 and 70 level for both the average and the 95th percentile worst case.

C. REPORT OF THE SENATE SELECT COMMITTEE ON AIRCRAFT NOISE IN SYDNEY 1995

Falling on Deaf Ears

1. Contour Maps of the Percentage Population Seriously and Moderately Affected

8.107 *Mr Andrew Hede (one of the creators of the ANEF system) has written that "community reaction below 15 ANEF cannot be ignored if an accurate picture of impact is to be provided to decision-makers and a valid assessment made". Mr Hede goes on to observe that:*

- *a person who lives in an area with a low exposure of 10 ANEF, but who is seriously affected by the aircraft noise they hear, suffers a greater impact than a person exposed to 40 ANEF who experiences only a moderate reaction;*
- *planners can decide that certain exposure levels are 'acceptable' but they cannot dictate what reaction people exposed to those levels should have, nor should they dismiss the reaction of those who are seriously affected by so-called 'acceptable' noise levels as exaggerated or hyper-sensitive*
- *that an appropriate 'cut-off level for a notable impact in the case of aircraft noise would be 20% moderately affected; and*
- *that an EIS should include contour plots of the impact descriptors "20% moderately affected" and "10% seriously affected" to directly describe the impact of a proposal.*

Hede AJ, 'Impact Descriptors Versus Exposure Indices in Environmental Assessment' *Acoustics Australia,* Vol 21, No 2, P 43

8.108 *In practical terms, Mr Hede's approach means that estimates of populations affected by the different options would cover areas with aircraft noise exposure levels down to about 8 ANEF. The following map, prepared by Environmental Impact Reports Pty Ltd shows a map for Sydney in 2010 with contours indicating areas within which 10% and 20% of people would be moderately affected by aircraft noise.*

8.109 *The Committee was told that it was not that contours below 20 ANEF could not be drawn - it simply had not been the practice. If historical data were used (actual flight numbers and flight tracks) to produce ANEIs then much of the uncertainty in the location of these contours should disappear.*

8.110 It is essential that information concerning noise impact at levels below 20 ANEF be provided to affected communities.

2. Recommendations

SACF should submit with respect to the Sydney Airport 2039 PDMP that:

C.1 Contour maps should be provided for the same time and circumstances as the ANEI, together with Standard and Long-Term ANEC's and the Ultimate Capacity ANEF – for the percentage population estimated to be both seriously and moderately affected for levels of 50% down to 10% at 10% intervals.

D. MELBOURNE AIRPORT - PRELIMINARY DRAFT MASTER PLAN

https://my.melbourneairport.com/masterplan

1. Recommendations

SACF should submit with respect to the Sydney Airport 2039 PDMP that the Melbourne Airport PDMP is considered to representing superior if not current best practice and the minimum standard that should be acceptable for the Sydney Airport PDMP with respect to the following issues:

D.1 ANEF – endorsed, dated and signed A3 size PDF [Appendix F]

D.2 Flight Paths – out more than 50 km [9.3]

D.3 In addition to Ultimate Capacity ANEF – Short Term ANEC's [9.4]

D.4 ANEI [Fig 9-7]

D.5 Explanation in plain language of ANEF, ANEI and ANEC [9.2]

D.6 Comparisons between noise exposure maps [9.2.10]

D.7 Compliance with Airports Act 1993 [Appendix A]

E. ADDITIONAL SUBMISSIONS

1. Recommendations

SACF should submit with respect to the Sydney Airport 2039 PDMP that:

E.1 All information required by the Minister to be provided to Airservices Australia for the purposes of endorsement of the ANEF must be made publicly available including all contours in a suitable digital format.

E.4 An ANEF which has been endorsed signed and dated (as a high resolution PDF at least A3 size but preferably larger) must be publicly available for download from the SACL website on the day of endorsement by Airservices with all Councils having land within the 20 ANEF Contour being advised that same day by email to an address nominated by the Council. All mapping of aircraft noise exposure levels and their impact should be publicly downloadable as a high resolution PDF at least A3 (but preferably larger) and also in a digital format suitable for import into a common GIS.