

INDEPENDENT PARALLEL APPROACHES (IPA) CONSULTATION HEATHROW

Response from Richmond Heathrow Campaign 9 November 2018

INTRODUCTION

1. This is a written response of the Richmond Heathrow Campaign (RHC) to the Heathrow Airport Limited (HAL) consultation titled '*Heathrow - Stage 1A Define - IPA Design Principles 2018*'.
2. RHC represents three amenity groups in the London Borough of Richmond upon Thames: The Richmond Society, The Friends of Richmond Green, and the Kew Society, which together have over 2000 members. The members of our amenity groups are adversely affected by noise from Heathrow Airport's flight paths, poor air quality and road and rail congestion in west London. We acknowledge Heathrow's contribution to the UK economy and seek constructive engagement in pursuit of a better Heathrow. We are an active participant in the Heathrow Community Noise Forum.
3. Our premise is that it would be preferable to aim for a better Heathrow rather than bigger Heathrow and to capitalise on the world beating advantage of London's five airports, in particular by improving surface accessibility to all five airports, which would be a major benefit to users. Our approach is to continue supporting the case for no new runways in the UK and we believe this is well supported by the evidence produced by the Airports Commission and the DfT in relation to the Airports National Policy Statement.
4. Over recent years we have undertaken extensive research on Heathrow and submitted a large number of papers to the Airports Commission, the DfT, CAA and others - all of which can be found at www.richmondheathrowcampaign.org.

AIRSPACE CHANGE PROCESS

5. We note that with regard to the CAA's Airspace Change Process (CAP 1616) (ACP), there is a proposal, ACP-2017-42. An assessment meeting was held between the CAA and HAL on 14 September 2018, at which HAL made a presentation on the introduction of Independent Parallel Approaches (IPA) at Heathrow. The presentation material was similar to that presented to the HCNF on 19 September 2018. Then on 9 October HAL held a workshop for some HCNF members and presented a fuller report referred to in the Introduction above and on which we base our response.
6. An initial Statement of Need was submitted to the CAA in 2017 and a revised statement of need was submitted in September 2018. This is required for Step1A of the ACP. **We do not believe there has been any engagement with stakeholder communities on the need for the proposal and the consultation document contains no proper assessment of the need.** We believe it would be contrary to the ACP and the CAA's duties to sign-off Gateway 1 without proper engagement with community stakeholders on the need for the proposal. We raise a number of questions in our response on the issue of need.

7. Regarding the Airspace Design Principles, Step 1B of the ACP, we understand HAL intend submitting their Final Airspace Design Principles to the CAA in December 2018 with a view to CAA's sign-off of the Define Gateway 1 of the ACP on 21 December 2018.
8. The proposed date of submission of the Change Proposal is 15 September 2021. During the next 3 years, detailed flight paths will be designed and formal consultation will be undertaken. The Airspace Design Principles will be used to establish and assess the design options.
9. We remain concerned that according to HAL, the design principles are "fixed" by the CAA's sign-off and cannot be changed. We are also concerned that seemingly the IPA proposals are not widely available, e.g. on HAL's website and that the documents on the CAA's portal are incomplete. Very few stakeholder communities are aware of the consultation.
10. We conclude below that the proposal is for a minimum of 3 additional IPA arrival flight paths curving in from the holding stacks - one each onto the northern and southern departure runways on Westerlies and one onto the southern departure runway on Easterlies. Quite possibly there will be more than three flight paths established to provide IPA.
11. HAL says the IPA routes will only be required while Heathrow has two runways. **We therefore question why this proposal has been determined by the CAA as a permanent airspace change. Also, HAL says it will be introducing PBN on these IPA flight paths and we believe the purpose is in effect a trial of PBN, curved flight paths and mixed mode, which would be required should there be a 3rd runway. Accordingly, we believe the proposal should be treated as a trial and temporary and not as a permanent airspace change.**

TACTICALLY ENHANCED ARRIVAL MEASURES (TEAM)

12. Westerlies (arrivals from the east). When Heathrow is on Westerlies, there is alternation between the use of northern and southern runways for arrivals over the 16 hour day with the change taking place at 3pm. The sequence changes every week. The runway not being used for arrivals at any point time is used for departures. On occasion, arriving aircraft are landed on both runways using TEAM (Tactically Enhanced Arrival Measures) but the aircraft have to be separated further apart than normal because of the vortexes - the impact of which depends on the relative weights of aircraft in the landing sequence. The two runways are 1414 metres apart, which is not sufficient to avoid the local air turbulence and safety risk to parallel approaches. Avoiding the air turbulence requires the flow rate of aircraft arriving on the arrivals runway to be reduced and therefore the number of additional arrivals on the departures runway is partly offset by a reduction in number on the arrivals runway. This exposes TEAM's inefficiency.
13. Easterlies (arrivals from the west). When Heathrow is on Easterlies, aircraft do not depart from the Northern runway because of the Cranford Agreement (although now dissolved - the required taxiways have yet to be introduced). This means that with few exceptions all departures leave from the southern runway and all arrivals land on the northern runway. There is no runway alternation so that the equivalent of TEAM may be applied to the southern departures runway at any time throughout the 16 hour day.

14. Night Shoulder 6am to 7am. The rules in the night shoulder period, 6am to 7am, allow aircraft to land on both runways, which in effect is TEAM. There is no night quota in this period.
15. TEAM Restrictions. The Government has also ruled out mixed mode operations at Heathrow airport to ensure that local residents can continue to benefit from the regular respite from noise provided by runway alternation. (September 2010 Written Ministerial Statement on "Heathrow Operations"). Mixed mode operations (planned use of a runway for near simultaneous landing and departing) are essential for a three runway airport, and so HAL will have to apply during the DCO process for mixed mode. Furthermore, restrictions on use of TEAM are in place and HAL say the intention is not to change these. These rules concern the restrictions on when TEAM can be triggered and on the maximum number of aircraft that can use TEAM.
 - a. During the 16 hour day, 7:00am-23:00pm, TEAM can be used when there is a forecast delay of 20 minutes or more but no more than 6 arrivals per hour are permitted to land on the designated departures runway. The restriction on the number of arrivals does not apply to easterlies, which strictly speaking are not TEAM arrivals although in practice they operate as such.
 - b. In the morning shoulder period 6am to 7am TEAM can be triggered when there is a forecast delay of 10 minutes or more between 6am and 6:29am and a delay of 5 minutes between 6:30am and 7am. There is no limit on the number of arrivals that can land on the designated departures runway.

INDEPENDENT PARALLEL APPROACHES (IPA)

16. The aim of IPA is to reduce the inefficiency of TEAM, whereby the arrivals flow rate is reduced with TEAM. HAL's proposal is to curve in the arriving aircraft on the departures runway so as to join the ILS near the airport, thus keeping the aircraft apart. The typical joining point for aircraft on the arrivals runway is around 13 nautical miles from touch down but HAL suggest the IPA will create a joining point on the departures runway at around 6 to 7 nautical miles from touch down. IPA is therefore to be used when TEAM is applied and two runways are used for arrivals.
17. The ACP proposal by HAL is for an additional arrival flight path from Heathrow's holding stacks to the joining point on the departures runway. This additional flight path to the east of the airport would be from the south when Heathrow is on Westerlies and the southern runway (27L) is being used for departures and from the north when the northern runway (27R) is being used as the departures runway. On easterlies the additional flight path would be from the south curving onto the southern departures runway.
18. Our understanding is that the three or more additional IPA arrival flight paths therefore would be restricted for use between 6am and 11:00pm. Their use would depend on whether Heathrow were on Westerly or Easterly operations and on alternation in the former case.
19. Heathrow's proposal for IPA does not specify the joining points or the three or more flight

paths, so that the above description at this stage is the broad intention. HAL say that Performance Based Navigation (PBN) would be applied to the flight paths. Other things being equal this would result in very precise use of the flight paths, and hence concentrated noise. In theory each single flight path might be divided into multiple flight paths which either through separation or respite from flight path rotation could disperse the noise. IPA could mean in excess of three additional flight paths and multiple joining points. Meaningful separation is needed to effectively disperse noise and this applies whether or not respite is used.

20. Joining Point Rules. The Airport’s AIP (Aeronautical Information Publication) states that the minimum height at which aircraft can join the ILS during the day (between 6am and 11pm) is 2,500ft which is approximately 7.5 nautical miles (around 8.5 miles) from Heathrow. At night (between 11pm and 6am) an aircraft must be no lower than 3,000ft which is approximately 10 nautical miles (around 11.5 miles) from Heathrow.

Because of the IPA joining point being near Heathrow, the additional IPA flight paths will not satisfy these rules. No case has been made to revise the rules. It is not clear whether the assessment is part of the ACP. We believe it should be because the rules affect the noise impact.

21. Continuous Descent Approaches. Heathrow has successfully promoted CDA which results in aircraft remaining higher for longer and reducing the use of engines when flights descend in steps. The current Arrivals Code of Practice is 3 degrees but there is a current Airspace Change Proposal to increase this to 3.2 degrees. It is not clear whether the additional curved flight paths can or will adhere to the then current Arrivals Code of Practice. Heavy aircraft heading directly for the normal stream of arrivals at a steep descent angle with pilots needing to stabilise the aircraft in good time before touch down must surely present operational and safety issues. This is not addressed in the proposal and potentially has noise impact.

22. TEAM traffic and benefit. HAL’s initial statement of need 2017 provides the following table:

Time period and mode of operation	Average number of aircraft that landed on the departure runway during the last five years
6:00am to 7:00 am (westerly operations)	18 per hour
After 7:00 am (westerly operations)	15 per day
6:00am to 7:00 am (easterly operations)	16 per hour
After 7:00 am (easterly operations)	23 per day

The table shows the average number of aircraft landing on the departure runways over the last 5 years (1 May 2013 to 30 April 2018). The problem with this evidence is that it is

averaged.

23. The SEAT Report 2011 page 24 deals with resilience - it says:

"In terms of resilience it is useful to classify the operational year as green, amber and red days where:

- a. normal operations occur on **green** days,*
- b. moderate disruption is experienced on **amber** days. This disruption is manifested as long delays attributable to the airport and moderate levels of cancellations, with some dispensation on night jet movement restrictions needed to enable recovery,*
- c. severe disruption on **red** days experienced as very long delays attributable to the airport and a high cancellation rate, with no on-the-day recovery being possible despite extensive night jet movement dispensation.*

The ratio of green:amber:red days is approximately 300:50:15 across the year"

24. It is not clear from the table whether the proportion of westerlies in a year is factored into the 15 TEAMS a day. In any event these out-of alternation arrivals are mainly on the 65 amber and red days, and there could be say 80 TEAM flights a day in these disruptive days. The maximum allowed at 6 per hour is 96 per day.
25. To put these numbers into perspective, Heathrow operates near its planning limit of 480,000 flights a year or 240,000 arrivals, which amount to around 641 arrivals per day (excluding the 16 night flights).
26. There are around 63 scheduled flights between 6am and 7am which rises to over 80 an hour for the rest of the day, peaking at 90 mid afternoon before falling to around 50 for the rest of the day after 10pm. The majority of the 63 flights are arrivals.
27. There appears to be no proposal by HAL that establishes the value of TEAM let alone TEAM enhanced with IPA. We doubt there is any net benefit of TEAM on the 300 Green days after 7am, given the noise impact on communities of broken respite on Westerlies. HAL claims that there should be fewer late departures and arrivals but again there is no evidence with the proposal and there is significant spare capacity after 10pm. There may be some benefit on amber and red days in reducing delays, improving punctuality and restoring the flow of flights after disruption but there is no evidence provided by HAL.
28. HAL's initial statement of need in 2017 says it wishes to add 25,000 flights a year through gaining permission in the DCO process. This amounts to an additional 34 arrivals a day. HAL goes on to say *"IPA is required to provide operational resilience, with or without any additional ATMs. The need for the additional resilience will increase with any additional ATMs. In addition, subject to further verification, the use of IPA between 0600 and 0700 has the potential to directly support an increase in declared capacity in the hour. An increase in capacity could either contribute to an increase in ATMs (within or beyond the current annual limit), and/or support Heathrow's ambition to deliver a 6.5 hour ban on scheduled night flights between 11pm and 7am."*

29. We are very concerned that the main impact of IPA will be to increase the number of flights between the night shoulder hours of 6am and 7am, partly through time shifting flights from the night and partly from the additional 25,000 flights a year. The current TEAM rules apply no restriction to the number of TEAM flights in this shoulder hour. **We strongly believe there should be no increase in arrivals or departures from the approximate 63 flights that exist today between 6am and 7am. This then seriously questions the value of IPA.**

30. In 2012 and 2013, HAL undertook a series of Freedom Trials. While IPA itself was not included, the CAA seriously questioned the value of enhanced TEAM. The CAA's report "*Heathrow Airport Operational Freedoms Trial CAP 1117 in 2013*" says:

"The hypothesis being tested by the trial, as proposed by the South-East Airports Taskforce, was that granting additional operational freedoms at Heathrow could potentially deliver:

- 1. significant benefits for passengers by improving the resilience and reliability of the airport, and*
- 2. environmental benefits, with fewer unscheduled night flights, lower emissions and less stacking.*

However, the data from the trial is inconclusive. The CAA would agree with Heathrow Airport Ltd (HAL) that it is possible that the freedoms trialled did benefit airport operations. Intuitively, greater operational flexibility should help air traffic controllers to get the airport back on schedule. But the benefits claimed in the HAL report have not been statistically proven. Any operational benefits of operational freedoms are offset by some redistribution of aircraft noise among local communities, and preliminary work suggests some detrimental impact. Communities below the westerly approach paths have their respite period interrupted by aircraft arriving on the runway usually used for departures, while others are affected by vectoring off the established departure routes."

Performance Based Navigation (PBN)

31. The concentration of flights by use of PBN will cause considerable harm to peoples' health and quality of life. To some extent this may be mitigated by creating multiple flight paths but the inability to provide meaningful separation or respite will mean that this additional aspect of the IPA proposal will have a negative noise impact on communities around Heathrow.

AIRSPACE DESIGN PRINCIPLES

32. HAL's consultation document applies similar design principles to those signed-off by the CAA on 28 September in respect of HAL's third runway airspace change proposal.

33. **RHC has raised with Heathrow, the CAA and Aviation Minister its grave concerns with both the process and outcome of the Design Gateway for the 3rd runway. As currently structured the current process for IPA is equally deficient and inevitably will lead to a wholly unacceptable outcome with regard to the Airspace Design Principles.**

34. Annex 1 lists the Airspace Design Principles for the 3rd Runway Airspace Change Proposal signed off by the CAA on 28 September. It also lists the principles included in the current IPA consultation document. While they largely match, different wording is used and they are ordered differently.
35. Our concern with the IPA design principles is that they do not reflect stakeholder community views. RHC and others are not in favour of concentration which is very much promoted by Heathrow in its 3R design principles by minimising the number of people newly overflowed (6b) and minimising total population overflow (6f). We believe it is very difficult to agree with the set of principles proposed in a vacuum.
36. Accordingly, we set out our approach to airspace design principles in Annex 2, which is a presentation to the HCNF on behalf of members of the Community Noise Group (CNG) on 19 September 2018 on the subject of Heathrow's Noise Objectives and Airspace Design Principles.
37. The presentation does not support redistribution of existing noise as would arise with IPA. In so far as the IPA results in an increased number of flights and noise the presentation does not support the additional noise being concentrated over those already impacted by aircraft noise.
38. This position stems from a proposed additional local noise objective: **“Where there is a reduction in overall noise the benefit be distributed proportionately to those already most affected and where there is an increase in overall noise the dis-benefit be distributed proportionately to those already least affected.”** This noise objective results in dispersion rather than concentration and it minimises the average noise cost per household or person rather than minimising the total noise impact.
39. We continue to support the NPS noise objective alongside the additional local noise objective, as described in the presentation.
40. Based on the above and further detail in the Annex 2, RHC believes the noise cost outweighs the benefits of TEAM enhanced IPA both in the case of no additional flights and in the case of additional flights.

Contact details:

Peter Willan, BSC Eng(Hons), MBA, ARSM, FCMA, FEI, HonRCM
Chair, Richmond Heathrow Campaign

www.richmondheathrowcampaign.org

Annex 1 and 2

ANNEX 1

Airspace Design Principles			
3R Airspace Change Proposal		IPA Airspace Change Proposal	
1		Must be Safe	
			Safety principle must always be met
2		Must meet Airports NPS requirements, including capacity	
			We have to make sure we are able to meet our capacity requirements
3		Must meet 3 Airports NPS Policy tests	a
			Minimise Noise
4		Must meet local air quality requirements	
			We have to make sure we don't break Government regulations on the amount of aircraft noise and the impact on air quality
5		Must meet commitments to the UK's Future Airspace Strategy	
6		Should limit, and where possible reduce, local noise effects from flights by:	
	a	Using more noise efficient operating practices	c
			Maximise operational efficiency
	b	Minimising number of people newly overflown	e
			Minimising number of people newly affected by noise
	c	Maximising sharing through predictable respite	f
			Providing predictable respite from noise
	d	Avoiding overflying communities with multiple routes	h
			Avoiding multiple flight paths over the same community
	e	Maximising sharing through dispersal	
	f	Minimising total population overflown	g
			Minimising the total number of people affected by noise
	g	Designing flight paths over commercial and industrial areas	k
			Prioritising commercial and industrial areas over residential areas
	h	Where appropriate, prioritising routing flight paths over parks and open spaces (rather than residential areas), but avoiding overflight of Areas of Outstanding Natural Beauty (AONB)	j
			Prioritising parks and open spaces over residential areas
7		Minimise fuel/CO2/greenhouse gases per flight	b
			Minimise fuel and CO2
8		Ensure operational efficiency and resilience to maximise benefits to all stakeholders	
9		Base our airspace design on the latest navigation technology widely available	
			We have to use the latest technology
10		Minimise impact on other airspace users	d
			Minimising impact on other airspace users
			i
			Prioritising rural areas over urban areas

Heathrow Noise Objectives and Airspace Design Principles

Heathrow Community Noise Forum

19th September 2018

Presented by the Community Noise Group (CNG)



Heathrow Noise Objectives and Airspace Design Principles

- On behalf of CNG representatives:

- Englefield Green Action Group
- Windsor & Maidenhead
- Richmond Heathrow Campaign
- Teddington Action Group
- Aircraft Noise 3 Villages
- Harmondsworth and Sipson Residents' Association
- Richings Park Residents' Association
- Ealing Aircraft Noise Action Group
- Iver Parish Council

Heathrow Noise Objectives and Airspace Design Principles

- The Government has changed its Air Navigation Guidance and the objective is now to minimise the adverse impacts of aviation noise.
- It follows that the effects on health and quality of life must now take the highest priority rather than a simplistic assessment of numbers of people affected and thresholds now shown to be out of date.
- The NPS was justified to Parliament on the basis of the wider benefits to society. It follows that the impacts should be shared on a fair and equitable basis. The approved NPS also contained a number of conditions and assurances in relation to health impacts, especially noise, accordingly the Airspace Design Principles need to deliver noise objectives.
- The shared approach to noise impacts was supported by the majority of the respondents to Heathrow's Airspace Design Principles consultation.

Existing Government Noise Objectives

High tier Noise Objectives are essential to establishing a set of Airspace Design Principles but are missing from Heathrow's Proposal on Principles.

The 3 existing Government national noise objectives are below. They have been re-affirmed by the CAA's Air Navigation Guidance October 2017 and the NPS 2018 confirms Objective 1, albeit with slightly different language.

- 1. To limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise.**
- 2. Any benefits from future improvements in aircraft noise performance should be shared between the aviation industry and local communities.**
- 3. A fair balance should be sought between the negative impacts of noise and the positive economic impacts of flights.**

We recommend two further informative qualifications be introduced:

- a. Current and emerging WHO guidance on community noise be reflected in interpreting Objective 1.**
- b. Objective 2 to include the phrase 'taking account of base year levels of noise and trends in noise reduction'**

Proposed Additional Local Noise Objective

National Objective 1 implies directly a fourth Local Objective - particularly with regard to Heathrow's location in the middle of the densest population in Europe.

Additional Local Noise Objective 4.

Where there is a reduction in overall noise the benefit be distributed proportionately to those already most affected and where there is an increase in overall noise the disbenefit be distributed proportionately to those already least affected.

This objective should be adopted and given high priority in establishing Heathrow's Airspace Design Principles. We believe it is fair and rational way to share the adverse impact of aircraft noise.

Noise Objectives and Airspace Design

Objectives 1 and 4 should be the basis for airspace design (to be reflected in Gateway 1 of the ACP):

- The impact on those already exposed to noise should not be increased by additional flights or loss of respite.
- Additional noise should be distributed over areas not currently affected.

This should result in no community presently overflown seeing any increase in noise from today using an appropriate set of noise metrics.

The Airspace Design Principle flowing from Objective 2 is:

- If an increase in ATM's is proposed over any community already impacted the Industry should demonstrate overall noise levels are reduced and improvements are being shared with communities on a reasonable basis vs a 2013 baseline using an appropriate set of noise metrics.

Airspace Design Principles

Safety is paramount

Enable application of ICAO balanced approach;

- Reduction of noise at source (fleet transition rate)
- Land-use, planning and management
- Noise Abatement - Operational procedures

Airspace Design Principles should include;

- Consideration of flight path concentration/dispersion,
- Respite levels,
- Night noise management,
- Separation of new flight paths,
- Altitude based noise priority heights,

All appropriate metrics to be used (including L_{DEN} , N and single mode) and their weightings to be established with a robust evidence base.

Airspace Design Principles

Examples of Issues

PBN & Concentration

Until it can be demonstrated that PBN with concentration can be introduced without giving rise to adverse impacts on noise, health and wellbeing – it should not be applied in relation to redesigning airspace around Heathrow.

As noted previously international experience of PBN and concentration is overwhelmingly negative. A PBN paper was presented to HCNF on 16th May 2018 highlighting the issues and challenges but to date no response has been received.

Respite

Unless it can be demonstrated that different levels of Respite can be introduced without giving rise to adverse impacts on health and wellbeing – present Respite levels should not be reduced in relation to redesigning airspace around Heathrow.

Airspace Design Principles

Current gaps in the knowledge base

- There is no research or understanding of the current health impacts relating specifically to Heathrow or its proposed expansion. It is essential this is addressed as a priority as following from the Government's revised objectives it must guide airspace design. The Department of Health or Public Health England should lead on this.
- SONA is unreliable and should be independently reviewed.
- WebTAG cannot be relied upon until its values and inputs are supported by fully independent medical and social research.
- The international experience of concentration and PBN is overwhelmingly negative – locally evidenced by the public backlash to the 2014 trials.
- In order to reach any acceptable outcome, respite will be of fundamental importance to airspace design. At present there is no concluded research or understanding about how much respite is needed to result in acceptable living conditions, how much separation is required between flight paths to achieve this and what in technical aviation terms will be possible.

Conclusion

- Until the noise objectives in this presentation are discussed and agreed a deferral of the CAA Gateway Process is required.
- Until the issues relating to design principles presented in this presentation are resolved a deferral of the CAA Gateway Process is required.
- CNG will be formally notifying Heathrow of this conclusion

Thank You