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Written Submission

No Aircraft Noise Submission on the Sydney Airport Master Plan 2039

Recommendations

(A) The retention of Long Term Operating Plan (LTOP) mandated respite periods for people living under the North South flight paths to provide whole hours of respite from jet noise. This requires periods of flight movements to be under 55 movements per hour to enable the use of the East West Runway. Respite periods based on flight track corridors are partial only as some areas have no respite. All flight movements beyond this threshold must be moved to Sydney West Airport when this airport is operation in 2026 to provide respite periods aligned to the LTOP targets.

(B) Retention of the Sydney Airport Curfew (11 pm to 6 pm) and remove shoulder period aircraft movements to provide respite for residents. In

1988, Gareth Evans then the Transport Minister stated the shoulder period was introduced as a temporary measure until the second Sydney airport was operational at Badgerys Creek. Why is it now permanent?

(C) Retention of the maximum Sydney Aircraft Movement cap at 80 aircraft movements per hour but reduction to 55 aircraft movements per hour during sufficient non curfew hours to enable LTOP mandated respite periods as per LTOP targets based on runway rotation.

(D) Aircraft noise amelioration should be provided by insulating houses to the Australian Standard AS2021 – 2015 Acoustics – Aircraft Noise Intrusion – Building, Site and Construction Standard (AS2021) i.e. within and above the ANEF20 noise contour and in areas where there is no respite periods due to proximity to the airport. The purpose of this program is to provide a reasonable life for those heavily impacted by any airport and ensure that aviation prices reflect a true cost to provide that service including mitigation of the negative impact on the community using the polluter pays principal. This would lead to better, more informed and more socially minded capital investment decisions.

(E) Move aircraft flights to Western Sydney Airport when that airport is operational in 2026 to provide a fair split of flight traffic between Sydney Airport and Western Sydney Airport for a better social impact outcome.

(F) Western Sydney Airport to provide insulation to AS2021 for any curfew overflights i.e. insulation where noise is greater than or equal to 60 dBA.

(G) A Sydney based health study as promised be undertaken as promised in the Third Runway EIS to understand the health impact of having an airport surrounded by dense urban populations and to create a baseline for forecasting the impact on health and the public health system associated with aviation.

Our recommendations are based on:

1. A refutation of the term "Quiet" planes.

The propaganda term "quiet" planes are aviation industry hype and "marketing" for large planes that in totality produce more noise than the planes they will be replacing and will increase overall aircraft noise based on:

- a. "Quiet" planes are some of the noisiest planes using Sydney Airport as measured by dbA at the monitoring stations.
- b. Larger "Quiet" planes are louder than the smaller planes they are replacing.
- c. Increasing flight movements frequency with a higher proportion of larger planes will absolutely result in more aircraft noise in Sydney as shown by the extension of the ANEF contours north of the airport.

2. Diminishment in life expectancy caused by stress

Many international studies prove the impact of aircraft noise on people. These impacts include, annoyance, sleep disturbance, hearing loss, hypertension and cognitive issues in school children. This leads to stress and stress is well documented to cause a diminishment in life expectancy

An increase the health issues from noise and emissions is and will be experienced by Sydney residents. The prediction in the Sydney Airport Master Plan (SAMP) 2039 indicates there will be a significant increase in noise levels, frequency of aircraft noise events and overall increased noise exposure.

3. Diminishment in life expectancy caused by aircraft emissions.

There are serious health impacts on public health associated with aircraft engine emissions and these are primarily concentrated on residents surrounding the airport. These public health impacts will get worse with increased flight movements as predicted in the SAMP 2039.

4. The political risk to the Sydney Airport Curfew.

If the planned changes to passenger handling, taxiways, stand and apron infrastructure fail to deliver the planned uplift in number of aircraft movements then there will be political pressure to limit the Sydney Airport Curfew or include larger planes in the allowable flight mix. This legislation is to be review in 2019.

5. **The political risk to the Sydney Airport Flight Cap of 80 Aircraft Movements per hour.**

If the planned changes to passenger handling, taxiways, stand and apron infrastructure deliver the planned uplift in number of aircraft movements then there will be political pressure to increase the aircraft movement per hour to 85 for either peak hour or for the majority of the day. This was recommendation is the 2012 Joint Study into Aviation in the Sydney Region.

6. **Aircraft Noise Amelioration to the Australian Standard AS2021 – 2015 Acoustics – Aircraft Noise Intrusion – Building, Site and Construction (AS2021).**

Insulation to the Australian standard would involve noise insulation of approx. 150,000 houses (using the prediction for noise in 2029 from Sydney Airport's Master Plan). A similar program (the Sydney Airport Noise Insulation Program) insulated 4,200 houses within the ANEF30 contour and public buildings within the ANEF25 at a cost of \$400 million funded by a \$3.40 cost per person over several years. Not to pay for the impact of aircraft noise on the community is resulting in an artificially low aviation costs and fees and creates an artificial bias in capital investment decisions.

7. **Fair split of Aircraft Movements between Sydney Airport and Western Sydney Airport**

This fair split should not be based on Sydney Airport grabbing the lion share of profitable flights but what is fair based on social impacts. Western Sydney Airport should be not be classified as a regional airport that will take decades to obtain volume to be viable.

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1.0 Background

1.1 Sydney Airport Master Plan 2039 (SAMP)

This submission is aligned to government policy of having two major airports in the Sydney region post 2026 when Western Sydney Airport (WSA) becomes operational. No Aircraft Noise (NAN) believe that a single replacement airport outside urban areas would provide Sydney with the best social, environmental and efficient aviation outcomes. However, we have based our submission key elements outlined within the SAMP of:

- No change to the curfew (11 pm - 6 am).
- No change to the aircraft movement cap (80 movements per hour).
- No change to noise sharing arrangements (Long Term Operating Plan (LTOP)).
- No change to access arrangements for regional airlines.
- No change to flight paths.
- No new runways or extensions to runways.
- Improvements to passenger handling through changes to terminals, new satellite customer "piers" with ground transport to terminals and changes to freight handling.
- Improved airfield operational efficiency through infrastructure changes to taxiways, aprons and aircraft parking.

SAMP Figure 6.8 demonstrates that the plan is to run Sydney Airport in 2039 at or close to maximum capacity nearly all day with LTOP mandated respite periods only possible when there is less than 55 aircraft movements per hour i.e. between 9:30-11 pm at night.

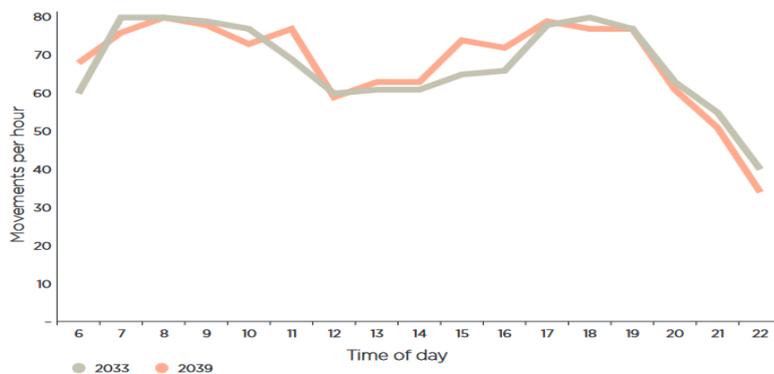


Figure 6-8: Comparison with Master Plan 2033 aircraft movement forecasts

The 2012 Joint Study Into Aviation In The Sydney Region identified several significant limitations with the Sydney Airport Infrastructure which shows that it is unlikely to be able to sustain this level of passengers and aircraft movements in this plan.

Where will the extra capacity for both passengers, aircraft movements and aviation support services are included in updated airfield infrastructure? **If Sydney Airport fail to obtain an uplift in efficiency, then there will be political pressure to relax the Sydney Airport operational constraints put in place because of the high environmental and social impact of the noise and air pollution generated by Sydney Airport.**

1.2 What Sydney Airport and the Aviation regulators are not telling us:

Sydney Airport is planning to have the majority of high value flights and market segments, leading to the majority of air traffic to / from the Sydney region be handled by Sydney Airport and not Western Sydney Airport. This will result in:

- **Opportunity for noise sharing via the Long Term Operating Plan (LTOP) will be limited to 9:30 -11 pm by 2039** constrained by capacity on the East-West cross runway. Noise sharing through utilisation of North South flight tracks to spread the noise only offers partial respite as some areas will have no respite at all.
- **Move to larger "quiet" planes that are louder than the planes** they replace will result in more noise on Sydney residents especially under the North / South flight paths.
- **Frequency of these larger planes will result in more, louder noise events** with no daytime respite period for residents under the parallel runway flight paths as runway rotation will not be possible and North South flight tracks offer respite for those residents further away from the airport.
- **Major Risk:** Capacity is limited at this very small airport (by both national and international standards). There is no ability to build new runways. Hence, to increase capacity there will be political and economic pressure to relax airport constraints such as the curfew and the aircraft movement cap as the only way to increase airport capacity. There may be pressure to extend the 16L/34R runway into Botany Bay to enable it to handle bigger jets. These measures will severely impact the residents of Sydney.
- The positioning of Sydney Airport as the gateway to Sydney coupled with the government planning to make Western Sydney Airport a regional airport with no fast rail to / from Sydney will result in the majority of air traffic going to Sydney Airport, **the majority of noise and air pollution to be centred on the most densely populated area of Australia** and the viability of Western Sydney Airport seriously being undermined. **No noise and pollution relief in sight for residents of Sydney.**
- **Fair Split over both airports:** Release the split of passenger and air traffic forecasts between Sydney Airport and Western Sydney Airport to enable the community to assess how fair is the split between the airports based on social impact and not the greed of Sydney Airport grabbing the "lion's share" of traffic regardless of the social impact.

2.0 Detailed Analysis:

2.1 Sydney Airport Infrastructure

Sydney Airport is one of the **oldest** continuously operating airports in the world and one of the world's oldest and **inefficient** pieces of airport infrastructure. It has the smallest land area of any Australian capital city international airport.

In 2012, The Joint Study Into Aviation In The Sydney Region identified several infrastructure limitations resulting from the airport's small physical site and staged development which limit airport capacity which are not able to be upgraded to remove these constraints. The limitations are:

1. particular configuration of the runways, taxiways, terminals and aprons is sub-optimal
2. limitations of planes able to use the third runway (16L/34R) due to shorter length and taxiway design which results in imbalance between the two parallel runways
3. the East West cross runway (25/07) is able to service 55 movements per hour well below the parallel runway and the shorter length of this runway means not all aircraft types are able to use it. When the cross runway is in operation there is serious delays and impact to aviation operation nationwide. Use of 25/07 under LTOP is targeted to take 17% of flights and provides noise sharing modes under LTOP and respite periods from jet noise for people under the parallel runways. There will be limited opportunity to use this runway as aircraft movement demand will only be satisfied by using the parallel runways.

Improvements in passenger handling are mainly focused on upgrades to all terminals, new gates in T2, new satellite customer "piers" where passengers are processed and then transported to terminals for flights and overall improved ground transport within the aerodrome. The new and modified stands/gates will enable larger international aircraft to use those stands/gates which is required to support mixed international/domestic operations from the T2 and T3 terminals.

Improvements in efficiency of the overall airfield are focused on additional taxiways, aprons and remote aircraft parking. Sydney Airport claim that they have undertaken extensive airfield modelling with Air Services Australia to ensure the proposed airfield and aviation support infrastructure will enable the additional flight movements to be handled as forecast.

Will the changes to infrastructure in the SAMP 2039 get the modelling on passenger handling, airfield operational and aviation support infrastructure scaled correctly to address the joint study issues raised on operational efficiency?

What is the impact if they get the modelling wrong?

If additional flight capacity during non curfew hours is required at Sydney Airport, it can't come from new runways. The SAMP 2039 mentioned changes to terminals, or taxiways or aprons, therefore, there will be significant pressure to relax the curfew and aircraft movement cap of 80 flights per hour resulting in a worst noise and pollution outcome for the residents of Sydney.

In 6.10 of the SAMP 2039 there is mention of finding extra capacity through the "Modernisation of the operating restrictions that Sydney Airport" as recommended in the Joint Study. These recommendations being the increase of the aircraft movement flight cap from 80 to 85 movements per hour and moving smaller planes to other airports in the Sydney basin.

However, Sydney Airport has not mentioned what the "Modernisation" actual means. This approach in my view is dishonest.

The social impacts of the SAMP 2039 just too great to enable a decent and healthy life under the North South flight paths and close to the airport and relaxing of operational constraints will not be tolerable.

3.0 Demand Forecasts and Management:

3.1 Sydney Airport grabs the major share of aircraft movements

SAMP 2039 Figure 6-8 (below) shows the aircraft movements forecast in the SAMP both 2033 and 2039. It shows and airport being forecast to run at or near 80 movements per hour. Aircraft movements are only below the 55 movements per hour required to use the East West (25/07) runway to provide LTOP mandated respite periods between 9:30-11 pm at night.

To grow passenger forecasts to greater than 51% and aircraft movements by only 17% (from 2017) within the Sydney Airport cap , Sydney Airport is relying on three trends:

1. Move to larger, louder planes (measured by dbA) with more passenger seats per flights, and
2. Higher growth of non peak hour movements driven by more Asian destinations, and
3. Replacing general aviation, helicopter and dedicated freight flights with higher net value passenger flights where ever possible.

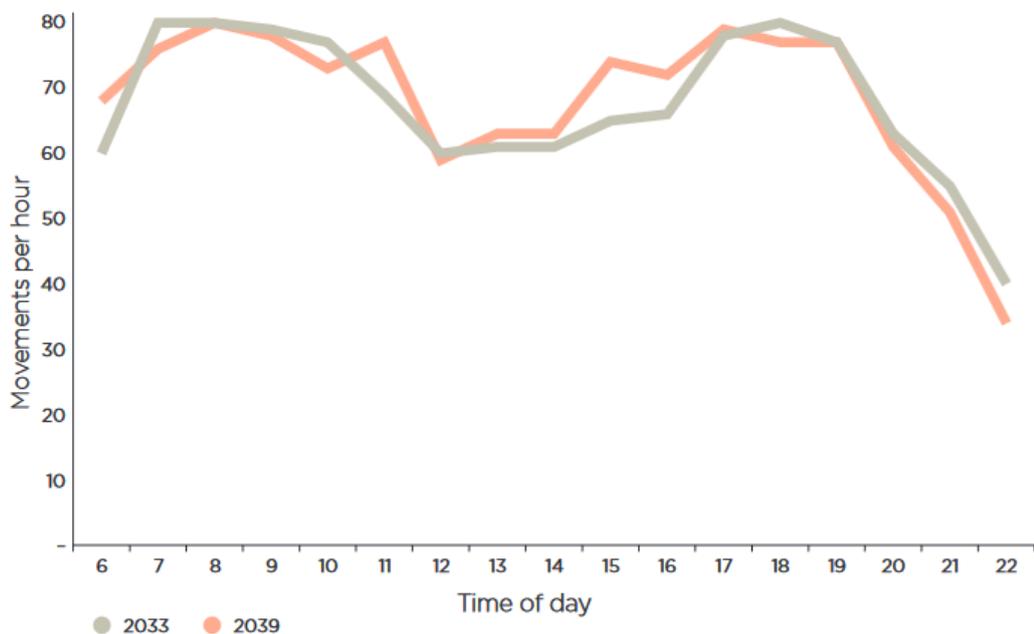


Figure 6-8: Comparison with Master Plan 2033 aircraft movement forecasts

3.2 Split of demand between Sydney and Western Sydney Airports is unknown

In previous Sydney Airport Master Plans, the Sydney basin passenger and aircraft forecasts were only serviced by Sydney Airport. This Sydney Airport Master Plan is different as from late 2026 Western Sydney Airport will be operational as noted by the reductions in 2026 in both SAMP Figure 6-4 (Forecast aircraft movement growth, 2017 to 2039) and SAMP Figure 6-3 (Forecast of Passenger growth, 2017 to 2039) but nowhere within the document is there either the assumptions or actual numbers that indicate the passengers or aircraft movements to be serviced by Western Sydney Airport versus Sydney Airport.

If Sydney Airport was really committed to working well with the community as outlined in 5.2 " We are committed to consultation and engagement to balance the needs of stakeholders, passengers, customers and the community" then they would be honest and disclose enough detail facts and figures to enable the community to understand this plan instead of producing glossy pictures without giving the community the facts and figures to enable them to assess the impact on the community and the fairness of the split between Sydney Airport and Western Sydney Airport under current policies.

The federal government announced that Western Sydney Airport will be a regional airport servicing Western Sydney with limited public transport access from greater Sydney. The 2006 ground survey shows only 11% of passengers start or end their air journeys in Western Sydney. It will take decades and a significant infrastructure upgrade for Western Sydney Airport to become a viable airport and relieve the capacity constraints at Sydney Airport.

Hence, Sydney Airport will service the major demand by both passengers and aircraft movements.

This is the worst environmental outcome for the residents of Sydney as the greatest noise and air pollution impact is concentrated on the most densely populated areas of Australia with the efficiency objectives as stated in the *Joint Study on aviation capacity in the Sydney Region* unrealised.

4.0 Aviation Trends

4.1 Quieter planes disputed

Sydney Airport in its Master Plans and the aviation lobby are using the term "quieter planes"; however, this is based on a wrong relative economic/efficiency measure relating noise by passenger seat or by payload tonne in the pretence that this is an environmental measure based on total noise. This is purposely misleading and deceptive language because these "quiet planes" are amongst the loudest planes using any airport and far louder than the smaller planes they are replacing.

Airbus A380 is the "quiet" big international jet, but it's actual average noise level ranges from 90.4 decibels (dBA) at Sydenham to 75.1 decibels at Hunters Hill and Kurnell.

The latest Boeing 737 is the 737 – 800 which is the most popular domestic airliner in use in Australia. This Boeing's actual average noise level ranges from 86.4 decibels at Sydenham to 68.2 decibels at Hunters Hill and 70.9 decibels at Kurnell.

Based on the "Noise Comparison Analysis between A380 vs B747 published February, 11 2009" show there is no discernible difference between the noise created by a "quiet" A380 and a "noisy" B747 in landing or take-off. It is merely aviation industry propaganda. See NAN Table 1 below for the averaged noise event levels by planes. The "quiet" planes are actually some of the nosiest planes flying out of Sydney Airport.

In the 2004 Master Plan, the first after Macquarie Bank took over the lease on Sydney Airport, Sydney Airport admitted that new technology would only partially offset noise from the increase in the number and size.

Anything above 60dBA at night or 70dBA in the day time is offensive noise in a residential area according to the Australian Standards for noise from aircraft.

Aircraft Type	Average Event Level	Event Counts			
		Total	Max/day	Min/day	Avg/day
B744	93.8	665	12	1	7.4
A388	90.5	1348	23	6	15
B77W	89.1	876	17	6	9.7
B77L	88.6	205	4	1	2.3
A333	87.5	1280	22	7	14.2
A332	87.1	1583	26	10	17.6
A321	86.6	327	9	1	3.6
B738	86.2	5178	109	20	57.5
A343	86.2	195	5	1	2.2
B789	85.2	719	14	1	8
A320	83.6	2156	45	8	24
B788	83.5	365	7	1	4.1
AT76	81.3	289	9	1	3.2
SF34	80.2	1113	30	1	12.4
DH8D	79.8	635	16	1	7.1

<http://aircraftnoiseinfo.bksv.com/sydney/noise-monitoring/>

ⁱNAN Table 1: Aircraft event levels above 70 dbA (correlated) at Sydenham Noise Monitoring Monitor (between January - March, 2018) from the Department of Infrastructure and Regional Development "Aircraft Noise website"

It would be more accurate to not refer to these planes as "quiet" and rely on the actual noise profile at various heights from the airport or an actual environmental measure such as ANEF which includes noise volume (dBA), spectrum of the noise, frequency of noise events and time of day. Which measure better predicts resident annoyance an environmental measure such as ANEF or a relative economic and efficiency measure which really measures contribution to airline and airport aviation profit?

5.0 Human Impact of Aviation

5.1 Human Impact of Aircraft Noise

Many international studies into prove the impact of aircraft noise on people, these impacts include, annoyance, sleep disturbance, hearing loss, hypertension and cognitive issues in school children.

Results from a study into Aircraft Noise, states "In residential areas, outdoor aircraft noise-induced equivalent noise levels of 60 dB(A) in the daytime and 45 dB(A) at night are associated with an increased incidence of hypertension. There is a dose-response relationship between aircraft noise and the occurrence of arterial hypertension. The prescription frequency of blood pressure-lowering medications is associated dose-dependently with aircraft noise from a level of about 45 dB(A). Around 25% of the population are greatly annoyed by exposure to noise of 55 dB(A) during the daytime. Exposure to 50 dB(A) in the daytime (outside) is associated with relevant learning difficulties in schoolchildren."

Health Consequences of Aircraft Noise - NCBI - NIH

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696954/>

by M Kaltenbach - 2008 ⁱⁱ

NAN Table 2 below correlates noise sources, decibel levels and both the logarithmic scaling of the dbA measure and impact on humans. It shows the levels of aircraft noise outputted by the "quiet" planes (from above NAN Table 1) is harmful to humans and with the increasing frequency of aircraft noise events and increased exposure predicted in the SAMP 2039 will significantly increase the health issues being experienced by Sydney residents.

NAN Table 2: ⁱⁱⁱComparative Examples of Noise Levels (extract from www.industrialnoisecontrol.com)

Noise Source	Decibel Level	Decibel Effect
Jet take-off (at 25 meters) e.g. within aerodrome	150	Eardrum rupture
Aircraft carrier deck	140	
Thunderclap, chain saw, Oxygen torch (121 dB)	120	Painful threshold, 32 times as loud as 70 dB
Steel mill, auto horn at 1 metre, Turbo-fan aircraft at takeoff power at 200 ft (118 dB), live rock music (108-114 DB)	110	Average human pain threshold 16 times as load at 70dB
Jet takeoff at 305 metres, power lawn mower, motorcycle, Boeing 707 or DC-8 aircraft at one nautical mile (6080ft) before landing (106 dB) jet flyover at 1000 feet (103dB), Bell j-2A helicopter at 100 ft (100 db)	100	8 times as loud as 70 dB. Serious damage possible i 8 hour exposure
Boeing 737 or DC-9 aircraft at one nautical mile before landing (97 dB), power mower (96dB)	90	4 times as load as 70 dB. Likely damage in 8 hour exposure
Average factory, freight train at 15 metres, propeller plane flyover at 1000 ft (88 dB)	80	2 times as loud as 70 dB. Possible damage in 8 hour exposure.
Passenger car at 65 mph at 25 ft (77dB), Freeway at 50 ft from pavement edge at 10 am (76dB)	70	Arbitrary base of comparison. Upper 70s are annoying loud to some people.
Conversation in restaurant, office, background music	60	Half as loud as 70 dB Fairly quiet
Quiet suburb	50	One fourth as load at 70 dB
Library	40	One eighth as load as 70 dB
Quiet rural area	30	One sixteenth as loud as 70 dB. Very Quiet.
Whisper, rustling leaves	20	
Breathing	10	Barely audible

Note: Perceived noise doubles at a 10 dBA difference, whereas noise energy doubles at a 3 dBA difference. This difference in perception has been used by the aviation industry to claim that a plane only 3 dBA quieter is “half as loud”, but it is perceived by human hearing as almost as loud.

5.2 Human Health Impact of Increasing Aircraft Emissions

There are two major environmental impacts impacting human health, these being:

1. Toxic effects of the aircraft emissions on humans, and
2. Generation of greenhouse gases primarily from aviation and secondly, from transport and energy within the aerodrome and transport to/from the airport.

This submission will focus on the toxic effects of aviation emissions on humans primarily because Sydney Airport is a city airport and thus concentrates the health issues and risks on Sydneysiders. The aircraft engine emissions primarily impact people living close to the airport and the emissions are greatest during landing, take-offs (LTO cycle of emission when below 915 metres) and taxiing.

There are no Sydney based studies into the health impacts associated with Sydney Airport being located in the centre of a dense urban populations, as recommended in the Third Runway EIS. Therefore, international studies will be referenced.

5.2.1 Toxic effects of aircraft emissions on humans

Many international medical studies conclude that there are significant public health impacts and risks associated with aviation.

Aircraft engines emit the following contaminants (International Civil Aviation Organisation (ICAO) website). Note: ICAO is a United Nations Specialised Organisation.^{iv}

Contaminants	Comments
NITROGEN OXIDES (NO _x)	Which includes nitrogen oxide (NO) and nitrogen dioxide (NO ₂)
CARBON MONOXIDE (CO)	
UNBURNED HYDROCARBONS	Which have almost been completely eliminated from the exhaust stream from newer engine technologies
SULPHUR OXIDES	
PARTICULATE MATTER (PM)	Which leaves the exhaust as carbon black soot
VOLATILE ORGANIC COMPOUNDS (VOCS)	Such as benzene and acrolein. Both known carcinogens.
OZONE (O ₃)	Which is formed from the nitrogen oxides and volatile organic compounds emitted
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS)	
METALS	
ODOUR	

These aircraft contaminants have serious health effects. The table below from the ICAO and US EPA documents indicate the following health impacts on the contaminants mentioned above.

Table 1.1. Representative health effects of air pollutants.

<i>Pollutant</i>	<i>Representative Health Effects</i>
Ozone	Lung function impairment, effects on exercise performance, increased airway responsiveness, increased susceptibility to respiratory infection, increased hospital admissions and emergency room visits, and pulmonary inflammation, lung structure damage.
Carbon Monoxide	Cardiovascular effects, especially in those persons with heart conditions (e.g., decreased time to onset of exercise-induced angina).
Nitrogen Oxides Particulate Matter	Lung irritation and lower resistance to respiratory infections Premature mortality, aggravation of respiratory and cardiovascular disease, changes in lung function and increased respiratory symptoms, changes to lung tissues and structure, and altered respiratory defense mechanisms.
Volatile Organic Compounds	Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment.

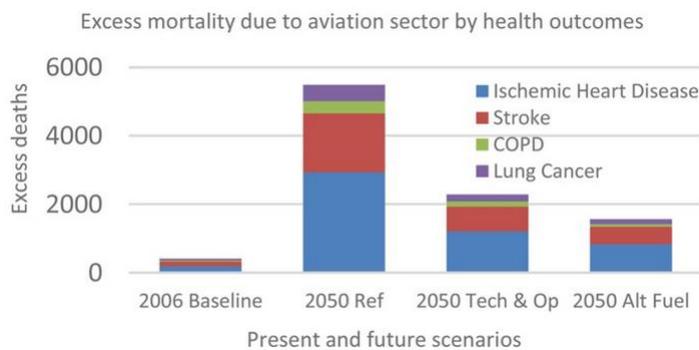
Table 1.2. Representative environmental effects of air pollutants.

<i>Pollutant</i>	<i>Representative Environmental Effects</i>
Ozone	Crop damage, damage to trees and decreased resistance to disease for both crops and other plants.
Carbon Monoxide	Similar health effects on animals as on humans.
Nitrogen Oxides	Acid rain, visibility degradation, particle formation, contribution towards ozone formation.
Particulate Matter	Visibility degradation and monument and building soiling, safety effects for aircraft from reduced visibility.
Volatile Organic Compounds	Contribution towards ozone formation, odors and some direct effect on buildings and plants.

From: EPA, *Evaluation of Air Pollutant Emissions from Subsonic Commercial Jet Aircraft*, p. 1-5.

Contaminants from Aircraft Engine Emissions, <https://www.icao.int/environmental-protection/Pages/local-air-quality.aspx> , <https://www.icao.int/environmental-protection/Pages/Contaminants.aspx>

The global aviation industries estimated impact on mortality rates is outlined below.



Note: (1). The above global mortality estimates are from the US National Medical Library website: [Global Health Impacts of Future Aviation Emissions Under Alternative Scenarios, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4270391/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4270391/), by H Morita - 2014'

6.0 The Reliability of Future Noise Forecasts:

Sydney Airport Master Plans have overestimated the increase in air traffic, but aircraft noise has continued to rise despite lower than forecast numbers and claims of quieter jets.

In the first Sydney Airport Master Plan from 2003/4, they predicted 359,640 movements in 2017, but the actual was 331,878 (not including helicopters), 11% below the forecast. Actual movements including helicopters for 2017 was 346,511, some 6% below the forecast. The forecast for passengers in 2017 was 52.7 million, and the actual passenger number was 43.3 million, 9.4 million or 18% below their forecast.

Checking the actual Australian Noise Exposure Index it shows that the north end of the 20 ANEI in 2007 was at Lyons Road, Drummoyne. By 2017 this noise level had moved to Huntleys Point, a 1 km distance further north. The 20 ANEF prediction for the year 2039 is at Barons Crescent Boronia Park, 3.4 km north of Lyons Road.

This shows that the noise is increasing north of the airport, despite the claims of quieter aircraft.

The numbers of people affected by aircraft noise also continues to rise. The 20 ANEI in 2008 had 88,600 people living within this zone, by 2017 this grew to 97,222 an increase of 9.7%, but some of that would have been due to an increase in people living in the affected suburbs. The number of people living in the 25 ANEI zone had a small decline from 21,700 people to 20,669, a drop of just 0.05%.

The Australian Standard AS2021 recommends insulation above 20 ANEF, so there is almost one hundred thousand Sydney people living with unacceptable levels of aircraft noise. The earlier noise insulation project only insulated homes above 30 ANEF and did not conform to the Australian Standard.

Sydney Airport Master Plan Predicts Even More Noise 2039

The SAMP predicts that noise will continue to rise north and north west of the airport. Air pollution and the risk of a crash are rising as the number of planes increases.

Both the ANEF and the N70 noise metrics show increased noise north and east of the airport.

ANEF is the Australian Noise Exposure Forecast, a method of showing aircraft noise by averaging over a year, taking into account the noise level and frequency spectrum of the planes, and with a loading for night time flights (and described by you on page 176).

The 2039 ANEF forecasts are above the 2017 actual noise levels and they are greater than the 2007 actual noise. The noise is rising on all sides of the airport and especially on the third runway flight path through Newtown and Annandale.

The N70 shows the average number of times per day that a plane makes a noise above 70 decibels (“dBA”). Anything above 60 dBA at night or 70 dBA in the day time is offensive noise in a residential area according to the Australian Standards for noise from aircraft. The N70 is forecast by the SAMP (2033) and SAMP (2039) to more than double as follows:

	Flights per day average above 70 decibels (dBA)		
Location	Today (2018)	2033 SAMP	2039 SAMP
Leichhardt	50 to 100	Over 100	Over 100
Eastlakes	20 to 50	50 to 100	50 to 100
Haberfield	10 to 20	20 to 50	20 to 50

7. Impacts of relaxing the operational constraints at Sydney Airport

7.2 Impact of changing the Long Term Management Plan (LTOP)

As shown by SAMP Figures 6-11 (Forecast representative busy day hourly aircraft movements, 2039), in 2039 there will be no time of day that usage of the East West runway will be able to service the Sydney Airport demand for aircraft flight movements forecast except from 9:30 pm to the 11 pm (curfew commencement time) when demand is reduced enough (below 55 movements per hour) to be serviced by a single runway. Noise sharing via rotation of runways between the North South and East West axis will be limited to 1.5 hours per day. Noise sharing through North South flight tracks is only a partial solution for respite periods, as some areas have no respite periods at all. Additionally, the flight track corridors are broad and the corridors are close to each other resulting in a large and overlapping noise footprints. Hence, noise sharing corridors do not offer jet noise respite for all.

Diversion of North South flight paths from the flight corridor centre-line will still be possible but with the move to larger, louder aircraft with also significant increase in flight frequency, there will be no daytime respite periods for residents under the North South flight paths as mandated by LTOP. New flight automation tends to fly to the centreline of the flight corridor and hence, there is a risk of the return of concentrated noise on fewer residences.

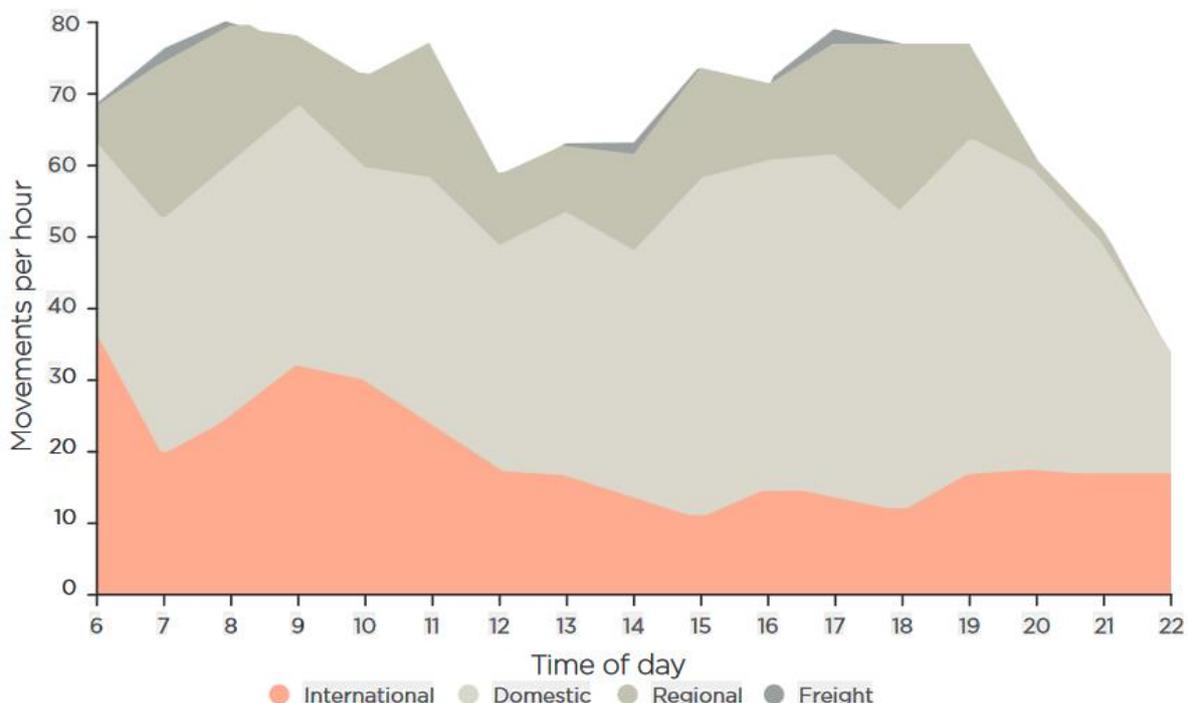


Figure 6-11: Forecast representative busy day hourly aircraft movements, 2039

The East West runway is used in high cross winds when it is unsafe to use the main North-South runways. In this scenario, when the East West runway is used there will be major flow-on delays to aviation nationwide because Sydney Airport as the major international and domestic hub will not be able to handle flight demand. This will result in significant aviation and political pressure to reduce the curfew and increase flight cap restrictions.

7.3 Implications to Curfew

We are already seeing pressure from the aviation industry and government agencies on relaxing the curfew to build capacity at Sydney Airport. In August, 2018 the Productivity Commission started their review into the economic and efficiency of the airport without considering environmental constraints and social impacts on all Australians which is part of that organisation's mission statement. The ACCC has made a submission to the Productivity Commission asking for a review of the seven hour curfew at Sydney Airport based on "quiet" plane technology without checking how noisy current planes actually are.

The pressure to relax the curfew is building. The curfew is mandatory for a decent night's sleep in Sydney. The curfew must be maintained.

Any night time noise above 60 decibels in a quiet street will wake lots of people.

Council noise controls on industries operating in residential areas would not allow any factory to make the noise these planes impose on residents of Sydney suburbs.

Sydney Airport is currently operating contrary to the Australian standards because it imposes noise above limits for residential areas and would have to provide insulation for over 100,000 homes if it complied with AS 2021 (Australian Acoustic Standard).

7.4 Implications to the Aircraft Movement Flight Cap

In 6.10 of the SAMP, Sydney Airport states "Modernisation of the operating restrictions than govern Sydney Airport, as recommended by the Joint Study, could reduce the number of aircraft movements during the off-peak and increase the potential for noise sharing." What does this mean? A move to 85 flights per hour was recommended by the 2012 Joint Study into Aviation in the Sydney Region. This focuses unacceptable aircraft noise with frequent noise events to Sydney residents and is unacceptable.

8.0 Recommendations

The following recommendations are needed to safeguard a decent and healthy life under the North South flights paths:

(A) The retention of Long Term Operating Plan (LTOP) mandated respite periods for people living under the North South flight paths to provide whole hours of respite from jet noise. This requires periods of flight movements to be under 55 movements per hour to enable the use of the East West Runway. Respite periods based on flight track corridors are partial only as some areas have no respite. All flight movements beyond this threshold must be moved to Sydney West Airport when this airport is operation in 2026 to provide respite periods aligned to the LTOP targets.

(B) Retention of the Sydney Airport Curfew (11 pm to 6 pm) and remove shoulder period aircraft movements to provide respite for residents. In 1988, Gareth Evans then the Transport Minister stated the shoulder period was introduced as a temporary measure until the second Sydney airport was operational at Badgerys Creek. Why is it now permanent?

(C) Retention of the maximum Sydney Aircraft Movement cap at 80 aircraft movements per hour but reduction to 55 aircraft movements per hour during sufficient non curfew hours to enable LTOP mandated respite periods as per LTOP targets based on runway rotation.

(D) Aircraft noise amelioration should be provided by insulating houses to the Australian Standard AS2021 – 2015 Acoustics – Aircraft Noise Intrusion – Building, Site and Construction Standard (AS2021) i.e. within and above the ANEF20 noise contour and in areas where there is no respite periods due to proximity to the airport. The purpose of this program is to provide a reasonable life for those heavily impacted by any airport and ensure that aviation prices reflect a true cost to provide that service including mitigation of the negative impact on the community using the polluter pays principal. This would lead to better, more informed and more socially minded capital investment decisions.

(E) Move aircraft flights to Western Sydney Airport when that airport is operational in 2026 to provide a fair split of flight traffic between Sydney Airport and Western Sydney Airport for a better social impact outcome.

(F) Western Sydney Airport to provide insulation to AS2021 and any curfew overflights, insulation where noise is greater than or equal to 60 dBA.

(G) A Sydney based health study as promised be undertaken as promised in the Third Runway EIS to understand the health impact of having an airport surrounded by dense urban populations and to create a baseline for forecasting the impact on health and the public health system associated with aviation.

9.0 Conclusions

The Australian Government privatized Sydney Airport in 2002 for SACL to lease and operate the airport for a period of ninety-nine years. At the time of the implementation of the Third Runway at Sydney Airport, there was an enormous outcry about the very adverse impacts on the community of having an unrestrained airport in the middle of the city surrounded by densely populated suburbs.

Regardless of the impact on people, the federal government implemented a light touch and laissez-faire approach to aviation legislation and policy governing aviation in Australia indicating the profit motive reigns supreme over environmental protection of economic and environmental externalities e.g. noise and air quality.

The government and agencies have been captured by the aviation industry and are doing their bidding.

We have witnessed the erosion of the environmental constraints on Sydney Airport in favour of unrestrained growth of the airport to increase the profitability and efficiency of this airport. Additionally, the Federal Government has hijacked Western Sydney Airport to become a regional airport primarily servicing Western Sydney which results in the majority of aviation traffic for the Sydney region to be serviced by Sydney Airport. This is contrary to the need for additional Sydney aviation capacity identified in the 2012 Joint Study Into Aviation In The Sydney Region AND the worst environmental and social outcome.

Our submission recommends the very important environmental and operational constraints on Sydney Airport should be maintained and where possible improved for a decent life for Sydneysiders.

We foresee that Increases in flight movements forecast in SAMP 2039 will result in a conflict between unrestrained growth in flight movements and passengers and the profit motive versus environmental and social impact concerns. In 2019, many of the Sydney Airport legislated operational constraints will be up for review and there will be real pressure from the airport and aviation government agencies to lessen those safeguards.

We believe that this unrestrained growth at Sydney Airport needs to end and the light touch legislative approach has failed to safeguard the very import operational constraints needed by Sydneysiders for a livable city.

The Federal Government should be driven for the best economic, environmental and social impact outcomes for Sydney by:

- **maintaining and/or improving the Sydney Airport operational constraints, and**
- **To legislate and provide policy to mandate the aviation volume borne by Sydney and Western Sydney Airports, and**
- **return Western Sydney Airport to the original purpose “an airport of the entire Sydney region” and implement fast rail to ensure all the travelling public is able to easily access this airport.**

10.0 References

ii NAN Table 1: Aircraft event levels above 70 dbA (correlated) at Sydenham Noise Monitoring Monitor (between January - March, 2018) from the Department of Infrastructure and Regional Development "Aircraft Noise website". <http://aircraftnoiseinfo.bksv.com/sydney/noise-monitoring/>

ii Health Consequences of Aircraft Noise – NCBI – NIH,
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696954/> by M Kaltenbach - 2008

iii Comparative Examples of Noise Levels (extract from www.industrialnoisecontrol.com)

iv Aircraft engines emit the following contaminants (International Civil Aviation Organisation (ICAO))

v [Global Health Impacts of Future Aviation Emissions Under Alternative Scenarios,](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4270391/)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4270391/>, by H Morita - 2014