

NPS Consultation Response: **Thematic Paper**

Noise

May 2017

Key Points:

- Heathrow today exposes over 750,000 people to significant aircraft noise, with studies showing adverse impacts on public health.
- No new noise modelling has been undertaken since the publication of the AC Final Report. There is a continuing reliance on HAL's flawed noise modelling approach.
- Modelling carried out for TfL showed that expansion would lead to an additional 200,000 people being exposed to significant noise.
- The proposed partial scheduled night flight ban would still permit an increase of up to 140 per cent in night flights over the full night time period, 11pm-7am.
- For most communities in the vicinity of the airport, respite will be just half of what is offered today. Claims for predictable respite are misplaced.

1. The airport today

- 1.1 Heathrow airport today exposes over 750,000 people to significant noise at 55dB_{Lden}¹. That is over a quarter of all those in Europe exposed to significant aircraft noise and more than its five main European rivals – Paris CDG, Frankfurt, Amsterdam, Munich and Madrid – combined.
- 1.2 Scientific studies have established the impacts of prolonged exposure to aircraft noise on public health. The risk of stroke, coronary heart disease and other cardiovascular disease was found to increase by 10-20 per cent in areas affected by aircraft noise. A study showed that a five decibel increase in noise exposure for school-age children was seen to correspond to a two month delay in reading age among pupils near Heathrow.

2. Impact of expansion

- 2.1 The analysis of the noise impacts of expansion presented by Heathrow Airport

¹ 55dB Lden is a weighted average metric of day, evening and night noise which serves as the standard pan-European metric for measuring airport noise

Limited (HAL) is highly misleading. This assumed flight routing optimisation and other new technologies in its modelling of expansion but did not include these for its non-expansion baseline. This obviously unfair and flawed comparison is largely relied on by both the Airports Commission (AC) and the NPS.

- 2.2 The flight routing optimisation used by HAL in its modelling of expansion scenarios amounts to a continuous process of tweaking the flight routings and re-running the model until the best possible noise outcome is achieved. However, such changes are in no way dependent on a third runway. Moreover, this process of optimisation makes any meaningful comparison with today's Heathrow very difficult.
- 2.3 There are inherent uncertainties in the benefits that new technology might deliver when implemented. Analysis by NATS², as the leading UK air navigation service provider, also found some of the flight routings identified by HAL to be unfeasible.
- 2.4 But even these changes cannot eliminate noise, merely move it around. According to the AC data, the scenarios modelled by HAL would expose between 100,000 and 300,000 people to significant aircraft noise for the first time³.
- 2.5 In following its approach, HAL has sought to appropriate potential new technologies, that could have delivered much needed noise relief for local communities, but rather to mask the increase in noise arising from expansion. Such an approach cannot be justified.
- 2.6 TfL commissioned modelling to complete the scenario gaps and gain a proper understanding of the noise impacts of a third runway. Using consistent technology assumptions in the Do Nothing and Expansion scenarios, it found an additional 200,000 people would be exposed to significant noise⁴ at 55dB L_{den}.
- 2.7 No new modelling appears to have been undertaken for the NPS and there is lack of clarity of how figures have been used or what assumptions have been made. The NPS consultation events also made use of HAL's modelling for its interactive noise map.
- 2.8 The lack of openness about the serious noise impacts of an expanded Heathrow is deeply disappointing. Even in HAL's most optimistic noise scenario, over half a million people would be exposed to significant aircraft noise; applying current technology assumptions, this number reaches almost a million.
- 2.9 Even the supporting documentation accompanying the NPS recognises that the noise impact of expansion at Gatwick to be 40 times smaller than that of Heathrow⁵.
- 2.10 It is unfortunate that, despite the concerns raised previously, the Government has not sought to be clear about the noise impacts, or to update the noise modelling to

² NATS: 14 Operational Efficiency - Fast Time Airspace Simulation Issue 2, April 2015, Para 3.1.1

³ See Table 3 in Appendix A

⁴ See Table 2 in Appendix A

⁵ Appraisal of Sustainability Noise Technical Annex Para 4.12.15

better understand the likely noise impacts. It raises questions about how Government is discharging its duty to consult when it continues to keep residents in the dark about the serious noise impacts of an expanded Heathrow.

- 2.11 The NPS does identify various noise mitigation measures – but each of these would have little or no impact in reducing the noise impacts on local communities.

3. Partial scheduled night flight ban

- 3.1 The partial scheduled night flight ban is the primary noise mitigation measure put forward by the NPS. In reality, the proposal would allow a dramatic increase in night flights, of up to 140 per cent.
- 3.2 The proposed ban takes the form of a six and a half hour prohibition on scheduled flights – though the NPS keeps open whether to opt for the AC proposal (11.30pm-6am) or the HAL proposal (11pm-5.30am). Either would fall short of the 8 hours, from 11pm to 7am, that Government defines as the official night time period⁶, reflecting when the majority of people are actually trying to sleep.

Table 1: Scheduled night flight periods and movements – current and potential

2-runway	2300	0000	0100	0200	0300	0400	0500	0600	0700
	Official night period 2300-0700								
	UK Aviation Night quota count period: 2330-0600								
	Heathrow Quasi-curfew period: 2330-0430								
Current flights	0	0				16		60+	
3-runway	2300	0000	0100	0200	0300	0400	0500	0600	0700
	AC proposal for scheduled night flight ban 2330-0600								
Possible flights	0?	0						128	
3-runway	2300	0000	0100	0200	0300	0400	0500	0600	0700
	HAL proposal for scheduled night flight ban 2300-0530								
Possible flights		0						192	

Source: TfL calculations based on HAL, AC data

- 3.3 Night operations at Heathrow are already subject to some restrictions. Under the current voluntary agreement, no flights are scheduled between 11.30pm and 4.30am. Between 4.30 and 6am, a movement and noise quota system is in place which on average means 16 flights daily.
- 3.4 Between 11 and 11.30pm there are no operational restrictions, but typically no flights are scheduled, in what is not an attractive period for most airlines. However this period is regularly used by late running flights and this would not change with a partial scheduled night flight ban.
- 3.5 Between 6 and 7am there are no operational restrictions and on average 64

⁶ Night Flights Restrictions at Heathrow, Gatwick and Stansted Consultation, P76

movements are operated^{7,8}. Therefore, the overall number of flights observed across the total night time period is approximately 80.

- 3.6 According to the proposals submitted by HAL, a three-runway Heathrow would be able to handle up to 128 operations per hour compared to the maximum of 90 that it can currently handle. Under the AC proposals, if the airport were to operate at its full capacity between 6 and 7am, this would represent a 60 per cent increase in night flights compared to today.
- 3.7 However, if the HAL proposals were taken forward, this would permit unrestricted flights between 5.30 and 7am. This means up to 192 flights in this period, an increase in night flights of 140 per cent.
- 3.8 The demand for night flights is driven primarily by longhaul arrivals; however plans by low-cost carriers, notably easyJet, to establish a base at an expanded Heathrow, would create demand for early morning departures, as well as late night arrivals. As such, the demand for night flights will only become stronger. Residents should be concerned that the NPS, even with a partial scheduled night flight ban, could allow night flights at an expanded Heathrow to more than double.

4. Respite

- 4.1 Heathrow typically operates one runway for departures and one for arrivals, switching at around 3pm, in the middle of the traffic day (6am-11.30pm). As a result, residents in the vicinity of the airport get predictable respite from aircraft noise for half of the traffic day.
- 4.2 The NPS recognises the importance of respite, yet if expansion goes ahead, the majority of those in the vicinity of the airport will have respite from aircraft for just a quarter of the traffic day, just half of what is offered today.
- 4.3 Capacity pressures today mean that, in defined situations, the airport is able to suspend runway alternation, and deploy tactical measures, with aircraft landing on both runways. The NPS claims that an expanded Heathrow will offer more predictable respite, because of the additional capacity. But if, as the AC declared, Heathrow will operate at 80-90 per cent capacity shortly after expansion⁹, the airport will suffer capacity constraints; this will lead to ongoing suspensions of runway alternation, undermining claims for predictable respite.
- 4.4 HAL's modelling included a 'respite' scenario where multiple dispersed flight routings were applied to provide respite over a wider area. There are however, uncertainties about this an approach, not least because it runs contrary to current and draft Government policy, entailing over 120,000 people being exposed to significant

⁷ <https://www.acl-uk.org/wp-content/uploads/2016/10/LHR-W16-Start-of-Season1.pdf>

⁸ <https://www.acl-uk.org/wp-content/uploads/2017/03/LHR-S17-Start-of-Season-Report1.pdf>

⁹ Draft National Policy Statement, Appraisal of Sustainability, Appendix B, Table 9, page 22

aircraft noise for the first time.

5. Other Noise Conditions

Noise Envelopes

- 5.1 The NPS mentions noise envelopes, but these have little value when there is no stipulation as to how stringent they will be or the extent to which HAL will be required to take into account community concerns. The NPS needs to provide more details on this and provide clear guidelines on accountability.

Insulation

- 5.2 Without clear parameters for household insulation being laid down by the NPS, there is no certainty that the proposed mitigation will be forthcoming or make a meaningful difference.
- 5.3 The NPS fails to specify the noise metric threshold to be used for any Heathrow insulation offer. The recent planning permission for an extension of London City Airport, included noise compensation for those exposed at 57dB_{LAeq}. The insulation offer for any expansion of Heathrow should be required to be at least as comprehensive.
- 5.4 HAL has also indicated that its insulation scheme would be phased over 20 years, starting the year before opening. It is not acceptable that some homes might have their insulation installed almost two decades after a third runway opened.
- 5.5 Lessons should also be learnt from previous Heathrow insulation schemes. Though information is limited, our understanding is that the take-up of previous schemes has typically been poor, partly due to HAL only part-funding the insulation and insisting on a single approved supplier, precluding a competitive offering.

Community compensation fund

- 5.6 In addition to the insulation offer, the NPS proposes a community compensation fund but there is no detail on how this will be funded, what it will be used for, who will manage it, or how communities will access it.

Independent noise regulator

- 5.7 In order to build trust between communities and the industry, an independent noise regulator with enforcement powers – including financial sanctions when appropriate – is required. This was supported by the AC which proposed an 'Independent Aviation Noise Authority'.
- 5.8 However, what is currently being proposed by Government in its parallel airspace consultation falls well short of this. Its proposal for an Independent Commission on Civil Aviation Noise (ICCAN) would be a part of the CAA, with no regulation or

enforcement powers. Such a construct would be perceived as neither independent nor effective. This is important for Heathrow expansion, because without an independent arbiter with real power over the airport's operations, local communities would have little faith that the fundamental noise issues arising from an expanded Heathrow would ever be addressed.

6. Noise Metrics

- 6.1 On the day Government published the NPS consultation, it also released the 2014 Survey of Noise Attitudes (SONA), a key piece of research whose publication has been delayed, and which sought to understand how people's attitudes to noise have changed over time. It found that people's sensitivity to noise has increased over time with the threshold of annoyance decreasing from 57dB_{LAeq} to 54dB_{LAeq}. Yet, even though the NPS was published alongside SONA, the NPS focuses on the 57dB metric. The NPS should reflect the analysis presented by SONA and focus on the 54dB metric (and its Lden equivalent).
- 6.2 Government thinking on airspace – and the noise modelling undertaken by HAL – points to greater use of dispersal of flightpaths over concentration. This has important implications for the measurement of noise impacts. The standard noise metrics such as Lden and LAeq which average the impacts across the day are typically less effective at capturing the noise exposure in a dispersal scenario, where intense periods of noise are interspersed with quiet periods. If this is the policy direction going forward, then a broader suite of noise metrics must be employed, which better reflect the noise exposure experiences by those on the ground.

7. Appendix A

Table 2: Population within 55dB Lden¹⁰ contour affected by aircraft noise under different scenarios

Scenario	Year	Runways	Flight Route Optimisation	Population >55dB Lden
Two-runway Heathrow				
Current [CAA]	2011	2	No	766,100
Future Baseline [AC]	2050	2	No	583,500
Alternative Future Baseline [TfL]	2050	2	Yes	435,600
Three-runway Heathrow				
AC Scenario - Respite	2050	3	Yes	516,700
AC Scenario - Minimise Total (Core AC option)	2050	3	Yes	637,700
AC Scenario - Minimise Newly Affected	2050	3	Yes	726,600
Three Runway [TfL]	2050	3	No	986,600

Source: TfL Landing the Right Airport (based on AC work)

Table 3: Population newly affected by aircraft noise

Scenario (2050)	Newly Affected >55dB Lden
Respite	121,400
Minimise Total (Core AC option)	277,100
Minimise Newly Affected	98,900

Source: TfL Landing the Right Airport (based on AC work)

¹⁰ 55dB Lden is a weighted average metric of day, evening and night noise which serves as the standard pan-European metric for measuring airport noise