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APPENDIX 11 - COMMUNITY RESPONSES TO DRAFT DESIGN PRINCIPLES

Engagement

As part of our two-way engagement on design principles for expansion, we shared initial consultation feedback and emerging themes with our key community stakeholders during the period June-July 2018. At these sessions we:

- Provided a summary of key findings from the consultation on airspace principles;
- Set out proposed, and prioritised, design principles based on consultation findings; and,
- Asked for further feedback to help us confirm or amend our principles.

Date	Stakeholder Event	Venue	Stakeholders	Attendees
7 June 2018	HSPG Noise and Air Quality Workshop	Heathrow Academy	Local Authorities	HAL airspace rep (x2)
7 June 2018	HCNF Working Group	Compass Centre	Community Reps ('engaged and overflown')	HAL airspace rep (x3)
26 June 2018	Heathrow Community Engagement Board Chair	Marriot, Heathrow	Rachel Cerfontyne (Chair)	HAL airspace rep (x2)
18 July 2018	HCNF	Heathrow Academy	Community Reps ('engaged and overflown')	HAL airspace rep (x2)
19 July 2018	NERG[1] Meeting	Arup offices, Fitzroy St	Various noise experts and academics	HAL airspace rep (x2)

We also emailed a pack containing our draft design principles to a wider group of community stakeholders. Appendix 9 contains the information pack, email and list of stakeholders these were sent to.

Stakeholders were invited to provide comments on these principles by 27 July 2018, to give us sufficient time to consider them before our submission to the CAA.

Feedback

Responses from stakeholders are provided in this document. Any further design principle suggestions were assessed to identify whether it was:

- Already covered by an existing principle;
- Contradictory to the principles favoured by most stakeholders; or,

[1] Noise Expert Review Group

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- Impossible to implement.

Feedback from the community at this stage generally related to:

- Avoidance of AONBs. This was added to the design principles following this feedback.
- Objections to "minimise new" being positioned above "share noise" in the proposed design principles list. Some argued that if Heathrow expansion was intended to benefit the whole of UK society, the burden of expansion would also be shared as equally as possible.
- Concerns about the process of developing design principles prior to developing flight paths for community feedback.

The table below captures the written responses Heathrow received through this engagement process:

Stakeholder	Stakeholder Representative	Email Response	Documents
Aircraft Noise 3 Villages	[redacted]		See response attached to this Appendix
Buckinghamshire County Council	[redacted]		See response attached to this Appendix
Buckinghamshire County Council	[redacted]	To ensure that this is clear in the BCC response and at the request of the [redacted] the letter reiterates the Council's previous submissions please find below an addendum (highlighted text) for the first paragraph on page 3 of the BCC letter. I therefore welcome the approach which HAL has taken in the Emerging Airspace Principles (Principle 1) to prioritise the objective to 'minimise newly overflown' communities. **For the avoidance of doubt this includes those communities closest to the airport in the Ivers and in the Colne Valley Park and protected areas of the county such as the Chilterns Area of Outstanding Natural Beauty.** Recognising that safety must be the first priority and the ANPS objectives to increase capacity at Heathrow, I agree that the next highest priority must be to minimise noise effects. It is therefore sensible that HAL design operations to have continuous climbs/ descents and to minimise the need for holding aircraft at lower levels as sub (Principle A)	
Chilterns Conservation Board	[redacted]	We would like to be involved as stakeholder in the Heathrow airspace design proposals please, in order to advise on whether the plans conserve and enhance the Chilterns AONB. It is my day off today and Monday so I do not have the chance to do a fuller response by your deadline, but in brief, the Chilterns Conservation Board's main concerns are: • noise and effects on tranquilly from overflying the Chilterns AONB • air pollution and effects on sensitive habitats in the Chilterns including protected	

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		sites of national and international importance • cumulative impacts from the combined changes in flightpaths from Luton and Heathrow - it is important that in any redesign of flightpaths there is careful design to avoid harm to the tranquillity of the AONB, and take all opportunities to reduce noise over the AONB (eg Bovingdon stack) • people walking, cycling, riding or volunteering in the AONB are likely to be outdoors and expecting to enjoy an experience of 'getting away from it all' so are especially noise sensitive • The Chilterns Conservation Board could also assist with identifying opportunities for AONB mitigation and enhancement The Chilterns AONB is nationally protected as one of the finest areas of countryside in the UK and public bodies and statutory undertakers have a statutory duty of regard to the purpose of conserving and enhancing the natural beauty of the AONB (Section 85 of CroW Act).	
Colne Valley Regional Park	[redacted]	I am submitting a comment on behalf of the Colne Valley Regional Park Community Interest Company in response to the consultation on Airspace Design Principles. The Colne Valley Regional Park (CVRP) is the first large taste of countryside to the west of London; an area for people, wildlife and many uses including farming and angling. The Park, which was founded in 1965, stretches from Rickmansworth in the north to Staines and the Thames in the south, Uxbridge and Heathrow in the east, and to Slough and Chalfont in the West. The Park is championed by the Colne Valley Park Community Interest Company (CVPCIC). The CVPCIC is opposed to Heathrow's expansion proposals, which will fundamentally change the southern third of the Colne Valley Regional Park. The Airspace Principles (and appraisal tool that are used) needs to be considered in the context of the wider impact on the natural environment around Heathrow, land which is predominantly Green Belt and which demands protection. Any expansion of the airport and related flight paths needs to be planned in the context of Heathrow Airport Ltd's own vision for the whole project: 'To create a positive legacy of better, well connected green infrastructure, which uses land efficiently to achieve multiple environmental, social and economic benefits'. We are concerned that the Principles proposed under 'Minimise Noise Effects', where they set out to "prioritise routing flight paths over rural areas	

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		(Principle H) and over Parks and Open Spaces (Principle J) signal a further intrusion for and diminution of quality for the open areas in the area of the airport, notably in the Colne Valley. This negative impact, when added to the significant extent of the land and river corridor loss in the Colne Valley, must be fully taken into account and mitigated/ compensated for as the Colne Valley is a key resource contributing to quality of life (existing and potential) for nearby residents and visitors. We ask that the final Airspace Design Principles reflect a balanced approach between impact on urban areas and open/ natural areas and give weight to the quality of the natural environment areas around Heathrow in the detailed assessment of and application of the Principles. Thank you for taking our comments into account.	
Ealing Aircraft Noise Action Group	[redacted]	I support the views expressed by [redacted] in his email to you of 29 June, including the view that a deadline for response to the paper presented at HCNF on 7 June should be postponed for much longer consideration by groups. EANAG committee meets at the end of July. --- Ealing Aircraft Noise Action Group Committee met on 30 July and discussed airspace change principles. It was agreed that the most important principle to Ealing residents is that if there is an easterly departure route over Ealing, there should not also be a westerly arrival track over the borough. I appreciate that the deadline for response has passed, but the committee wished me to convey this to you anyway.	*Deadline was extended*
Elmbridge Borough Council	[redacted]	I have consulted several residents and based on this, these are my own views. • I do not support the 'minimise new' in principle B and do not believe the consultation data supports this. I think it is only fair that noise is equitably shared and that respite and dispersal of flight paths and runways during the day are included as key principles. • I support predictable respite • Support avoid overflying communities with multiple flight-paths • Support maximise sharing through respite and would make this a priority • Minimizing total population overflown is in conflict with dispersal and respite and I would not make this a priority although clearly desirable. • Maximising flights over commercial and industrial areas is supported.	

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		• Prioritising flight-paths over rural areas is supported • Prioritising flight-paths over parks and open spaces over residential areas is supported • I would make prioritising flight-paths to reduce noise over reducing fuel burn and emissions a key priority. Aircraft noise is the single most important negative impact to residents. Increased fuel burn is a cost airlines will pass on to customers and the overall impact on emissions will be less harmful to residents than noise. • With regard to aircraft using the latest navigation technology, it is vital that they build in dispersal since the new technology enables very narrow flight-paths causing severe distress to those residents under the flight-paths. • Agree the same principles as above should apply to night-time flights, but the banned period should be more than 6.5 hours.	
HACAN	[redacted]		See response attached to this Appendix
Heathrow Community Noise Forum Member	[redacted]	In response to the request for any further comments, please could the following points be considered: (i) 2017 Airspace Guidance introduces changes to way a permanent airspace change must be assessed in terms of populations impacted, and in particular the new requirement to use Webtag Guidance. Maybe I have failed to understand something but I cannot see from your Emerging Principles how the proposed options to minimise those newly overflown as well as respite can sit easily within the overall Webtag objectives; unless there is to be some sort of agreed community noise principal / target. Also if the Webtag process is to be meaningful I think people will need help and a a clear explanation of Webtag and how this will inform the design scheme. I would suggest the The Webatg guidance as it currently exists is impenetrable for many. (ii) Can consideration be given in the overall design scheme to a principle that would see communities overflown (either by arrivals or departures) on westerly operations not being overflown up to 7000 ft when the airport is working in the reverse direction? This would seem to provide some guaranteed respite, if only for 30% of the time to communities to the east of the airport. (iii) For the sake of completeness, a future airspace design covering a two-runway operation should be considered at the design stage, even if it is not required.	

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Northumberland Walk Residents Association	[redacted]		See response attached to this Appendix
Plane Hell Action	[redacted]		See response attached to this Appendix
Resident, Fulham Reach	[redacted]	General point It is so right that Heathrow uses every incentive and penalty to ensure that airlines both make use of the newer less polluting/noisy planes and that they also comply with operational procedures which reduce the adverse impact on the environment and those overflown. Specific point Principle 3 The core principle 3 covering ANS noise policy tests is likely to show a greater negative impact on Health and Quality of Life if flight paths are heavily concentrated. The proposed increase in movements makes this even more critical. Principle 5 subprinciple B The consultation feedback on Principle B clearly identify the preference for the sharing of noise as opposed to the need to minimise the number of newly overflown. The sharing of noise is therefore clearly the first preference. It is a much lower level priority to minimising the number of new people overflown, I therefore fundamentally disagree with the last point that it is proposed to give equal priority to minimising newly overflown (put first) and the sharing of noise (put second). Subject to your comment I may wish to take up this issue elsewhere I have one other comment In an alternative scheme to expand Heathrow there was proposal that PBN could be used to set up a fan of several flight paths to share noise and reduce the impact on any one area Is this becoming technically viable?	
Resident	[redacted]	Thank you for the opportunity to give my views on the expansion of Heathrow. I would prefer wider sharing of noise over London to avoid disproportionate impact on any one area, both in terms of overflight over new areas and even sharing across existing areas. There can be no legitimate expectations that people currently overflown can be subjected to more noise etc and that people currently subject to no noise should not be subject to no aircraft noise at all. I do not support priority being given to principle b.	
Resident	[redacted]	I prefer wider sharing of noise over London to avoid disproportionate impact on any one area, both in	

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		terms of overflight over new areas and even sharing across existing areas. I do not support the policy of "minimise new". There can be no legitimate expectations that people currently overflown can be subjected to more noise etc and that people currently subject to no noise should not be subject to no aircraft noise at all. I do not support near absolute priority being given to principle b.	
Resident	[redacted]	One observation I would make on the findings, I am not sure why minimising the newly overflown should be the number one priority, when maximise sharing is favoured by the most people. The main problem must people have in my opinion is the intensity of the current operations. If you can design flight paths that maximise sharing and removes the intensity, I think that will be the key success factor, even if it means more people get some noise. I wish you all the best though, I can see if is challenging exercise as fundamentally not everyone can be happy!	
Richmond Heathrow Campaign	[redacted]	You have asked for those attending the 7 June HCNF workshop to provide feedback on the Design Princples consultation by this Sunday 1 July (Item 4 of the Minutes). On behalf of Richmond Heathrow Campaign, as one of the attendees at the June meeting, I just do not see how we can respond rationally and responsibly, much as we would like to. As you know from being copied in on the email on 21 June to the CAA, RHC and others at the meeting are very concerned with the design principles engagement and decision process. The letter to the CAA is attached here for further reference and it explains the major concerns we have and an explanation why we believe the 1 July deadline should be potpopned.	*Deadline was extended by one month* See response attached to this Appendix
Royal Borough of Windsor & Maidenhead	[redacted]	I was on holiday when the Airspace Design principle were discussed at WG2 but read the letter sent by [redacted] whilst I was away and fully endorse it. I wish to raise a couple of fairly important points. It would be grossly unfair to set out to minimise the number of people newly overflown. There may be different nuances depending upon whether one is considering a 2 runway or 3 runway scenario but if it is 3 on the basis of economic benefit to the Country overall than the downsides of more noise of a 3rd runway should also be shared and I am certain that this would be challenged. I note that a primary principle is that a capacity of 740 aircraft is sacrosanct. I fail to see how, at this stage, this statement can be made when the DCO process may set some limits and it is unclear that airspace can be designed to accommodate this without causing harm that the Planning Inspectorate deem unacceptable.	See response attached to this Appendix

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South Bucks District Council	[redacted]	Thank you for the opportunity to comment on the emerging airspace change principles proposed by HAL. 1 Flight paths We are of the view that the options offered are divisive depending on the residential location of the respondent either rural or urban. We would like to examine the data sources and better understand the consultation methodology. 2 Urban and rural areas We would support the protection of rural areas and the relative quiet and tranquillity enjoyed by parts of South Bucks District and the Colne Valley in particular 3 Urban areas See comment about Flight Paths 4 Noise and emissions From a noise impact point of view at low level e.g. below 10,000 feet reduction of noise impacts should take priority over efficient fuel burn. 5 Technology and Innovation We would encourage the use of technology and innovation to reduce total adverse impacts to below LOAEL for receptors. The use of improved navigation systems does not necessarily reduce noise impacts but could provide a way of better manging them. 6 Night flights Although there is likely to be a restriction on night flights required by the expansion DCO, we would like to understand what the exceptions there could be. For example, freight aircraft tend to be older and noisier and could generate adverse impacts if allowed to land and take off at night or in the shoulder hours. We would like to see sleep disturbance studies accounted for in any design principle. Summary In summary, SBDC is not yet satisfied that the emerging design principles adequately protect its communities from noise impacts, particularly those closest to the airport and under the existing flight paths. We would welcome the opportunity for further engagement before proceeding to the develop and assess stage.	
Spelthorne Borough Council	[redacted]		See response attached to this Appendix
Teddington Action Group	[redacted]	Can we ask for some further clarification on 2 points, prior to making further comments; 1. Principle 3: 'Heathrow's Airspace Must Meet the 3 ANPS Noise Policy Tests' incl 'Avoid significant adverse impacts on health and quality of life from noise' and 'Each option will be assessed using	See response attached to this Appendix (x2)

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		WebTAG methodology which includes quantification of health impacts related to noise.' Is there a clear definition and specified level for 'significant adverse impacts on health and quality of life' or is this a judgement by Heathrow or CAA? 2. Principle 4 (which you state is one of the core principles that must be met) – what impact does this have? *PROPOSED PRINCIPLE 4: HEATHROW'S AIRSPACE MUST MEET LOCAL AIR QUALITY REQUIREMENTS* *Rationale:* *• We will ensure local air quality requirements are met.* *• We will design routes that prioritise air quality up to 1000ft in accordance with Government policy: Air Navigation Guidance, 2017, states "emissions from aircraft above 1000ft are unlikely to have a significant impact on local air quality"* *• This is a core requirement of our airspace design* Does this mean that you will be designing routes that either i) use low thrust to lower emissions to 1000ft, so overall flying much lower on departure and creating more noise for longer, or ii) in accordance with your noise action plan objective - to get planes as high as possible as quick as possible - use full take-off thrust to get to 1000+ft in the shortest time which may or may not reduce emissions below 1000ft Clearly you must meet air quality targets and hopefully exceed them but I believe the evidence Heathrow gave to Parliament was that it would meet air quality by moving passenger journey's to the airport to use more public transport and with new cleaner aircraft technology not increasing any of the already severe noise impacts.	
Teddington Action Group	[redacted]		See response attached to this Appendix (x2)

We must begin by simply stating we believe this to be a deeply flawed and disingenuous document which lacks innovation, evidence based arguments and has conflicting objectives. Without going into the time consuming justification for the many shortcomings of this document, we list below a few of the fundamental issues:

- Current health impact of existing operation unknown
- No health impact study undertaken for expanded operation
- No cost study on same noise and health impacts
- Ignoring reports already illustrating the detrimental noise impact of the 'minimising the number of people overflown' model. In addition, Parliament voted for Heathrow expansion on the basis that it would help the country as a whole. It is therefore unfair and discriminatory to route the aircraft entirely over people who are already overflown
- Use of 'preferences' from a previous flawed consultation. Naturally, people may choose rural over urban, dispersal over concentration depending on their proximity to the airport. Whilst concentration and respite might be the only option for those living nearer the airport, other communities further from the airport would favour dispersal and those options must be fully investigated. The point is, people require evidence based facts in order to understand the consequences of the options.
- Misleading and selective use of term 'Rural'. Where is there rural area around Heathrow? This is illustrated by the fact that Councils are struggling to find areas to build new housing to meet their commitments.
- Lack of accurate information agreeing current noise footprints
- Lack of detail of how any of the principles will be achieved
- etc....

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All of this work should have been commissioned as a precursor to any consultation of airspace principles or design.

AN3V has decided that rather than make specific comments on the Heathrow document (which implies a tacit acceptance of content not challenged), we instead provide Heathrow with AN3Vs Airspace Design Principles drawn up to provide Heathrow with a perspective on how 'Airspace Modernisation' should be prioritised and applied to improve the lives of communities already blighted by aircraft noise and pollution and how changes necessitated by the possible addition of a 3rd runway should be managed.

Objective

To ensure that further implementation of Satellite Navigation prioritises the needs of people and facilities adversely affected by airport operations, over the needs of airlines and airport owners.

Background

Major airports expose local communities to levels of noise and pollution which are damaging to health and well-being. Extensive validated research has demonstrated how devastating the effects can be.

Heathrow's two runways already produce more noise than the aggregated eighteen runways of Amsterdam (Schipol), Paris, Frankfurt and Madrid. It is already, by a long way, the noisiest airport in Europe. Pollution levels in areas adjacent to Heathrow already exceed EEC Regulations.

Heathrow's flight numbers (departures and arrivals) are capped at 480,000 per year. A third runway would accommodate another c.250,000 PY with consequential increases to noise and pollution despite any offsets achieved through technical improvements to the jet engine. It must be assumed that this 50% increase in passenger and cargo volumes will generate more traffic on the roads despite any offset from new rail projects.

Current Situation

It is important to recognise that Heathrow's twelve departure flight paths were introduced 60 years ago to control the spread of noise. It should be acknowledged that increases in flight numbers/frequency and minor changes within a designated flight path have caused serious problems to residents. In addition, advances in technology (planes higher, faster) mean flights now routinely depart from the NPRs (MID) which has significantly increased noise as it continues to shift to the West.

Many have specifically chosen to live in areas not under a flight path. The unannounced 2014 western departure trial produced so many complaints it was supposedly 'cancelled' early. Teddington Action Group has highlighted other locations where changes to flight paths have produced very negative results with people asking the same question. 'Why is this happening'?

Streams of arriving aircraft have also caused issues especially when there is no respite. A 3rd runway would interfere with the am/pm respite currently received through runway rotation in West London on westerlies.

An example specific to AN3V is the sub principle stating 'We will avoid the following below 7000ft: arrivals and departures overflying the same communities'.

What does that mean exactly? AN3V area is perhaps not unique but does suffer severe noise disruption from both arrivals AND departures many of which are at 5,000ft. Heathrow must undertake urgent studies to look at the combined effect of both easterly and westerly proposed routes to ensure that no communities are under PBN flight paths continuously no matter which way the wind is blowing!

Proposed Priorities Applicable To Airspace Change

It is true that some aircraft are less noisy and less polluting than they used to be but the frequency of take-offs and landings has increased dramatically over the years. With a 3rd runway flight numbers are predicted to grow again from about 1350 per day to about 2050 per day. In the past Heathrow has not been granted permission to expand because of the noise and pollution issues attached to its location. Accordingly, Airspace Design Principles must be as follows:

Priority 1a

Safety

The safety of people on the ground and those in aircraft must have an overriding priority over other considerations.

Priority 1b

Health of Local Communities

The health of those on the ground has been shamefully ignored in the past. Any changes to airspace operations should equally prioritise the health of communities by initiatives

to reduce noise and pollution to those already affected, and include a commitment to an action plan to WHO community noise recommendations. Initiatives could include considerably increased angles of ascent on departures and removal of stacks by introducing computer synchronised arrivals etc. This is an opportunity for the industry to use the latest technology to reduce noise levels. Any increases in operating costs must be borne by the operator under the principle of the polluter paying.

If approval for the 3rd runway is not granted, there will be no changes to existing flight paths or to Regulations supporting their operation. Minor changes have been proven to cause enormous distress.

If approval is granted, flight paths will be necessary to support the 3rd runway operation. Any proposed changes to existing flight paths must first be justifiable on safety grounds and then subjected to independent examination and approval.

Priority 2
Share both the burden and benefits of aviation operations in a fair and equitable manner. Any benefits made by the industry should be shared 50-50 with the communities overflown.

Priority 3
Night Flights
In accordance with Priority 1b, an 8 hour night flight ban of both departing and arriving aircraft must be mandatory.

Priority 4
Health of Airport Users.
Airport Operators and Airlines will continue to exercise their duty of care to passengers and staff who will be largely unaffected by changes to Airspace Design.

Conclusion
The above principles should be adopted by Heathrow to demonstrate that it has the communities' interests at the heart of its operations.

Finally, Heathrow has recently asked what is missing from its document. AN3V has attempted to answer this by providing a perspective on behalf those people adversely affected by its operations. Airspace Modernisation criteria should be written by the regulator and not Heathrow. It is not only wrong but entirely unacceptable for an airport to create its own development rules, particularly one which has so far failed to resolve the severe and detrimental impacts of its operation on neighbouring communities both near and far.

[redacted]

[redacted]

[redacted]

Buckinghamshire County Council
County Hall, Walton Street
Aylesbury, Buckinghamshire HP20 1UA

[redacted]

[redacted]

Submitted by email:
airspace@heathrow.com
FAO:
[redacted]

26 July 2018
Ref: WP26 CAA Airspace

Dear [redacted]

Re: - Heathrow Expansion – Stakeholder Engagement on Heathrow's Airspace Design Principles

Buckinghamshire County Council (BCC) welcomes the opportunity as a statutory consultee on the Airspace Change Process (ACP) to comment further on Heathrow Airport Limited's (HAL) Airspace Design Principles.

In view of the current division of responsibilities in a two-tier area, such as Buckinghamshire, we continue to work with our district colleagues including South Bucks District Council (SBDC) and countywide bodies such as Buckinghamshire Thames Valley LEP (BTVLEP) in considering expansion proposals. In considering major projects and their noise impacts we work closely with our colleagues at the districts councils as the local environmental noise regulatory body.

BCC is also working with key partners, not least the Colne Valley Park Community Interest Company (CVP) to consider HAL's proposals, their impact and potential mitigation within Buckinghamshire, on the county's communities, businesses and environment. As the strategic authority in Buckinghamshire, BCC recognises the potential economic benefits that the expansion of Heathrow and the increase in destinations and global connectivity could bring to the county and the wider South East. Equally, as the Public Health body for the county we understand that aircraft noise, and in particular new flightpaths over previously unaffected areas cause not only disturbance but can impact upon the well-being of residents and affect health through disturbed sleep, for example. Aircraft noise can also impact on BCC service users, for example, children and staff at schools and the many residents using our Country Parks that are run successfully at no cost to the tax payer in the in the south of the county.

BCC was one of the first Councils to publicly support the growth of the airport, on the proviso that adverse economic, community and environmental impacts including aircraft noise, air quality and traffic are appropriately mitigated.

I recognise the importance therefore in ensuring that HAL consider the impacts - including potential benefits - on our communities, businesses and environment within the geographic area of Buckinghamshire. From the airspace consultations held by the Civil Aviation Authority (CAA) in 2017 alongside the Airports National Policy Statement (ANPS) consultations and Heathrow's first consultation earlier this year on airspace principles, it is evident that residents are concerned about flightpaths but feel unable to engage in the issues until flightpath corridor options (Phase 2) and route options (Phase 3) are consulted on.

That said BCC officers have advised me that from discussions with residents they have welcomed the open and informative approach that the HAL team has taken to explain the process. County and district Members, in particular, welcomed the presentation in Aylesbury by HAL in March 2018 on ACP and the opportunity to have their questions answered by the HAL team.

Turning specifically to aircraft noise – either as part of the DCO proposal or the ACP, BCC has previously commented that:

- HAL propose removing the cap on flight numbers in 2022, increasing passenger numbers and freight before new rail and coach/ bus capacity is available to serve a third runway.

- It is too early in the airspace change process (ACP) to know the flightpaths and the precise impacts of noise on residents and on Council service locations including Schools and Country Parks and the impact on service and park users.

Emerging Airspace Principles

On airspace and aircraft noise, BCC support the national modernisation programme. HAL's redesign of airspace has the potential to continue the airport's track record of reducing its noise footprint. Airspace modernisation alongside HAL's financial incentives for airlines to upgrade fleets can lower emissions with both air quality and carbon benefits.

Whilst consideration of detailed flight paths (Phase 3 of the ACP) is planned by HAL to follow the DCO process we noted in HALs Consultation One that a number of options could mean aircraft using the expanded airport and third runway after 2025 may overfly areas within southern Buckinghamshire that have not been previously overflown. From the CAA/ Department for Transport (DfT) and HAL consultation events over the past year you will have gathered from residents and elected members that the extended process for the ACP creates unnecessary uncertainty for those communities in the county.

New flightpaths could have a significant adverse impact on not just the quality of life of residents in the county but also have negative health impacts for residents, service users, business and workers in the newly affected areas. HAL's consultants have advised the BCC team that the effects on health for communities not previously overflown is greater than for communities already overflown and to an extent who have become acclimatised to aircraft noise. Minimising the need to affect new populations and business should be the first principle in Heathrow's redesign of airspace.

I therefore welcome the approach which HAL has taken in the Emerging Airspace Principles (Principle 1) to prioritise the objective to 'minimise newly overflown' communities. Recognising that safety must be the first priority and the ANPS objectives to increase capacity at Heathrow, I agree that the next highest priority must be to minimise noise effects. It is therefore sensible that HAL design operations to have continuous climbs/ descents and to minimise the need for holding aircraft at lower levels as sub (Principle A).

The decision by HAL to next prioritise (Principle B) to 'minimise the number of people newly overflown' reflects the consistent view that the County Council and our partners have expressed to government, the CAA and airport operators. In view of strong preference shown in the analysis of consultation feedback to 'minimise new' the approach reflects and takes on board stakeholder feedback in accordance with consultation principles. I support the view that HAL have taken that it is preferable and indeed more practicable to generally seek to avoid new people first, and then to share noise across the areas already overflown (Principle C).

I would observe that this approach would complement the reduction in the footprint of the noise envelope which Heathrow has achieved for communities already affected by noise. With regard to the related noise matters in the DCO, applying the 'minimise newly overflown' principle can in turn provide some certainty to communities during the DCO process that requirements and obligations set out in the Secretary of State's future DCO Order(s) will not be overturned by ACP or other CAA regulatory decisions.

If new communities, businesses and services are to be affected in Buckinghamshire then the area of that impact should be minimised through appropriate baseline work and design of envelopes so that residents have confidence in the current noise assessment and that HAL will keep them informed of monitoring and changes to impacts during the DCO process, construction and then operation. This includes respite from noise for predictable periods which should be applied equally across affected populations (Principle C).

New Noise Impacts

Whilst supporting the Airspace Change principles and the proposed prioritisation, I remain concerned that the third runway means that the Dorney and Taplow communities would be directly under the east – west flight path of planes landing and taking off from the expanded airport. They are likely to be severely impacted in the mid- 2020s for the first time by aircraft noise when the third runway is operational. We are also concerned that increased aircraft noise from Heathrow particularly from the third runway being on the border of the County, could affect the tranquillity and rural experience of visitors and users of Black Park, Langley Park and Thorney Park.

The Parks are regularly used by Pinewood Studies for filming and an increase in noise is likely to jeopardise the use of the Parks and so increase costs for Pinewood. This would significantly reduce income which supports the park's management and use by one million visitors a year.

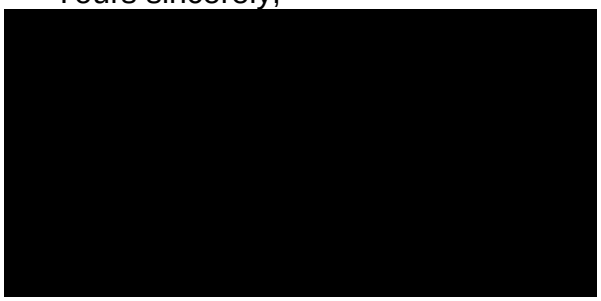
We have previously requested HAL fund noise monitoring locations in Dorney, Taplow and at several BCC service locations in the Ivers including two schools and Country Parks to ensure that sufficient data is available for HAL, regulators and for residents and

business to understand current noise levels. The monitoring would assist HAL in assessing and communicating how potential changes approved under the DCO and ACP process may impact on health, particularly night time noise, and the use and enjoyment of public space in southern Buckinghamshire and the Colne Valley Park.

I and the BCC team look forward to continue working with the CAA, the DCO Examiners and HAL to assist in making a robust decision through the ACP and DCO and in explaining the Heathrow expansion and flightpath plans to residents and business in the County. The Airspace Design principles on their face potentially provide a positive and indeed early outcome for Buckinghamshire residents.

If confirmed by the CAA, they would enable me, colleagues and partners, to work with HAL locally, to seek to allay understandable concerns about possible impacts from changes in flightpaths associated with expansion.

Yours sincerely,



Airspace Design Principles for Expansion

Emerging Themes

Response from HACAN

HACAN is the long-established, regional organisation which gives a voice to residents impacted by the Heathrow flight paths.

We welcome the opportunity to comment on the emerging themes.

Wider Consultation

1. First, though, a more general comment on the wider consultation. Our view, based on the comments we have received from our members and others, is that this has been done well by Heathrow and, if anything, has exceeded the requirements set out by the Civil Aviation Authority (CAA) in CAP1616.

1a. The original leaflet was clear, easy-to-read and well-designed.

1b. The material at the public exhibitions was equally clear and well-designed. The availability of senior and well-informed staff at the exhibitions was very welcome.

1c. The number of exhibitions held covered an impressive geographical area. We did believe there were some 'hotspot' areas outside the geographical area covered that should have had an exhibition. We raised this with Heathrow and are confident these areas will be covered in future consultations on airspace. We do not see this as a reason for the CAA to reject this consultation.

1d. The number of leaflets distributed – over 2 million – was equally impressive.

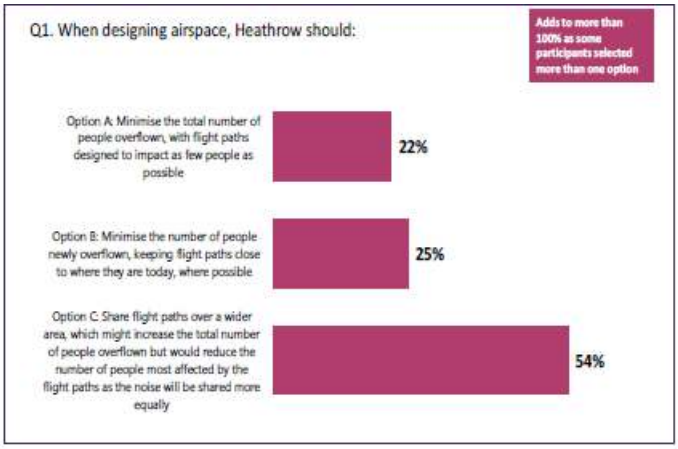
1e. Above all, we welcomed the opportunity to shape future airspace policy by being able to influence its design through the simple but profound questions asked in this consultation.

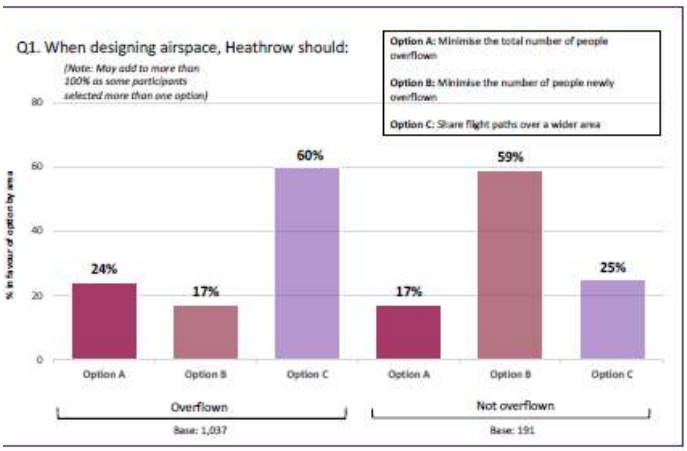
Emerging Themes

We are pleased to see that Heathrow has committed to designing its new flight paths guided by the key themes which have emerged from the consultation.

On the following pages we consider those key themes.

2. Respite, new areas, concentration
The responses showed a significant preference for respite (though a majority of the responses from the 'not-overflown' wanted to avoid new areas) with less than a quarter favouring minimising the total number overflown.





Heathrow's proposed way forward from this is the right one: "When considering how we apply these two principles to the airspace design, it is more practical to generally seek to avoid new people first (principle b) and then share noise across the areas already overflown (principle c)".

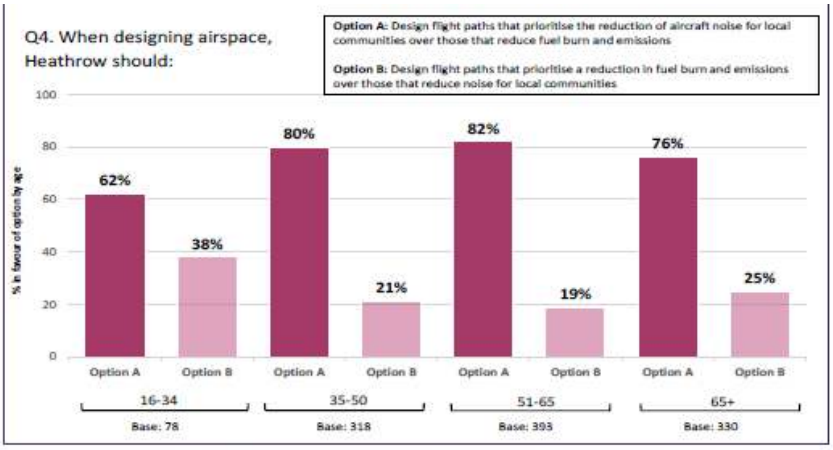
We welcome the linked proposal: "We will offer predictable respite to those overflown, either by splitting flight paths into multiple routes and/or through runway alternation." This also flows from the preferences expressed in the consultation.

3. Urban/rural areas
The consultation found "73% of all consultation respondents favoured routing aircraft over rural areas rather than over urban areas." We believe Heathrow's response is consistent with this finding: "Where we have a clear choice, we propose prioritising routing flight paths over rural areas rather than urban areas. This preference was clear in feedback from the consultation. This principle is of lower priority than most other noise principles, and we do not therefore envisage it having a significant impact on the airspace."

4. Parks and built-up areas

The Consultation found: "a clear preference for overflying parks and open spaces, and protecting peoples' homes from noise where possible." Heathrow is thus proposing "where we are able, we will route flight paths over parks and open spaces." This reflects the preferences expressed.

5. Noise, Fuel Burn and Emissions



The consultation found "respondents showed a clear preference for prioritising noise over emissions". Heathrow is therefore proposing "prioritising (potentially longer) flight paths that reduce aircraft noise for longer communities over (potentially shorter) flight paths that prioritise fuel burn and emissions". HACAN thinks this the right response and one based on the responses to the consultation.

6. Night Flights

The consultation found that "the main thrust of the response regarding day or night time prioritisation was simply around prioritising avoidance of populated urban areas. Therefore the consultation did not provide evidence to suggest a different prioritisation of airspace design principles is needed for the night period." The National Policy Statement, which Parliament approved, made a longer night period a condition of any third runway. Heathrow recognises this will need to be taken forward as part of the Development Order Process.

7. Overall Conclusion

HACAN has welcomed the overall process. It has been properly carried out by Heathrow. In particular – the main subject of this response - Heathrow has responded accurately to the preferences expressed in the consultation and is setting out to design its flight paths in accordance with those preferences. There is no doubt in our mind that Heathrow Airport has fulfilled the requirement stated in the CA's CAP1616: the development of design principles should provide "a shortlist of principles to inform the development of airspace design options" an a "framework against which airspace design options are evaluated".

[redacted]

19th July 2018

Heathrow Consultation: Airspace Design Principles

Consultation response from:
Northumberland Walk Residents' Association, Richings Park, Iver, Buckinghamshire

Northumberland Walk Residents' Association contributed to the original Airspace Design Principles consultation in March 2018, via the Richings Park Residents Association. We have subsequently learned that Heathrow is holding a follow-up consultation with the Heathrow Community Noise Forum, launched on 7 June, seeking views on prioritisation of the principles. We are disappointed that this consultation is being held behind 'closed doors' and wish to have the opportunity to respond directly to any consultations that could have an impact of the quality of life and well-being of our community.

We believe the airspace principles are deficient and that the public have not been fully appraised of their meaning and impact. We gave feedback to the original consultation in March, via the Richings Park Residents Association, stating that we could not support the airspace design principles and wish to reiterate our views here that:

1. All communities should experience a steady reduction in loud noise events (metric N>65) from today's position resulting from better operating procedures and the introduction of less noisy planes
2. No community should be exposed to more noise from aircraft than they currently experience.
3. Where high levels of noise events cannot be reduced, communities should benefit from respite for at least 50% of the time.
4. There should be a ban on any night flying between 23.00 and 06.00 hours as a minimum1.

We are disappointed with the lack of transparency around this whole process and that the HCNF are being 'railroaded' into prioritising the draft principles. We would expect to see a public response to the original consultation document and further engagement with the public over any subsequent decision-making. We urge you to reconsider and adopt a public, transparent and fair engagement process.

[redacted]

Heathrow Consultation Airspace Design Principles Feedback

by PLANE HELL ACTION July 27 2018

1. Minimise newly overflown v maximise sharing applies to Noise Principles B and C

People who are not currently overflown do not know what being overflown is like. Therefore, when and if they become overflown, they will surely not want any form of flight path concentration over them. Why would they? Therefore, it is wholly wrong to prioritise "minimise newly overflown" since that selected minimum will be getting concentrated overflight. The top priority should be "maximise sharing" in order that no communities or people are targeted by concentrated flight paths of any nature.

Plane Hell Action considers that many SE London communities are "newly overflown" since 2014 when adjustments were made to approaches to narrow previous wide swathes that resulted in shifts of paths over new people. The ILS join point was moved east and this inflicted more noise on many communities of SE London that had not previously noticed noise. Therefore there is justification for reverting to previous overflown areas in order to spread noise and achieve a balance with reasonable and proportionate levels of noise.

2. Routing paths over open spaces

Routing paths over open spaces is not a sensible priority where open spaces are small and contained within densely populated communities such as occurs where small parks exist within central London. Homes sit naturally on the perimeter of such spaces, that were designed exactly to provide recreation and rest for a densely packed housing stock. Now this principle of routing over parks proposes to remove outdoor amenity from such areas but making parks unpleasant to be in! Furthermore, homes around parks tend to be vernacular in architecture, Victorian, Georgian or even older, and have therefore been in existence far longer than any runway has. By selecting the open spaces for overflight, nearby homes will become blighted by noise and people who have lived there for most of their lives will not be able to sell or move away. Overflight of parks is part of the "minimise newly overflown" principle – a principle that advocates concentrated flight paths. This is totally stupid and wrong. Neither "minimise newly overflown" nor its brother principle, "route paths over open spaces", should be prioritised in application to arrivals over central London. "Maximise sharing" should be the only priority for arrivals.

There is no mention of using the very wide River Thames as an open space. This is a bizarre omission - instead of use of the river, the principles include overflight of parks – that nestle within communities. How bizarre.

3. Capacity

Airline and passenger demand must never be entitled to operate during the night, particularly the anticipated 260,000 scheduled new flights.

4. ANPS Noise Tests

It is never, never possible to put a price on health. Current noise metrics fail to give a true picture of the lived experience; quantifying health in monetary terms can only go the same route. We need noise tests such as “Can you spend time in your garden and have a conversation there?” or “If you have your windows open, can you hear the TV when it plays at a normal volume” or “Is your blood pressure raised when you hear planes – pehaps you have a permanently raised pressure due to continuous overflight?”.

5. Air Quality

Plane Hell Action challenges the statement that ‘emissions above 1000 ft do not have a significant impact on air quality’. Enough research is available to show this is not the case. Emissions contribute negatively to climate change in the form of con and chem trails.

6. Noise, Industry, Community

Flight paths that “reduce noise for local communities” do not seem to fit with the PBN model, which conversely concentrates noise over local communities. Flight paths that “reduce noise for local communities” also do not fit with the principle of “minimise newly overflown”, since any consequently newly overflown community will, by the definition of “minimise”, be imposed upon even more heavily by overhead planes. The local community that is considered to be a “minimum” one will therefore suffer an amount of noise that is not balanced or proportional.

7. Night time overflight

Yes, different principles are required for overflight at night and must be considered. Current night time procedures (0430 - 0600 and 2100 – 2330 hours) inflict noise on SE London communities that is disproportionate. With less planes landing, a closer join to the airport can be achieved within safety limits. This is a must-have for SE London that suffers a disproportionate and unbalanced amount of noise. Night flights should be banned. We challenge the statement that abolishing night flights is only in connection with the DCO process

8. Next Steps

“Engagement in recent years” does not include engagement with the Plane Hell Action group that campaigns for noise relief from overhead planes on behalf of SE London. SE London is a very densely and largely populated community (1 million), and since 2014 it has been smothered in planes travelling to Heathrow as well as to London City Airport, all at below 4000 feet. It is only this year, 2018, that a Noise Monitor has been installed in Camberwell SE5, and it is only this year that Plane Hell Action has managed to bring the noise impact of overflight on SE London to your attention. Despite overhead Heathrow-bound planes registering at typically 60 – 70 decibels, SE London is not within the noise contours used by Heathrow to model noise impacts. SE London is suffering from disproportionate overhead traffic with continuous noise for many communities while areas like Camden have been relieved of noise. This is all despite the join point to the ILS allowing much closer joins than is currently occurring. It is worth pointing out here that Plane Hell Action came about because the alternative HACAN campaign was not focussing sufficiently on the SE London problem and that HACAN advocates a solution that is not balanced, since it involves rotating PBN routes that will result in punitive noise. The HACAN solution is not desirable to the very large number of Plane

Hell Action petition signees. For too many years now, the discussion of approaches has been biased towards the West London approaches problem and therefore has not given sufficient thought to a solution that will be fair for SE London's relatively new problem. It is imperative that the Plane Hell Action campaign's request for equitable "sharing of noise", that does NOT "minimise newly overflown", but that truly shares the noise burden, is now taken on board by these design principles, and that we do NOT end up with a rotating PBN solution that will impact on the overflown disproportionately. A balanced approach is needed to disperse noise to tolerable levels.

9. Principles and their order.

Nowhere are communities prioritised; without fail industry and air passengers are considered more important than those overflown, yet those overflown endure the negative effects of air travel: particulates, sleep deprivation and no relief from either noise or particulate pollution yet the adverse effects on health are well documented and have been for very many years.

Noise is just as important, if not more so, as the currently named top 4 principles and should not be placed after them.

To elaborate on the SE London approaches problem, there is currently a join point stipulation of between 7 and 18 nautical miles. However, during westerly operations, all planes currently have joined the ILS by Vauxhall, at about 12.5 nautical miles west of LHR. Why is the distance of 7 – 12.5 nm not being used? A fair solution would be that more planes join the ILS further west than currently happens, and this proposal is currently permissible within the 7 – 18 nm range. This strategy could see the number of planes over SE London halved. This would have no impact on safety but would reduce noise for many severely affected people in SE London. This would also help to relieve the "hot-spot" problem over SE London of double overflight, when London City Airport planes approach at 2000 feet over the area - a disastrous PBN route in operation since 2016 and implemented without trials. The current approaches over SE London, vectored to the ILS and not using a the full join point range, together with approaches to LCY, means that both airports are often being approached simultaneously, resulting in a combined noise of 90 db plus 70 db for many overflown homes. Joining the LHR ILS further west would also have no impact on capacity. It would also help to fulfil the ANPS noise policy tests, since it would reduce the harmful effects that concentrated and continuous noise over SE London have, and it would spread the noise more equitably in a tolerable way.

The use of the full join point range in a proportionate manner that prevents continuous noise removes the need for the phrase "less flexibility around arrivals flight paths".

10. Operational Practices – Noise Principle A

Operational practices to reduce noise effects are welcome, such as steeper descents over areas further out, or even stepped descents so that areas further from the airport that do not benefit in any way from the airport have less impact from its noise. Currently, SE London is as noise as Brentford. Using the whole 7 – 18 nautical miles for joining the ILS, or even using GBAS curved approach technology would be helpful in mitigating noise so that less planes are concentrated over the same homes/communities. Using a more westerly join point for early morning flights seems a good option for relieving noise for many Londoners who are currently not getting any sleep due to continuous all- day long noise from 0430 - midnight.

11. Currently overflown v Not currently overflown - Noise Principles B and C

The splitting of consultation results into overflown and not overflown is a trick to achieve the kind of shared PBN implementation that Heathrow seek. Since the number of not overflown respondents is only 10% of the number of total number of respondents, their choices should not be represented as one half of respondents, which is what is happening in the results charts given. As said earlier, people who are not overflown do not understand the level of noise that they may experience if they happen to end up with concentration over their heads, and therefore sharing is overall the more sensible option and should be prioritised first. I'm sure that these respondents would agree that it is better to share than to punish.

When talking about "focus groups", the communities of SE London who are represented by Plane Hell Action were not represented within the "focus groups". As already mentioned, the HACAN campaign favours a rotated PBN system, but this will be punitive – such a system is practically currently in place currently over SE London, and people who live in SE London are more and more unhappy with this. We, the Plane Hell Action group favour spreading noise, such that continuous noise decreases to discrete noise events that are much less irritating to the bodily function and mental health than noise from consecutive planes that follow one another down the same route in sequence. We can tolerate a plane every 10 minutes, but not a plane every minute for 10 minutes. It is vital that Plane Hell Action stakeholder representation is now taken into account before SE London is turned into a network of noise sewers. It is paramount that we do NOT have to live with rotated PBN routes, aka Managed Respite, but that we DO get RELIEF where noise is discontinuous and planes are spread.

12. Predictable or Shared – Noise Principles C and E

Predictability of noise is good, but it is bad when noise is not proportional and is continuous for sustained periods of time. It would be much better to predictably know that planes will be spaced out, rather than know about continuous periods of noise. If noise events are continuous as will happen with "respite", then that is frightful for people coming home from work, taxpayers no less, who need a mental break and may even want to use their garden. What happens when people are sick in bed and continuous noise prevents mental freedom and physical recovery? What happens when students and children need to concentrate or sleep and continuous noise renders this impossible? No no no - predictability is BAD when it imposes sustained noise over people.

13. Commercial, Industrial – Noise Principle G

What constitutes a "commercial or industrial" area? Is this a shopping centre? A road roundabout? If so, then this principle is a nonsense, since just as with parks, these amenities are surrounded by homes, often homes of Victorian or older design that are not capable of withholding aircraft noise. These homes also have gardens that their inhabitants must be able to use without being drowned in plane noise. Once again, Plane Hell Action request equitable noise sharing so that no particular homes are targeted by incessant and debilitating noise due to the fact that a nearby amenity such as a shopping centre is being targeted for overflight.

14. Technology – Principle 8

Modern navigational technology should include the use of GBAS to enable curved approaches closer to the runways in order to provide noise relief for community stakeholders. PBN technology being used with a small number or rotated flight paths will impact negatively on communities, particularly communities further out, such as SE London.

AIRSPACE PRINCIPLES CONSULTATION
HEATHROW

Second Response from Richmond Heathrow Campaign
27 July 2018

INTRODUCTION

This is the second written response of the Richmond Heathrow Campaign (RHC) to the Heathrow Airport Limited (HAL) consultation titled *'Airspace Principles' January 2018, as subsequently updated in July 2018.* We refer to Heathrow's new northwest runway as NWR expansion. We ask please that our first response dated 28 March continue to be taken into account.

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.

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 recent Airports National Policy Statement.

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. The website includes RHC's first response on 28 March 2018 to HAL's consultation on airspace principles and RHC's response also on 28 March to HAL's consultation on Heathrow expansion, which contains a section on airspace and noise.

Our response takes account of a large body of information including RHC reports on its website and in particular the following third party reports:

1. *HAL Airspace Principles Consultation Document, January 2018,*
2. *HAL Preliminary Technical Overview on Network Air Traffic Management (ATM) Issues and Constraints, January 2018.*
3. *HAL Heathrow Expansion Stage 1A Define – Design principles, July 2018*
4. *CAA Draft Airspace Modernisation Strategy CAP 1690, July 2018*
5. *CAA Airspace Design Process CAP 1616, December 2017*
6. *CAA Airspace Change Process Ref: ACP 2017-43*
7. *DfT Assessing Noise Impacts during Airspace changes IA DfT00392*
8. *DfT Airspace Policy, October 2017*
9. *DfT Air Navigation Guidance, October 2017*
10. *DfT Airports National Policy Statement, June 2018*

We have approached our response on a societal basis rather that what is best for RHC although at some point any differences will need to be recognised.

The CAA's Airspace Change Process contains a number of stages with gateways whereby the CAA is required to sign-off each stage before moving to the next stage (the sign-off is not an approval of the

merits but a check on the process). HAL has divided their flight path design into three stages – design principles, design envelopes and flight path options. Stage 1 – design principles is current with the aim of a CAA sign-off in September 2018, after which the principles are 'fixed', at least according to the last page of HAL's updated consultation (ref: #3).

Our response first deals with three Government noise objectives. We recommend a change to one of them and recommend a new community noise objective be added. We realise this is a matter for Government as well as HAL. We then examine a range of issues that we recommend be made into airspace design principles. We compare our list of design principles with those proposed by HAL and end with Next Steps.

RHC PROPOSED AIRSPACE DESIGN PRINCIPLES

1. **What is a design principle?** Appendix D of the CAA's Airspace Design Process CAP 1616 (ref #5 above) describes design principles. Appendix D says 'The design principles encompass the safety, environmental and operational criteria and the strategic policy objectives that the change sponsor seeks to achieve in developing the airspace change proposal. They take account of Government policy documents (such as the Air Navigation Guidance) and any local criteria such as section 106 planning agreements or other planning conditions, and Noise Preferential Routes or other noise abatement procedures imposed on the airport by the Secretary of State under section 78 of the Civil Aviation Act 1982 or by the Local Planning Authority.' Design Principles are subsequently used as a basis against which to assess and choose design options.

2. We treat any variable that affects the airspace design and which can be controlled to some degree by HAL or other stakeholders as a design principle. They include both objectives and constraints. The Health and Quality of Life impact (using the DfT webTAG valuation tool) brings the principles together into an Integrated Decision Framework that seeks to optimise the design outcome, which we describe later. The following is our set of principles but it may not be complete:

   - Safety (paramount) (para 8)
   - Multiple Flight Paths and Noise Distribution (number of flight paths and their position) (9)
   - Frequency of Flights (number of flights per flight path and variation through the day and year) (19)
   - Noise Respite Pattern (scheduled or otherwise including east/west mode share) (20)
   - Flight Path Separation (22)
   - Performance Based Navigation (26)
   - ICAO Balanced Approach - Reduction in Noise from Less Noisy Aircraft (27)
   - Population Growth and Housing Need (31)
   - ICAO Balanced Approach - Land Use Planning (33)
   - ICAO Balanced Approach – Operational Performance (38)
   - National Parks, Areas of Outstanding National Beauty and Tranquillity (39)
   - Night Noise (40)
   - Independent Parallel Runways and Runway Length (42)
   - Altitude Based Priorities (43)
   - Emissions (44)
   - Noise Mitigation and Compensation (45)
   - Economic Benefit and Environmental Cost (46)

3. **Design Principle Priorities**
   HAL's consultation, besides seeking a set of design principles, seeks to assign priorities to each principle. We question this approach. The design options when evaluated will result in an

overall noise impact value for each flight path and 'globally' for all flight paths. Apart from prioritising safety at all times the optimum set of flight paths will ultimately depend on the option valuations rather than prioritisation of principles.

4. **Existing Noise Objectives**. HAL's design process to date seemingly fails to start with the several relevant strategic objectives and jumps straight into the principles that should otherwise flow from the objectives. The Government's three aviation noise objectives we understand are:

    a. **To limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise.**

    b. **As a general principle, any benefits from future improvements in aircraft noise performance should be shared between the aviation industry and local communities.**

    c. **The Government wants to strike a fair balance between the negative impacts of noise and the positive economic impacts of flights.**

    Air Navigation Guidance 2017 (ref # 9) replaced an earlier version of objective (a) that said 'where possible reduce the number of people significantly affected by aircraft noise.' The significance of this revision is that the DfT's webTAG valuations replace a simple measure for the number of people affected. Air Navigation Guidance 2017 says: 'For the purpose of assessing airspace changes, the Government wishes the CAA to interpret this objective to mean that - the total adverse effects on people as a result of aviation noise should be limited and, where possible, reduced, rather than the absolute number of people in any particular noise contour. Adverse effects are considered to be those related to health and quality of life. There is no one threshold at which all individuals are considered to be significantly adversely affected by noise.'

5. **RHC's Proposed Noise Objectives.** We acknowledge and support the three Government noise objectives referred to above. But we recommend that the WHO Guidelines be incorporated into objective (a) and that there should be a new fourth objective that distributes the noise between communities.

6. **The World Health Organisation (WHO) Guidelines**
    a. The WHO initially published noise guidelines in 1980 and updated them in 1999. In 2009 night noise guidelines were published.
    b. Nearly 20 years later (10 years from the night noise update) we are bereft of any Government initiative to apply the WHO guidelines to aviation or even reasons why there has been the delay.
    c. The WHO will shortly be publishing a review of their guidelines and surely this must be an opportunity for the Government to seriously consider the recommendations we make here.
    d. The WHO guidelines are designed to protect human health (as opposed to pure annoyance). Therefore, in the context of the Government's stated objective to use webTAG, the WHO guidelines are relevant.

RHC recommends that the Government:

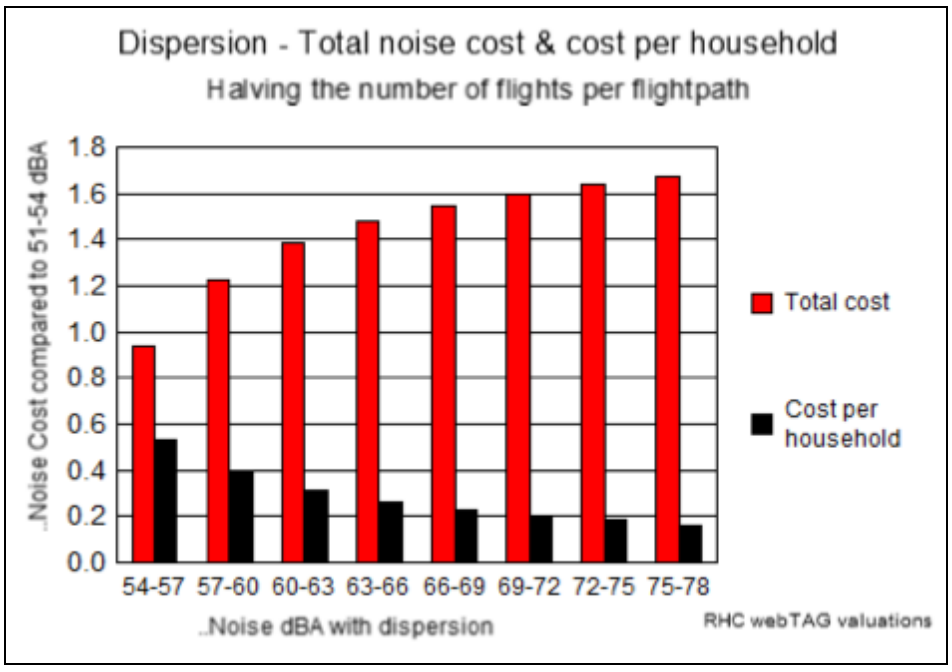
1. **Establish the legal status of the WHO guideline values,**
2. **Establish a UK strategy and timetable for reducing the levels of community noise from aircraft and from other major sources to the WHO guideline values,**
3. **Integrate the WHO guidelines with key noise objective (a) concerning reduction in adverse impacts of noise.**

7. **Proposed Community Noise Objective**
There needs to be a community noise objective that shares the noise in a fair and reasonable way.

> **RHC recommends: Where there is a reduction in overall noise the benefit be applied to those already most affected and where there is an increase in overall noise the dis-benefit be applied to those already least affected. This objective can be applied using proportionality or a sliding scale between those most and those least affected.**

8. **Safety**
Safety is paramount. We raise the question later as to whether there is sufficient airspace to accommodate the multiple flight paths need to adequately disperse the noise from a three runway Heathrow. The question also arises as to whether increasing the current 24 flight paths (arrivals and departures) to disperse the noise adds to the risk of collision not only because of inadequate aircraft separation but because of the load on aircraft computer systems and flight crews using multiple flight paths. Heathrow is visited by many crews from overseas, many of whom will use Heathrow on only few occasions and perhaps lack familiarity. Other airports have many flight paths but Heathrow's airspace is constrained by the proximity of four other London airports. Airlines are required to use standard procedures irrespective of airport, and overloading Heathrow's airspace with multiple curved flight paths may just not be feasible.

9. **Multiple Flight Paths and Noise Distribution** (number of flight paths and their position)
Applying RHC's proposed community noise objective to the design of flight paths using the webTAG tool leads to the principle of maximizing dispersion. The following chart illustrates the noise impact of dispersion.



10. The noise cost of introducing a single flight path is compared with the introduction of two flight paths. The number of flights is halved on each of the two flightpaths compared to a single flight

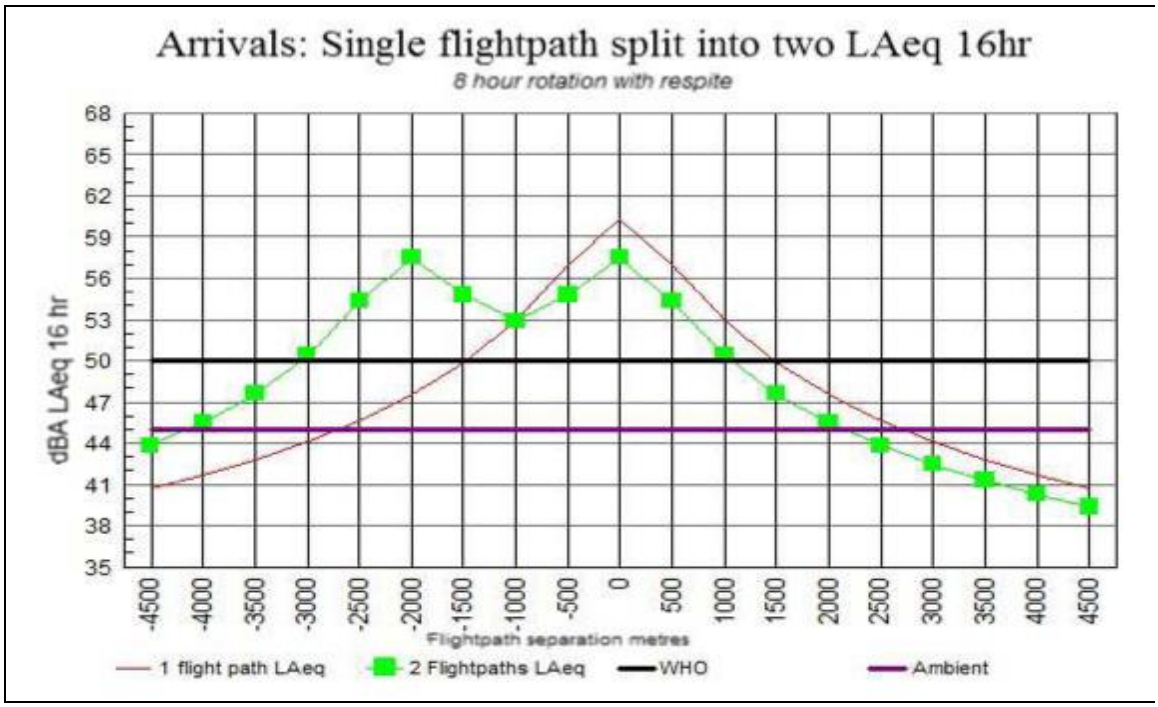
path. The noise cost is calculated for several bands of noise compared to a base 51-54 dBA level. For example:

d. **Total cost**. Where the noise level increases from 51-54 to 75-78 dBA the total noise cost in webTAG monetary terms of two flight paths is 1.7 times the noise cost of one flight path.

e. **Cost per household**. On the assumption household density is the same for one and two flight paths, the number of households doubles for two flight paths. Where the noise level increases from 51-54 to 75-78 dBA the cost per household is 0.2 times the cost for a single flight path.

11. The Community objective requires the cost per household to be minimized, which in turn supports dispersion of noise rather than concentration. We recommend dispersion as a design principle but this needs to be qualified as follows.

12. There is an exception to the support of dispersion. When there is an existing legacy noise climate and an established distribution of the population rather than a blank sheet of paper for design of all the flight paths, there is a substantial cost to dispersing the existing noise. The chart below is the vertical arrivals gate about 8 km east of Heathrow, as an example. It shows a single flight path (brown line) being divided into two flight paths (albeit overlapping) (green lines).



13. Half the flights on the existing path 1 are transferred to the new path 2. This could be by halving the flow rate or introducing scheduled respite for half the time (but see section on respite). Acoustically, reducing the number of flights by half reduces the noise level by 3 dBA. For example, directly under the flight path the ground noise level would be reduced to 58 dBA on

the existing flight path and increased from background of say 45 dBA to 58 dBA on the new flight path.

14. The following table represents the incremental benefit and dis-benefit from sub-dividing an existing flight path. The webTAG value of the reduction depends on the new noise level as in the table - ranging in a benefit between £3,500 and £7,000 per household (NPV 60 year). The noise cost from the increase ranges from zero to £24,000 (NPV 60 year) depending on the new noise level. For example, referring to the chart, the ground noise level directly under the existing flight path reduces by 3 dBA to 58 dBA with a benefit of £4,763 per household. But people directly under the new flight path would experience a dis-benefit of £7,592 per household. This exception to dispersion principle arises in the case of existing flight paths because the valuation is an incremental change rather than a total change.

Respite: Noise benefit and cost from transferring 50% of air traffic to a second flight path. Figures are normalized and are not derived from the Chart. Source: RHC

£ per household (NPV 60 yr) webTAG	Noise Benefit to existing households 3dBA reduction to new level	Noise Dis-benefit to new households Increase from 51-54dBA to new level
New level after transfer (dBLAeq 16 hr)	£ per household	£ per household
51-54	3,552	0
54-57	4,040	-3,552
57-60	4,763	-7,592
60-63	5,525	-12,356
63-66	6,301	-17,882
66-69	7,094	-24,182

15. There is a substantial noise impact cost from creating multiple flight paths from existing flight paths and we therefore recommend that the design principle for dispersion be qualified so as to support dispersion for additional flights but not as a reason to re-distribute noise from existing flight paths.

16. The above analysis suggests that in the case of airspace design principles for Heathrow, the substantial existing flight path network and resultant noise climate should not be re-distributed through dispersion. To do so would result in a substantial noise dis-benefit for newly affected people in excess of the benefit to those already affected. The additional noise from the NWR expansion should be distributed only to those newly affected and not to those already affected by the existing noise legacy of a two runway airport. In practice a black and white solution is probably not feasible and, as we said earlier in regard to the proposed community noise objective, a degree of proportionality as between those most and those least affected is probably needed and is reasonable.

RHC recommends a dispersion design principle whereby:

1. **Dispersion is sought for the additional flights from the NWR expansion,**
2. **Noise from existing flight paths is not re-distributed.**
3. **There is no increase in noise impact for those already affected by the two runway airport**

17. In view of this analysis, it is surprising and of concern that the DfT's webTAG impact assessment for the APNS was based on a substantial re-distribution of noise from those currently affected to those newly affected. Presumably, this was a result of the introduction of multiple curved flight paths to replace existing flight paths. The following two tables dissect the net noise impact of £0.6 bn in the APNS into the benefits and dis-benefits - comparing the NWR option with the Do-minimum.

18. The £2.5 bn reduction in noise costs would be welcomed by 673,784 households but most if not all of this reduction is redistributed to households who also bear a cost for increased air traffic from the NWR expansion, resulting in a total to 972,957 households experiencing an increased cost of £3.1 bn. This would surely be unacceptable to these communities. Furthermore, the re-distribution of noise from existing flight paths is contrary to the proposed community noise objective.

Comparison Between 3rd Runway and Two runway Do-Minimum webTAG values			
£mill (2010 NPV 60yr)	Decrease	Increase	Net
	£mill	£mill	£mill
Sleep Disturbance	546	-458	88
Amenity	1,598	-2,250	-652
AMI	5	-11	-6
Stroke	120	-142	-22
Dementia	181	-215	-34
Total	2,450	-3,076	-626
Source: NPS DfT 2017 and RHC Option - Minimise Total			

Comparison Between 3rd Runway and Two runway Do-Minimum in 2060 webTAG values			
Households	Decrease	Increase	Net
	Households	Households	Households
Day time	673,784	972,957	299,173
Night time	226,675	132,091	-94,584
Note: Assumes an average of 2.3 people per household			

19. **Frequency of flights** (number of flights per flight path and variation through the day and year)
The frequency of flights is a major factor in the impact of aircraft noise. It is a key input into the webTAG tool for evaluating the health and quality of life impact. While the CAA's Airspace Change Process (ref: #5) requires an estimate of the frequency of flights there is no obligation to maintain these after a change is approved, and indeed the frequencies on any flight path are decided from time to time by airlines for commercial and other reasons. A change in frequency can substantially change the health and quality of life impact. We believe this is a fundamental flaw in the airspace design process.

20. **Noise Respite Pattern** (scheduled or otherwise including east/west mode share)
In the previous section, when comparing the impact of one versus two flight paths, the webTAG analysis was conducted by halving the aircraft flow rate. In the course of day this would amount to the same total traffic compared to scheduled respite for half a day alternating on the two flight paths. Scheduled respite may have a greater health and quality of life benefit than random respite or some other pattern of respite between flights. So if dispersion includes alternating scheduled respite then the webTAG results may be less pronounced than illustrated above, but we do not believe the dispersion conclusions would change fundamentally.

21. Heathrow, the CAA and the DfT have all promoted the benefit of scheduled respite. We think this is misleading and that it should not be used in unqualified support of the NWR expansion. Scheduled respite is a form of dispersion but as we have demonstrated above, introducing respite to the existing legacy noise climate would be costly in health and quality of life terms, even if beneficial to the distribution of noise from additional NWR flights. Existing respite is valuable and should not be withdrawn. So the value of respite depends on the circumstances and can have both negative and positive values.

RHC recommends a respite design principle as follows: In so far as dispersion is desirable for new flight paths over newly affected areas scheduled respite should be sought especially near the airport. However, introducing respite to existing flight paths is likely to result in a net noise impact cost and should normally be avoided. Reduction of scheduled respite for existing flight paths should be avoided also. Since the easterly/westerly split in effect provides respite, the respite principle should require that no community should be exposed to both departure and arrival flight paths.

22. **Flight Path Separation**
The chart in paragraph 12 shows the level of separation needed at the particular flight path gate so as to avoid noise over-lap. At **50 dba the separation required is 3,000 metres**. At **45 dba, separation required is 5,500 metres**. This example is for arrivals and will be different for departures and at other noise levels, for example at different distances from the airport. If one were to draw a circumference around Heathrow with a radius of 8 km the circumference would be around 50 km which would allow for 9 flight paths if separation were to be 5,500 metres. Further away from the airport the circumference would be greater and the separation less due to the aircraft noise being less. There could be more flight paths and still achieve adequate separation. This illustrates the point, which is probably intuitive, that adequate separation is more difficult to achieve nearer the airport. Heathrow currently has 12 departure and 12 arrival flight paths.

23. There is a difference between arrivals and departures. Arrivals have to be concentrated on the final approach, whereas departure paths can be separated shortly after take-off so as to aid noise dispersal. Also, arrival flight paths have to convert the uncertain arrival times of aircraft into a steady stream for landing in order to optimise through-put of the airport. Speed changes are limited and so distance travelled is used. Improved queue management and removal of the holding stacks is a key objective for arrivals.

24. The issue of adequate flight path separation and the need to introduce new flight paths over new territory for the NWR expansion is illustrated by the charts in Annexes 1 to 6. These have been produced by an RHC airspace noise model and are for illustration only. Annex 1 shows the 12 existing departure flight paths (another 6 are not currently used because of the previous Cranford agreement). Annex 2 shows the 50 dBA footprints and Annex 3 shows the 54 dBA

footprints for these departures. We suggest the 50 dBA footprints are a preferable basis for the design. The footprints as presented are 100% concentrated footprints with no flight path dispersion. The footprints have not been acoustically combined. Unplanned dispersion, as at present, or planned dispersion using multiple PBN flight paths would widen the footprints and reduce their length. Annexes 4 to 6 illustrate the arrival flight paths in a similar manner.

25. Given, the existing flight paths as illustrated and the need we have suggested for their replication, the question is whether there is sufficient airspace for additional flight paths needed for the NWR expansion without loss of separation. Airspace capacity may be insufficient.

RHC recommends that a separation design principle should be established to maintain sufficient flight path separation and so avoid an over-lap of noise at the relevant ambient noise level or 50 dBA footprint, whichever is less.

26. **Performance Based Navigation**

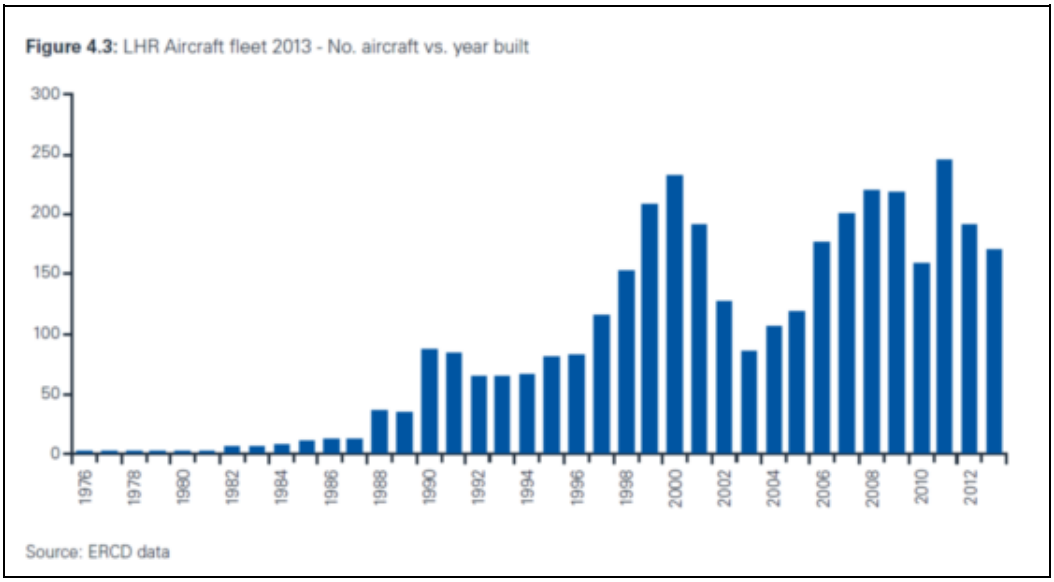
Performance Base Navigation (PBN) is a technological development that replaces costly outdated ground based navigation. PBN concentrates flight paths and hence noise unless steps are taken to re-distribute the noise. It is essential the benefits and dis-benefits be taken into account in the airspace design. Our preliminary assessment of PBN (and we provided a pilots commentary as Annex 1 to our first consultation response) is that it will result in a significant noise cost to the communities exposed to PBN. Given the tension between the legal requirements for the introduction of PBN and community opposition, it is unclear what the outcome might be but it is clear that every effort needs to be made to minimize its negative impact on communities.

RHC recommends a PBN design principle that requires there be no increase in noise concentration compared to the ground based navigation that PBN replaces.

27. **ICAO Balanced Approach - Reduction in Noise from less noisy aircraft**

Reduction in noise at source is the first priority in the ICAO's Balanced Approach. While the number and lateral position of flight paths and hence the resulting distribution of noise is clearly part of airspace design, the noise at source is a key component since it represents the noise energy that the design aims to distribute. In our view the noise at source should not just be a passive input into the design – it is a control variable and needs to be actively managed. The cost of noise impact on communities needs to be compared with the industry's costs of research and development into less noisy aircraft and the costs of introducing less noisy aircraft into the Heathrow fleet.

28. There are various estimates of future noise reduction at source and typically these are around **0.1 dba per annum**. Reduction tends to be larger on departures than on arrivals. Over the next 30 years that would amount to 3 dBA or equivalent to halving the number of flights. But there is considerable uncertainty on this issue both in terms of design remedies and the rate of fleet change. This uncertainty needs to be remedied. The chart below shows the number of Heathrow aircraft versus year built.



29. Current average life of an aircraft in Heathrow's fleet of 3,000 aircraft is around **25 years**. The airports commission assumed **25 year** life but Heathrow assumed **15 years**. The following table compares the airports commission fleet with HAL's fleet.

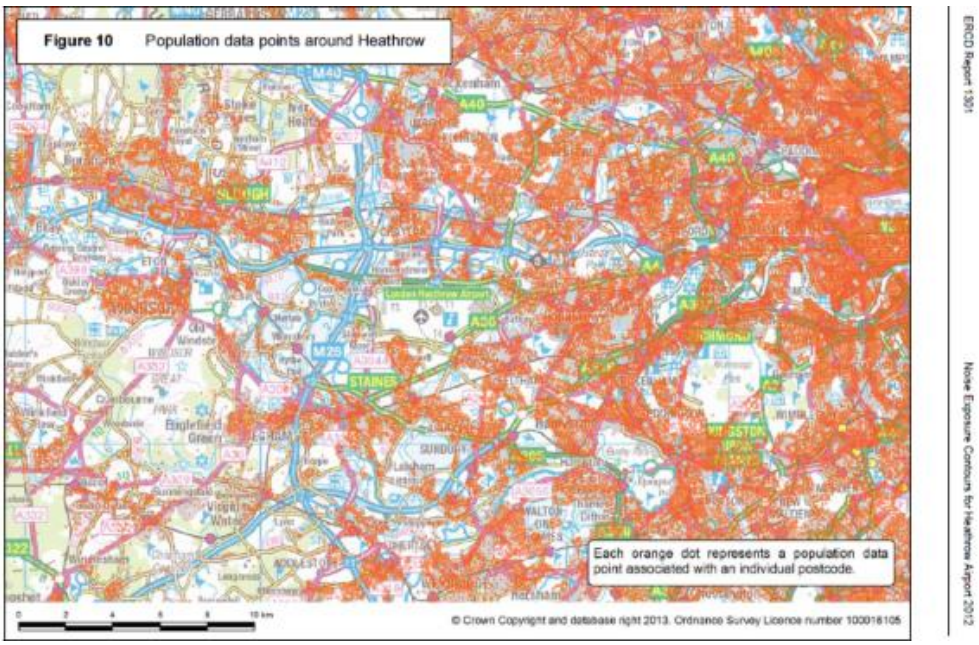
Aircraft Generation	Two runway 2030		Three runway 2030		Two runway 2040		Three runway 2040	
	HAL	AC	HAL	AC	HAL	AC	HAL	AC
Current	6%	35%	7%	32%		15%		13%
Imminent	94%	65%	93%	67%	78%	73%	80%	76%
Future	0	0	0	0	22%	12%	20%	10%
Total	100%	100%	100%	100%	100%	100%	100%	100%
Source: Heathrow fleet HAL Report Table C1, 2014; Airports Commission (AC) Aviation Noise Local Assessment Appendix A Table A2, 2014								

30. RHC has for some time sought to establish the noise impact of larger aircraft. The DfT predicts Heathrow's aircraft passenger average loads increasing from 160 today to nearly 200 passengers by 2050. While the passenger and related luggage weight are but a small proportion of total take-off weight the trend in larger aircraft seems likely to increase the noise impact by as much as 20% by 2050, which is in addition to the impact of a 50% increase in the number of flights. Larger aircraft need to be taken into account as well as the extra fuel for the increasing number and range of long-haul flights.

RHC recommends a less noisy aircraft design principle that seeks to reduce the noise at source from individual aircraft and introduce less noisy aircraft into Heathrow's fleet. The principle should also require estimates of the fleet's noise energy for the medium and longer term with plans for managing the reduction in noise.

31. **<u>Population Growth and Housing Need</u>**
This is linked to Land-use Planning in the next section. Estimated population growth between 2011 and 2050 is 37% according to the Mayor's London Infrastructure Plan, 2014. The new draft London plan requires the 35 wider-London planning authorities to target **649,340 housing completions over the ten years** from 2019/2020. A portion of these will be in the 54 dB LAeq noise contour and according to the draft London Plan, which allocates the completions to each authority, some of the highest requirements are potentially in line of new flight paths.

32. Housing demand growth is driven by many factors but the number, location and their noise mitigation can be influenced and we recommend these are considered as control variables in the airspace design and as such they require a design principle. The chart below illustrates the recent density of population in relation to Heathrow in the centre.



33. **<u>ICAO Balanced Approach – Land-use Planning</u>**
The main goal of the ICAO land-use planning is to minimize the population affected by aircraft noise by introducing land-use zoning around airports. In our view the ICAO's Land-use planning is not fit for purpose and needs to be addressed before being applied to the design principles. **The design of flight paths to avoid dense populations is not part of the ICAO land-use planning. The one-sided approach is a major deficiency of the planning process.** Also, while we understand the Land-use planning has been revised from 57 dB LAeq to 54 dB LAeq, which covers a large area of London, it still does not align with 51 dB LOEL introduced by the Government by its Airspace Policy (ref # 8 above).

34. Land-use Planning includes mitigation. We believe the polluter should pay and that HAL should ensure that all new housing, schools, hospitals, etc. exposed to aircraft noise are built with effective mitigation, such as triple glazing. Local Authorities and HAL need to work together to decide how to deal with the uncertain positioning of flight paths until these are fixed in several years' time.

35. Land-use planning also means authorities should not grant use of land exposed to aircraft noise that cannot be adequately mitigated. With the substantial demand for new housing and insufficient land, the exclusion of available land is especially controversial. Local Authorities and HAL need to work together to decide how to deal with the uncertain positioning of flight paths

until these are fixed in several years' time. Whether land can be set aside for housing and as such be taken into account when positioning flight paths is a matter that needs to be resolved.

36. There is also a matter of equity. If Heathrow is paying for new build mitigation and reserved land, then this needs to be balanced with mitigation and compensation to communities already experiencing noise and those newly affected.

37. Given the issues raised here we are not recommending any specific design principle to deal with population growth and new buildings but one needs to be developed.

38. **ICAO Balanced Approach – Operational performance**
This covers continuous descent and ascent, deployment of landing gear and use of flaps, etc. Evidence suggests that individually these operational issues do affect the generation of noise and its distribution but to a relatively small extent. In aggregate they are not unimportant but there is not the time here to expand the topic further.

39. **National Parks, Areas of Outstanding National Beauty and Tranquillity**
London's parks provide space for relaxation and enjoyment by a large number of people - both visitors and residents. The Royal Botanic Gardens, Kew, are a Unesco world heritage site. The Royal Botanic Gardens have to seek renewal of their heritage status from time to time and need to demonstrate that their "outstanding universal values" are maintained. This could be jeopardised by additional aircraft noise. **There are requirements in the London plan and local authority plans concerning no increase in noise and pollution at the Royal Botanic Gardens and other parks.** "Quiet areas" need to be addressed. "Tranquillity" needs to be addressed. WebTAG monetary values need to be established for the noise impact on people using parks. We have not had time to fully respond on these issues.

RHC recommends a parks design principle that requires there be no increase in noise over Royal Botanic Gardens, Kew, Richmond Park, Old Deer Park and other London parks.

40. **Night Noise**
HAL excludes Night Noise from its design principles saying the subject of a ban it is not part of the Airspace Change Process but a matter for the DCO planning permission. We do not believe a night time ban should be a trade-off with a 3rd runway but should happen anyway. We are especially concerned that a 6 ½ hour ban leaves open the question of the shoulder periods. The current mixed mode operation in the 6am to 7am period is an issue and the failure to rotate or properly manage this period is of considerable concern. We therefore believe consideration should be given to including Night Flights from 11pm to 7am in the CAA's Airspace Change Process.

41. Night noise is a major issue for communities. The commission recommended a ban of 6 ½ hours between 11pm and 7am with exact timing to be agreed but the airlines are not supportive.
    a. WHO recommends 8 hours sleep,
    b. RHC believes there should be an 8 hour ban between 11pm and 7am.
    c. RHC has made the case to the DfT in the past, that an 8 hour ban would not have negative operational or economic impact,
    d. RHC is especially concerned that a ban as proposed would not protect communities from a substantial increase in flights and hence noise in the early morning shoulder period, 6-7am, which would be wholly unacceptable. At the very least there should be no increase in flights in this shoulder period.

RHC recommends a night noise design principle that bans all scheduled flights between 11pm and 7am by May 2021. In the interim period there should be no increase in Heathrow flights in the early morning shoulder period 6-7am and mixed mode (TEAM) in this period should be re-assessed to reduce the noise impact.

42. **Independent Parallel Runways and Runway Length**

HAL's consultation on airport expansion raised the question of a runway shorter than **3,500 metres**. It is essential that all three Heathrow runways and related airport layout are capable of handling large aircraft. An unequal allocation of large aircraft to one or other of the three runways would have a material impact on airspace design and noise impact. Heathrow are considering an increase in 25,000 flights per annum ahead of first flight from the NWR. This will involve mixed mode and we strongly oppose any increase and loss of respite.

RHC recommends two operational design principles that:
(1) Require the NWR to be at least 3,500 metres in length and as far as possible, for the mix of aircraft (heavies, etc.) to be spread evenly by type across the three runways.
(2) Require there be no mixed mode or any increase in the number of scheduled flights over and above 480,000 per annum in segregated mode prior to first flight from the NWR.

43. **Altitude Based Priorities**

Annex 7 illustrates a two runway Heathrow and Brookmans departures on westerlies. The black line is the 50 dBA footprint and blue line is the 57 dBA contour. The footprint for a single event and the average hourly footprint assuming 9 flights an hour are shown in separate charts. Since there is no departure respite, the hourly footprint would be matched a by a daily footprint which is therefore not shown. The annual footprint is not shown either but would be slightly smaller on account of the east/west modes.

Air Navigation Guidance 2017 says 'in the airspace at or **above 4,000 feet to below 7,000 feet**, the environmental priority should continue to be minimising the impact of aviation noise in a manner consistent with the Government's overall policy on aviation noise, unless the CAA is satisfied that the evidence presented by the sponsor demonstrates this would disproportionately increase CO2 emissions.'

The noise/height chart in Annex 7 is constructed from footprints for Brookmans Park. It illustrates the noise level versus height for a single event, hourly and annual LAeq average. While emissions between 4,000 and 7,000 feet have now been removed as a priority, we believe that 7,000 feet noise ceiling should be increased. People are impacted by noise above 7,000 feet and more so if an event metric were included such as N70.

RHC recommends an altitude design principle that establishes the Altitude Based Priority ceiling as [9,000] feet. We have not fully appraised the height sought so this is a provisional estimate.

44. **Emissions**

There is a trade-off between a flight path's noise and emissions of CO2 and NOX. There is also a trade-off between noise and emissions in the design of aircraft. We believe these trade-offs can be quantified and decisions made based on the relative impacts. The balance does not have to be struck for each and every flight path provided it is optimized for Heathrow as a whole.

RHC recommends a design principle that optimises the quantitative impacts of noise and emissions for each flight path where possible but also as a "global optimization" for Heathrow as a whole.

45. **Noise Mitigation and Compensation**
We referred to these factors in discussing land-use planning. Our view is that they do not adequately compensate for aircraft noise but nevertheless they involve a cost to Heathrow and a benefit to the communities so should be taken into account as a design principle. We have not defined here what that might be.

46. **Economic Benefit and Environmental Cost**
There is a balance between economic benefit and environmental cost. The balance can be quantified. RHC believes that there is no need for any more runways in the UK or increase in Heathrow flights and that the NWR harms the UK aviation market. So when we consider the noise increase from the NWR, we find it difficult to accept an increase in noise, given this premise, and more specifically given the fact that 23% of the additional demand is cannibalised from other UK airports, thus concentrating the noise over Heathrow and 37% of the additional demand is from international-to-international transfers of no value to the UK. In other words 60% of the additional noise from the NWR expansion is unnecessary. Heathrow, the airlines, CAA and the Government no doubt believe there is a more positive economic benefit. It is for this reason that we include here in Annex 8 our assessment of the NWR economics so that at least other stakeholders can see how we balance the economics and environmental cost.

47. **Conditions**
The airspace design needs to abide by a variety of international, national and local laws including those relating to air quality. We have not detailed these here but there are a particular set of noise conditions that have been established by the APNS.

- Avoid significant adverse impacts on health and quality of life from noise,
- Mitigate and minimise adverse impacts on health and quality of life from noise, and
- Where possible, contribute to improvements to health and quality of life.

These conditions do not place a cap on the overall noise generated or concentration of noise. Neither is there a maximum limit placed on the number of flights nor passengers, unlike the current limit of 480,000 flights per annum in segregated mode and limits at other airports. Conversely the APNS requires there to be a minimum of 740,000 flights per annum.

48. RHC believes it is essential that the development of noise envelopes places some limits on the noise generated and its distribution and where appropriate the origins of the noise such as the number and timing of flights. Not only are communities being exposed to more noise from expansion but potentially an unlimited increase. For example, Heathrow could increase the number of flights above 740,000 per annum.

49. **Integrated Decision Framework**
RHC has constructed a framework to bring together the several design principles and stakeholder interests. This is shown in Annex 9. Broadly it is based on using webTAG values, although the ones shown are for illustration only. The aim is to seek a sharing of costs and benefits that at least the several stakeholders understand even if they disagree with the outcome.

50. For example, the illustration shows a community net noise benefit by 2050 of £0.35 bn, an emissions cost of £0.5 bn and an industry/passenger benefit of £5.75 bn. The community noise benefit is derived from less noisy aircraft and airspace modernisation, offset by the increase in the number of aircraft from the NWR expansion and an adjustment for population growth. The industry/passenger benefit is from the increased flights, reduced delays from modernisation, offset by the cost of design and development of less noisy aircraft and fleet replacement. The community net benefit of £0.35 bn comprises a benefit to existing legacy population of £3.5 bn, offset by a noise cost to newly affected communities of £1.25 bn and to population growth of £1.9 bn. It must be stressed these figures should not be regarded as indicative forecasts and are only provided to illustrate how an integrated decision framework might work.

HAL'S PROPOSED AIRSPACE DESIGN PRINCIPLES

51. HAL's Consultation 1, closed 28 March 2018
    The Consultation very briefly describes four noise design principles:

- Principle 1: Minimise total number of people overflown (A), minimise number of people newly overflown (B) or share routes over a wider area (C),
- Principle 2: Prioritise urban (A) or rural areas (B),
- Principle 3: Prioritise urban (residential and commercial) (A) or parks in urban areas (B)
- Principle 4: Prioritise noise reduction (A) or fuel and emissions (B).

    It also proposed new technology and innovation as Principle 5 and questioned in Principle 6 whether the same design principles should apply to day and night.

52. A summary of some of the results of this consultation were reported by HAL in July (ref # 3) and the design principles morphed into 19 design principles, which we have included here as Annex 10. It is difficult to determine the priorities HAL is proposing and indeed the six principles relating to distribution of noise (5B to 5G) seem to be a revised Principal 1, but it is difficult to understand exactly what is proposed. The three Principles 5G to 5I seem to be revised Principles 2 and 3. There seems to be considerable contradictions between the principles. For example, 'minimise newly overflown' contradicts 'prioritise rural over urban'. Also, seeking to fly over Richmond Park would probably require flying over urban Richmond. We find HAL's proposed design principles confusing.

53. The consultation was probably treated by most consultees as requiring personal preferences and not an optimisation of the societal impact of noise. People would have sought to select an option that they thought would have the least noise impact on themselves. For example, those not currently affected by noise would likely choose an option that means no noise over newly affected. Those trying to choose between concentration and dispersion had to guess whether concentration would be over someone else, which would meet their personal objective, or over themselves which would not. To a large extent, respondents would have had to guess how Principle 1 options satisfied their personal objective of minimising noise.

54. HAL's four principles are meaningless without a guiding objective that distributes the noise impact in a fair and reasonable way, and here we mean in terms of health and quality of life and not just based on population numbers. Given that the Air Navigation Guidance 2017 (ref #8) and Airspace Policy 2017 (ref #7) very clearly introduce the need to take account of the impact, it is surprising the HAL principles ignore the Government's revised objectives and still rely on population numbers.

COMPARISON OF RHC AND HAL APPROCHES TO AIRSPACE DESIGN PRINCIPLES

55. We believe it is impossible to design the airspace without adding a new community noise objective, as we have done. We have then gone on to structure the distribution of noise using the objective of minimising the impact on health and quality of life. This provides a societal outcome that can be optimised across Heathrow's airspace as well as for individual flight paths. HAL's approach of relying on population numbers and a questionable survey to support the approach, we believe will not achieve a fair and reasonable distribution of noise. The outcomes of our provisional assessment discussed in this response are quite the opposite to the conclusions being offered by HAL. For example, HAL, seeks to minimise newly affected. We disagree, otherwise those currently affected will be burdened with the additional noise from the NWR expansion, which in our view is inequitable.

56. We have cross-referenced HAL's design principles in Annex 10 with our proposed principles discussed here. However, we have added a number of principles that deal with the ICAO's Balanced Approach and other matters, which are not dealt with by HAL.

57. We have also suggested a framework for integrating the several variables into a decision framework that impacts each of the stakeholders. We believe the design needs this comprehensive approach but this is not provided by HAL.

58. The prioritisation of principles very much depends on whether there is reducing noise energy or increasing noise energy and therefore it depends on whether there are two or three runways.

59. We said in the introduction that that we do not believe more UK runway capacity is needed. In contrast, FAS and its proposed update aim to increase airspace capacity, not just to improve efficiency, but to accommodate increased demand, whether or not it materialises. This is relevant because we understand that HAL's consultation on design principles starts with the premise that there will be at least 260,000 additional flights from the NWR expansion. Moreover, the consultation is designed as part of the formal Airspace Change Process administered and decided upon by the CAA, and the airspace design change is described by HAL as relating to the introduction of a third runway at London Heathrow Airport.

60. While noise and other objectives may remain unchanged, their application to a two runway Heathrow involves a reduction in noise energy and to a three runway Heathrow - an increase in noise energy. The two runway and NWR expansion cases result in quite different distribution of environmental and economic costs and benefits between stakeholders. In the NWR expansion case there is the very real possibility of there being insufficient airspace and hence the introduction of a spatial constraint that significantly limits the design options. In fact, the constraint could reduce or eliminate the feasibility of the NWR expansion.

61. We respond here to the consultation on the basis that airspace design includes additional capacity for additional flights because that is premise used by HAL in its consultation and because it is embedded in FAS and its emerging update and because it is the basis for the Airspace Change decision sought from the CAA and it is a matter for the planning inspectorate when considering HAL's application for DCO planning permission. However, we believe this is a fundamentally flawed approach and that modernisation based on a two runway Heathrow should also be considered. The NWR expansion is not needed and may never happen and it may take five years to find out, by which time, airspace modernization for a two runway Heathrow would have been substantially delayed.

62. Arguably there are two proposals – modernisation and the NWR expansion and a third option

which is Do-nothing. We suggest the impact assessment should address all three options.

NEXT STEPS

63. Has there been sufficient engagement between HAL and stakeholders, including councils and communities, for stakeholders to have had the chance to make proper representation? RHC and six other community groups wrote to the CAA on 21 June 2018 saying that in their view HAL was proceeding without the necessary engagement and without communities understanding and being able to properly appraise the design principle choices presented by HAL. In particular, the results of the consultation in the spring had not been adequately published. Subsequently, HAL published reference #3 above and spoke to the subject at an HCNF meeting on 18 July and also extended by one month the deadline for responses to 27 July 2018. RHC gave a presentation to the HCNF on 18 July on the subject of Airspace Design Principles (see RHC website) but there was insufficient time for discussion. Are the community groups now in a position to fully respond? We are concerned there remain fundamental differences between HAL and ourselves and perhaps other community groups concerning the Airspace Design Principles and that these need to be resolved before HAL submits is final proposals to the CAA for sign-off of Stage 1.

64. Are the design principles 'fixed' once the CAA sign-off the Stage 1 Gateway? When asked at the HCNF meeting whether the principles would be 'fixed', we believe HAL said they could be iterative. We understand that when applying the principles their priorities can change. In this response we propose some changes to the airspace noise objectives and principles and if consideration of these were deferred to the CAA Strategy later in 2018 (ref #4 above) or to the emerging update of the DfT's Aviation Policy Framework later in 2018, and therefore not included in the Heathrow modernisation now being considered, this would be unacceptable. The DfT, CAA and HAL need to clarify the situation.

65. HAL aims to consult further on airspace design in 2019 and 2021 before submitting final flight path proposals to the CAA in 2022 for a CAA decision in 2023. Meanwhile the DCO examination considers the flight path impact. To this end Heathrow aims to launch its stage two consultation on a preferred masterplan for a 3rd runway around the end of 2018. The aim is for the masterplan to be submitted to the planning inspectorate early in 2020 for their recommendation. The Secretary of State will be required to decide whether to grant planning permission within 12 months of submission – say by early 2021. But this is before the completion of the flight path design and therefore the DCO planning decision will have to be based on estimates. From our perspective this is an unacceptable process.

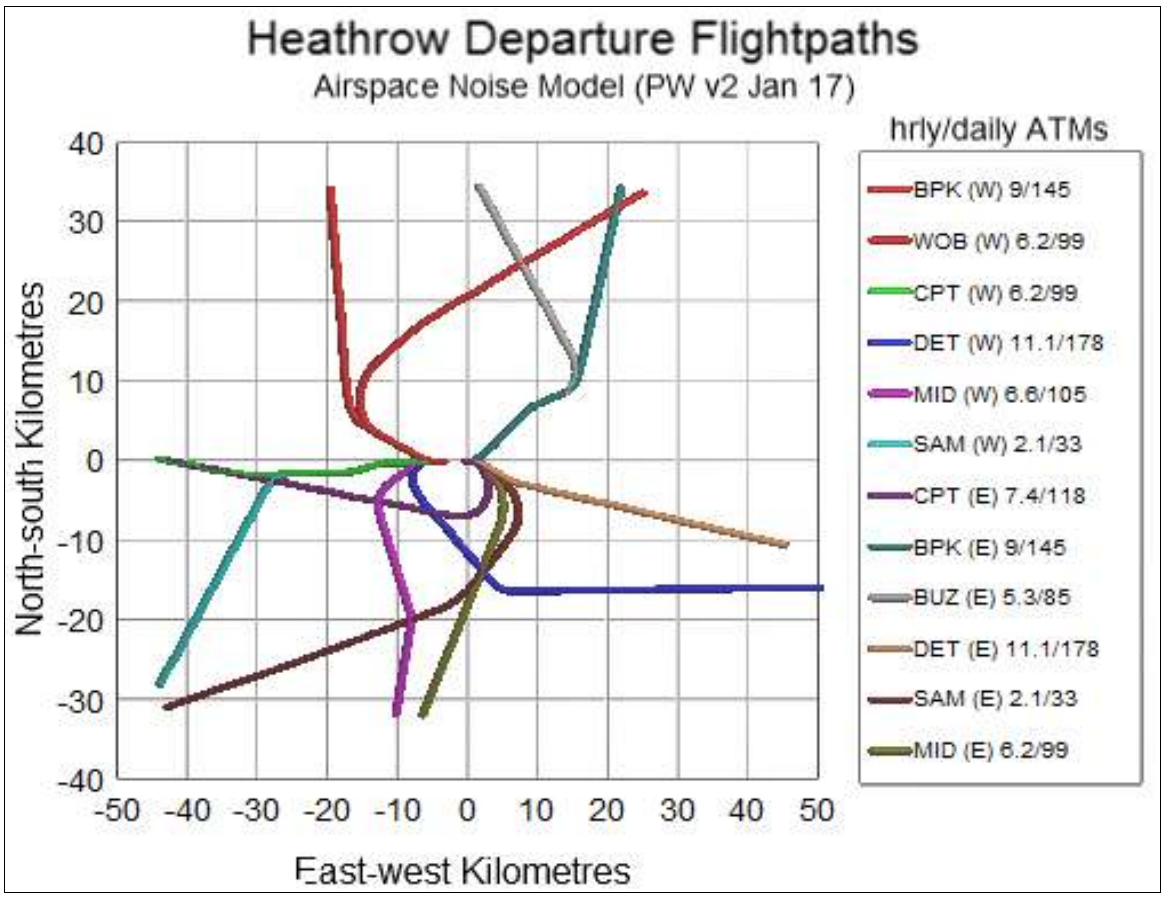
66. The views expressed in this report are those of Richmond Heathrow Campaign and not necessarily those of other community groups. The comments are without prejudice and RHC reserves the right to change them in the future.

[redacted]

Annexes 1-10

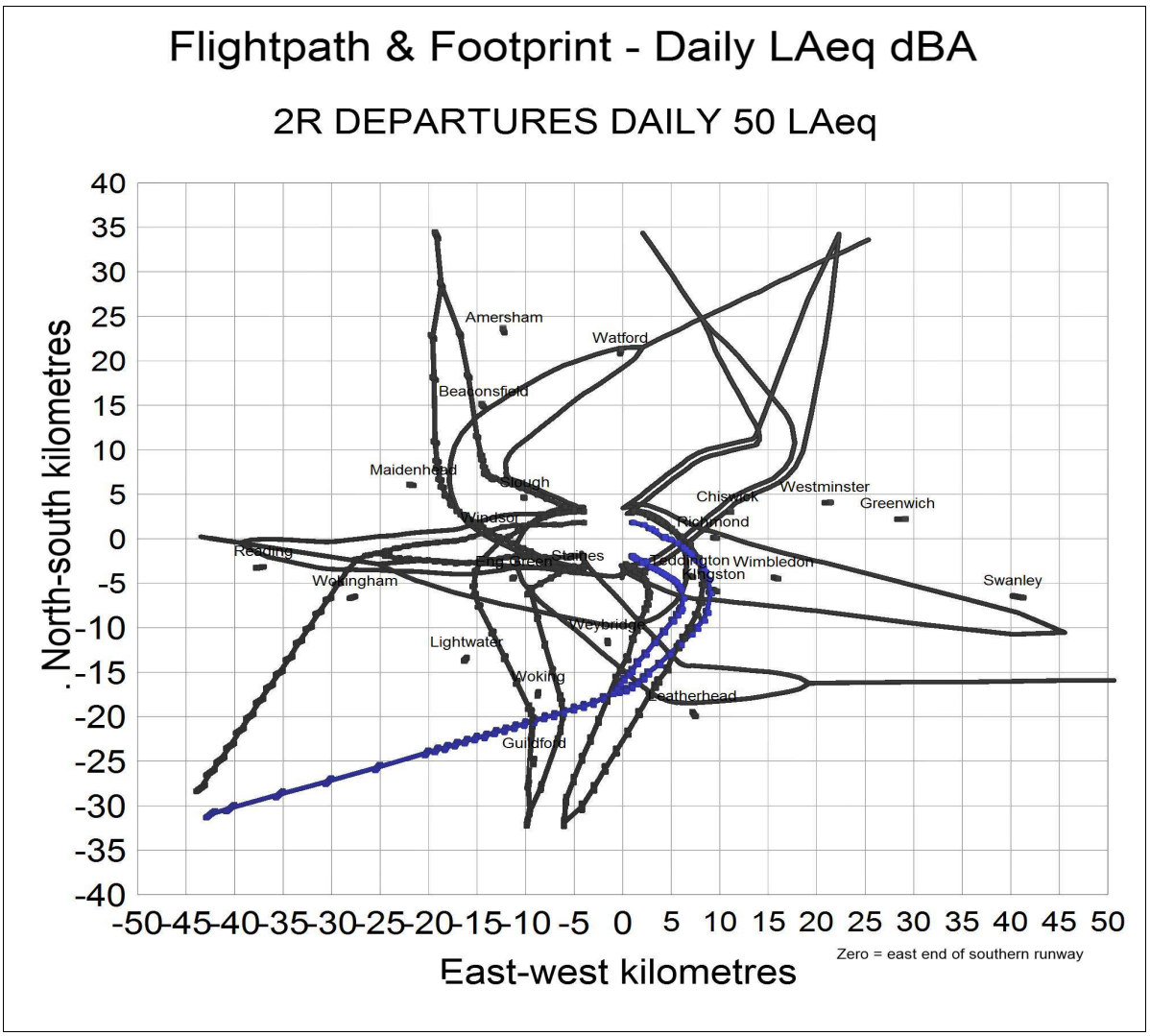
ANNEX 1

EXISTING DEPARTURE FLIGHTPATHS



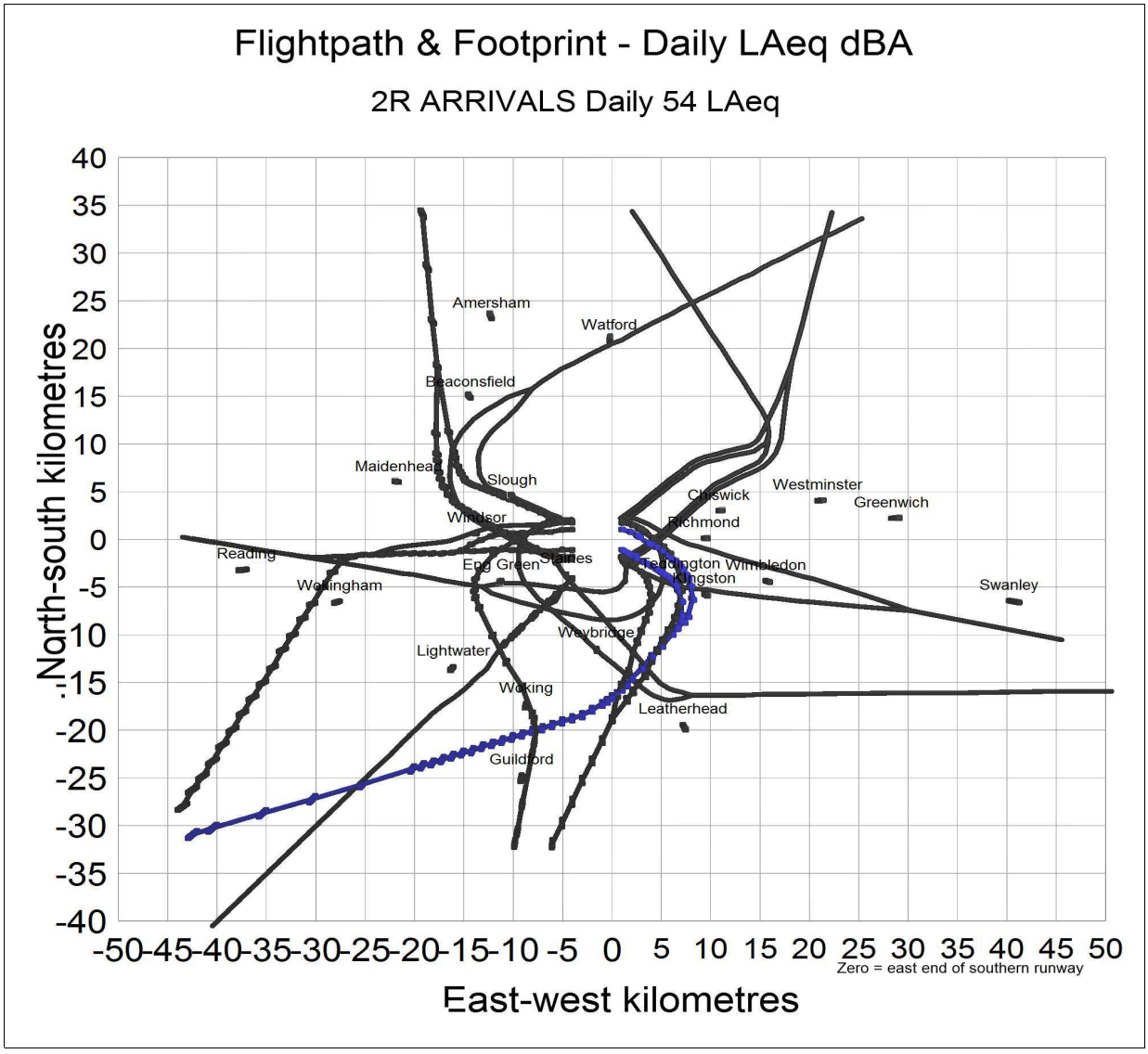
ANNEX 2

EXISTING DEPARTURE FLIGHTPATH DAILY 50 dBA FOOTPRINTS
100% CONCENTRATED FOOTPRINTS
FOOTPRINTS NOT ACOUSTICALLY COMBINED
FOR ILLUSTRATION ONLY



ANNEX 3

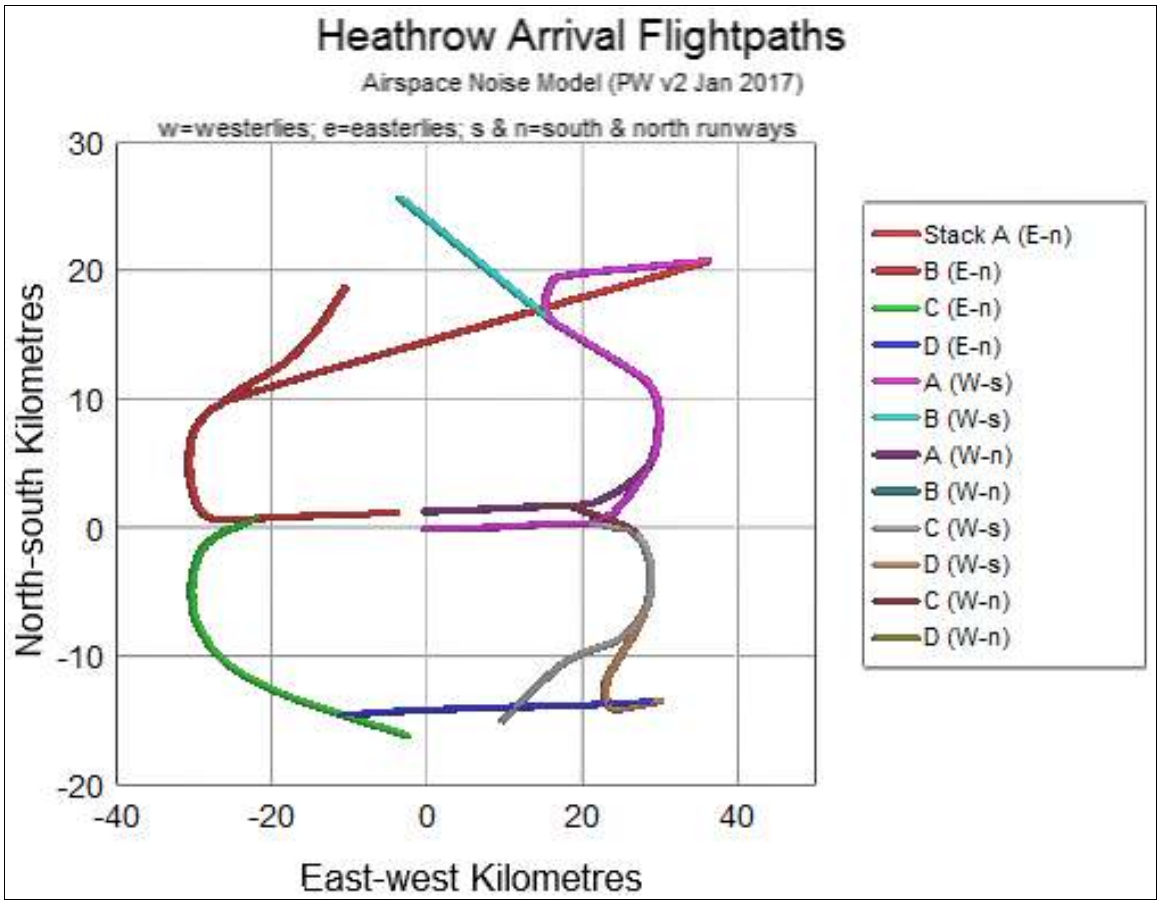
EXISTING DEPARTURE FLIGHTPATH DAILY 54 dBA FOOTPRINTS
100% CONCENTRATED FOOTPRINTS
FOOTPRINTS NOT ACOUSTICALLY COMBINED
FOR ILLUSTRATION ONLY



Note: the heading in the chart reads ‘2R Arrivals’ - it should read ‘2R Departures’

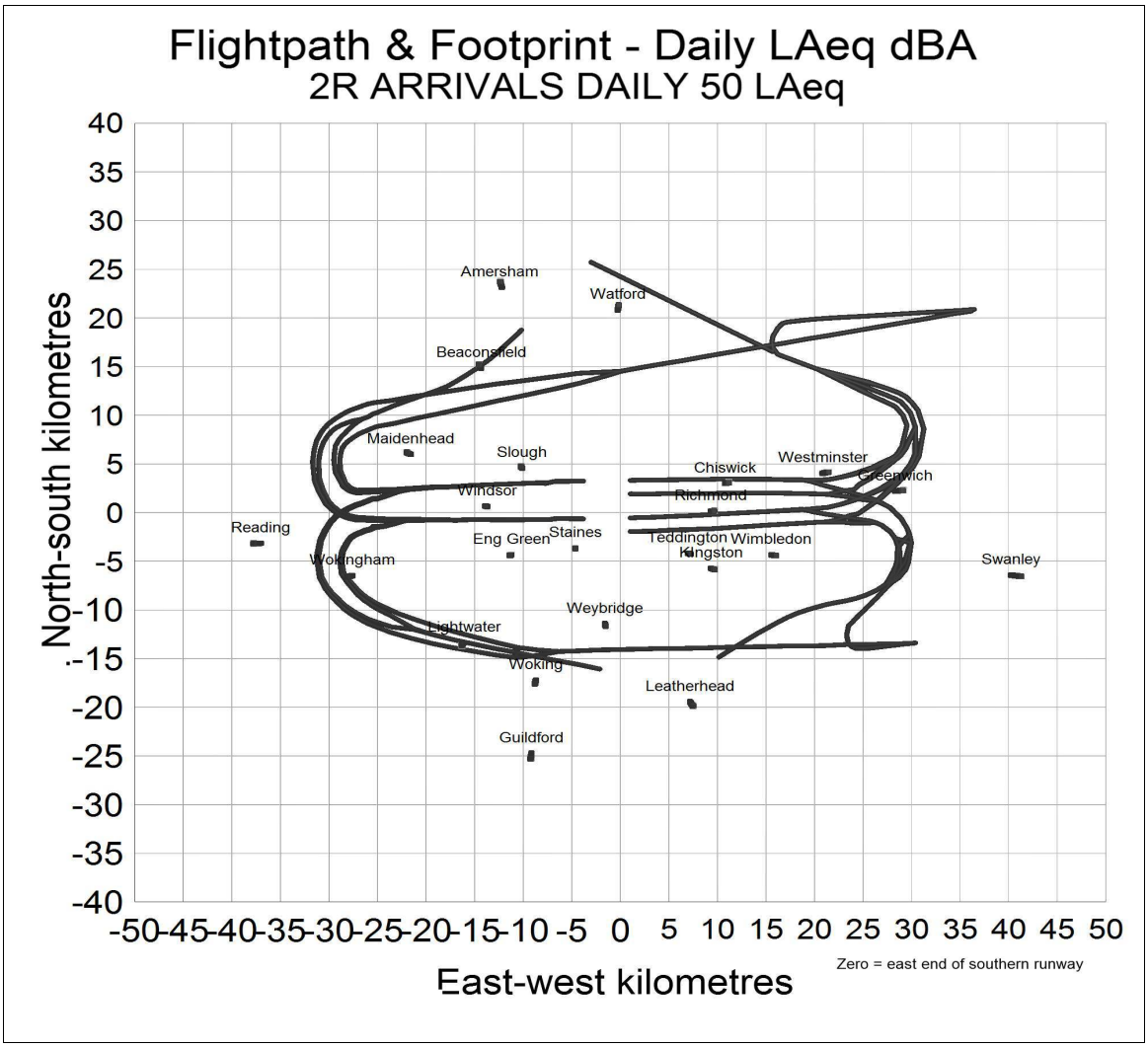
ANNEX 4

EXISTING ARRIVAL FLIGHTPATHS



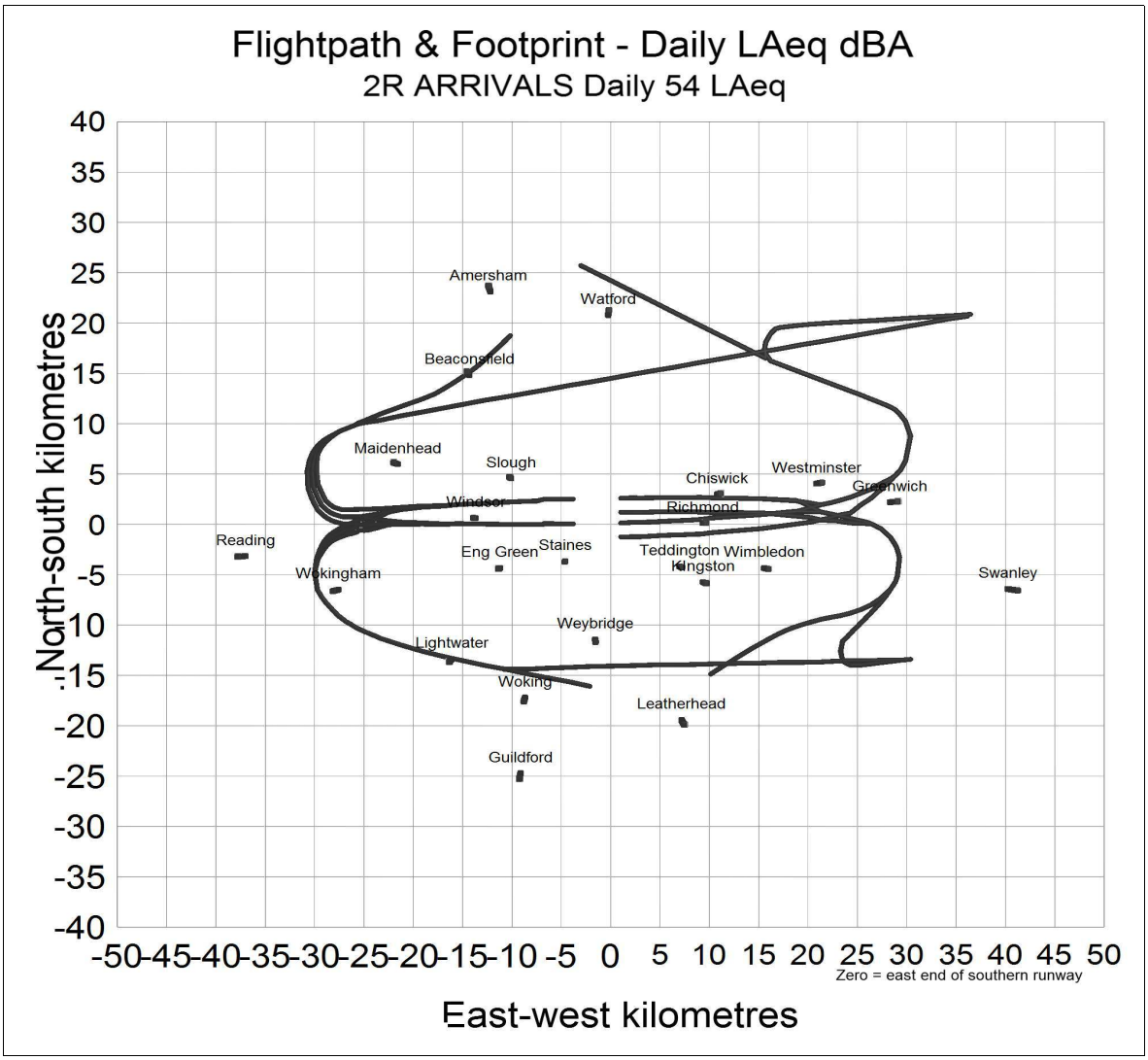
ANNEX 5

EXISTING ARRIVAL FLIGHTPATH DAILY 50 dBA FOOTPRINTS
100% CONCENTRATED FOOTPRINTS
FOOTPRINTS NOT ACOUSTICALLY COMBINED
FOR ILLUSTRATION ONLY



ANNEX 6

EXISTING DEPARTURE FLIGHTPATH DAILY 54 dBA FOOTPRINTS
100% CONCENTRATED FOOTPRINTS
FOOTPRINTS NOT ACOUSTICALLY COMBINED
FOR ILLUSTRATION ONLY

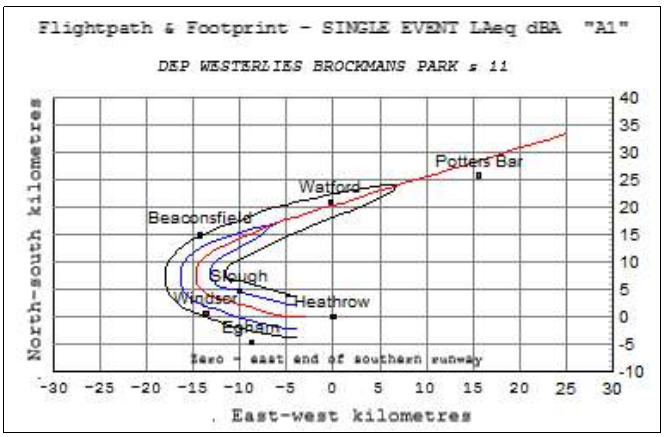


ANNEX 7

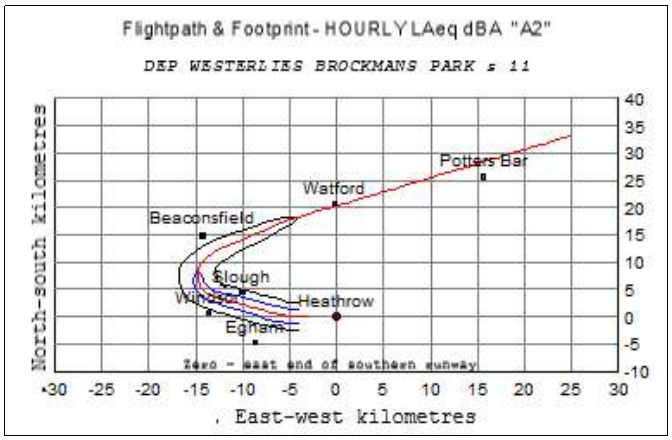
ALTITUDE BASED PRIORITIES

Charts are for two runway Heathrow - Brookmans departures on westerlies.

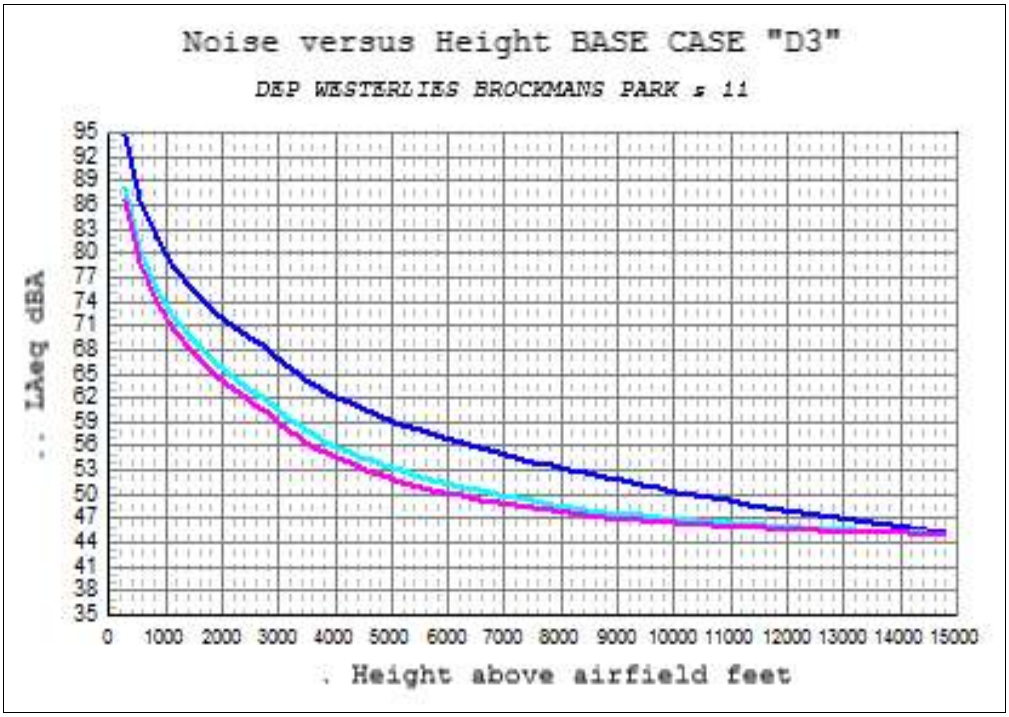
Black is 50 dBA footprint and blue is 57 dBA contour.



SINGLE EVENT



HOURLY (9 ATMS)



Blue: single event
Turqoise: hourly
Pink:annual

ANNEX 8

3RD RUNWAY IMPACT ON UK AS AN AVIATION HUB (Slide 20)
THE FOLLOWING IS DFT EVIDENCE

Without a 3rd runway:

- The number of passengers terminating their journey at Heathrow grows by 60% by 2050 ***Heathrow is not full***.

- UK spare capacity is equivalent to 6 runways in 2050. ***UK capacity is well able to satisfy demand through to 2050.***

With a 3rd runway:

- No additional long-haul or domestic business passenger are served at the UK level. ***Economic benefit from additional business travel is non-existent.***

- The 43 million additional passengers a year comprise - 17 million cannibalised growth from other UK airports and 16 million international-to-international transfers of no value to the UK. Only 10 million additional mostly short-haul terminating passengers are served. ***A 3rd runway harms the UK regional economic balance and is inefficient use of capacity.***

- There are no additional destinations from the UK and frequency of flights at other UK airports is reduced. ***UK connectivity is impaired***.

- International-to-international transfers use 37% of additional runway capacity and 94% of the UK's additional long-haul capacity. Only 300,000 out of 24 million annual transfers are on thin routes and are insufficient to support otherwise unviable thin routes. ***Heathrow's international transfers provide no UK value and should be replaced by passengers terminating their journeys in the UK.***

- **There is a substantial dis-benefit to the UK aviation market**

ANNEX 9

INTEGRATED DECISION FRAMEWORK (PAGE 1)

FRAMEWORK FOR HEATHROW EXPANSION, NOISE REDUCTION AND NOISE DISPERSION							
£ Billion (2018 money NPV 60 yrs) valuations Minus sign means cost or dis-benefit; Positive sign means benefit	Date	Community Noise				Carbon & NOX	Industry/ passenger
		Noise Total	Existing legacy population	Newly exposed	Population growth		
Population exposed >50 dBA 2018			1,000,000	500,000	0		
Population exposed >50 dBA 2050			550,000	275,000	150,000		
Current costs/benefits	2018	-£9bn	-£9bn	£0bn	£0bn	?	?
Incremental Change:		£bn	£bn	£bn	£bn	£bn	£bn
Modernisation: No increase in capacity	2024	1	1			1	2
Population growth	2018-2050	-2			-2	-0.25	
Less noisy aircraft	2018-2050	3	2.5		0.5		-1
Do-Minimum 2R	***2050***	***2***	***3.5***	***0***	***-1.5***	***0.75***	***1***
Expansion	2026-2050	-2		-1.5	-0.5	-2.0	5
Modernisation: Increase in capacity	2025	0	0	0	0	0.75	0.25
Less noisy aircraft	2025-2050	0.35	0	0.25	0.1		-0.5
Noise mitigation		‘+					‘-
Noise compensation		‘+					‘-
Noise costs with 3R	***2050***	***0.35***	***3.5***	***-1.25***	***-1.9***		
Carbon & NOX costs with 3R						***-0.5***	
Aviation Industry net benefit with 3R							***5.75***
THE FIGURES ARE FOR ILLUSTRATION ONLY							

ANNEX 10

HAL's Design Principles July 2018

Reference	Principle	Priority	RHC Comment para
1	Must be Safe		8
2	Must meet the APNS Capacity Requirements		47, 48
3	Must meet the APNS 3 Noise Policy Tests • Avoid significant adverse impacts on health and quality of life from noise • Mitigate and minimise adverse impacts on health and quality of life from noise, and • Where possible, contribute to improvements to health and quality of life.		47
4	Must meet local Air Quality requirements		47
5	*Should Minimise Local Noise Effects from Flights*		
5A	Use more Efficient Operational Practices		38
5B	Minimize Number of People Newly Overflown		7, 9-18, 20-21, 39
5C	Maximise Sharing through Predictable Noise Respite		7, 9-18, 20-21, 39
5D	Avoid Overflying Communities with Multiple Routes		21
5E	Maximise Sharing through Dispersal		7, 9-18, 20-21, 39
5F	Minimise Total Population Overflown		7, 9-18, 20-21, 39
5G	Design Flight Paths over Commercial and Industrial Areas		
5H	Prioritise Routing Flight Paths over Rural Areas (Rather than over Urban Areas)		
5I	Prioritise Routing Flight Paths over Parks and Open Spaces (Rather than over Surrounding Residential Areas)		39
5J	Prioritise Routing Flight Paths that reduce Aircraft Noise for Local Communities over those that reduce Fuel Burn and Emissions		44
6	Minimise Fuel/CO2/Greenhouse Gases		44
7	Ensure Operational Efficiency to Maximise Benefits to All Stakeholders		8
8	Be Based on the Latest Navigation Technology Widely Avaialable		8, 26
9	Minimise the Impact of Heathrow's Airspace Design on other Airspace Users		8, 25
	Night Flights		40

[redacted]

www.rbwm.gov.uk
Royal Borough of Windsor & Maidenhead

24th July 2018

[redacted]
Airspace Change Principles

Many thanks for allowing me to make representations on the Airspace Design Principles Overview presented to Working Group 2 on the 7th June. I could not attend that meeting so make comment now.

Design Principles.
When community members joined industry representatives whilst working on the Compton change we tried to establish what was most important to communities and separately the Industry prioritized their needs. I cannot help thinking that this was a flawed process. Against a backdrop of a lack of understanding of the implications of the various options it was very unlikely that the community group could ever establish a consensus whereas, broadly, all sides of the industry want the same thing and prioritization was easy.

Dictionary definition of Principle.
My Oxford dictionary defines a principle as a 'fundamental truth' which is immutable. CAP 1616 states that design principles are not immutable therefore, with probably two exceptions they are not principles but just a series of issues that could, as we tried to do in the Compton exercise, form a hierarchy of priorities.

The two issues that would be generally accepted as Principles are;

- Safety
- Health

I doubt that anyone would challenge these as universal principles that can operate in all cases but in aviation, shamefully, health is not considered a principle but an issue that may be prioritized and monetarized along with all other issues.

Concerns for Airspace design.
CAP1616 states;
"some of the principles may contradict one another and some may be prioritized over others: this will be an iterative process and a qualitative one rather than a purely numerical exercise with binary answers."

This statement confirms my view that there will be a list of issues that will need to be prioritised against the backdrop of Safety being an immutable principle but all others just being issues that should be considered and prioritised.

The statement in the presentation to WG2 on the 7th June that;

Will minimise number of people newly overflown

With the corollary that;

It is sometimes impossible to avoid overflight of new areas but, where possible, we will avoid putting flight paths over those areas that are not currently regularly overflown

In a three-runway scenario that this consultation represents, if approved, there will be 50% more aircraft and 50% more noise. HAL may take the view that this proposal would avoid the public outrage that occurred during the 2014 departure trials but it would be grossly unfair. Government stated that the country would share the economic benefits of a third runway and if that is the case the country should also share the pain.

HAL should be aware that if expansion and FAS are to be acceptable to communities living around Heathrow they must consider the sub-optimization of a number of their and the industries priorities in order to disperse departing and arriving aircraft so that the number of N65 events is below the annoyance threshold.

Respite is the only option for those people who live close to the airport and options to increase that above the level included in the NPS must be considered. Respite should not be considered an option as one moves away from the airport, here the opportunities of more accurate navigation delivered by PBN need to be investigated, understood, discussed with communities and then hopefully implemented.

In a system of prioritisation there needs to be a clear understanding of the ground rules against which priorities will be compared and assessed and who will undertake this process. I would be pleased if you would provide me with the rules and the name of the organisation and people that will be making the assessment.

Yours sincerely

Stakeholder Engagement
"Heathrow Expansion Stage 1A
Define – Design Principles"

Summary of responses from Spelthorne Borough Council (SBC)

July 2018

HEATHROW EXPANSION STAGE 1A DEFINE - DESIGN PRINCIPLES

EMERGING THEMES FROM CONSULTATION 1

PROPOSED PRINCIPLE 1: HEATHROW'S AIRSPACE MUST BE SAFE.

SBC response:

We fully support this principle.

PROPOSED PRINCIPLE 2: HEATHROW'S AIRSPACE DESIGN MUST MEET THE ANPS CAPACITY REQUIREMENTS.

SBC response:

The ANPS states that the expansion must be taken with a firm guarantee that the airport and its airlines will be held to the very highest standard of noise performance. Also, there must be a fair balance between the negative impacts of noise and the positive impacts on flights.

Economic development must not be given more advantageous consideration over the impacts of noise and other pollution. The design of airspace must achieve a balanced approach between maximising capacity and the health and wellbeing of communities living close to the airport.

PROPOSED PRINCIPLE 3: HEATHROW'S AIRSPACE MUST MEET THE 3 ANPS NOISE POLICY TESTS.

SBC response:

We are in full support of these policy objectives with the expectation that in seeking to achieve them HAL (Heathrow Airport Limited) fully grasps "the distinction between 'quality of life' effects and 'health' effects and recognises the emerging evidence of a direct effect between long-term exposure to noise and the increased risk of direct health effects (NPSE, 2010[1]).

This is particularly pertinent in consideration of the recognised need for longitudinal studies into the physical and mental health effects of long-term exposure to high levels of noise. HAL must take into account the rising tide of evidence linking exposure to noise to health effects, and in doing so must take note of the direction given for the application of the 'precautionary principle' in respect of the emerging health effects (NPSE, 2010). Further, in applying the principal, HAL must mitigate noise from the Lowest Observed Adverse Effect Level (LOAEL).

[1] Noise Policy Statement for England, March 2010

PROPOSED PRINCIPLE 4: HEATHROW'S AIRSPACE MUST MEET LOCAL AIR QUALITY REQUIREMENTS.

SBC response:

We fully support this principle.

PROPOSED PRINCIPLE 5: HEATHROW'S AIRSPACE DESIGN SHOULD MINIMISE LOCAL NOISE EFFECTS FROM FLIGHTS.

SBC response:

From the information presented by HAL on the findings of their initial 'airspace design' consultation, it appears that only 1200 people responded to this consultation. Given the expanse of Heathrow's impact, it is worrying that this consultation was not successful in securing a significantly higher number of responses from the public. This raises legitimate questions about the validity of and confidence in the conclusions that can be drawn from the analysis of the results.

A bigger question also has to be asked as to whether the public has been sufficiently informed about how they might be affected in the future by the flight path changes, and more so whether people have been deprived of their rights and the opportunity to voice their opinion and participate in the decision making process, as required by the principals of the Aarhus Convention[2].

It is likely that this consultation has been overshadowed by the simultaneously run consultation on Heathrow's 3rd runway and therefore has been overlooked by the public. It is also probable that the lack of quantitative information within the 'airspace design' consultation detailing the potential noise impacts has contributed to the low public response rate.

It is difficult to accept that HAL is unable to provide quantitative information to better inform the public (and local authorities) in this consultation. HAL must make their consultation a good deal more accessible to the public to ensure their rights are adhered to, it is Spelthorne Council's opinion that the consultation should be repeated with the current deficiencies rectified.

The other aspect of the minimisation of noise effects needs to take into account is equity, particularly for those residents who live close to the airport. For years they have been exposed to high levels of aircraft and airport related noise, and over this time HAL has been working with residents to mitigate some of this noise. HAL needs to demonstrate that the introduction of an additional 25,000 flights will not take away from residents the improvements in the noise environment that have been hard won.

[2] The Aarhus Convention is a rights-based approach: the public, both in the present and in future generations, have the right to know and to live in a healthy environment

PROPOSED NOISE PRINCIPLE A: USE MORE NOISE EFFICIENT OPERATIONAL PRACTICES.

SBC response:

We fully support this principle.

PROPOSED NOISE PRINCIPLE B: MINIMISE NUMBER OF PEOPLE NEWLY OVERFLOWN.

SBC response:

The responses given to this question could have been predicted (that is: those who currently experience aircraft noise want the noise they experience to be reduced by greater dispersal of flight paths, and those who are not currently overflown want to limit the number of newly overflown properties because they do not want to be overflown. As such, it is uncertain what information has been gained from this question. It is noted however that HAL have taken on board the guidance provided in section 3 of the Air Navigation Guidance 2017.

PROPOSED NOISE PRINCIPLE C: MAXIMISE SHARING THROUGH PREDICTABLE NOISE RESPITE.

SBC response:

HAL has commissioned research on 'Respite from Aircraft Noise' which shows that residents exposed to aircraft noise '*wish to have quieter periods at the ends of the day (i.e. early mornings and late evenings)*'. As such, HAL must take the findings of this research and the subsequent field studies into the consideration in designing their flight paths, and not give greater weight to commercial influencers.

PROPOSED NOISE PRINCIPLE D: AVOID OVERFLYING COMMUNITIES WITH MULTIPLE ROUTES.

SBC response:

SBC supports the design principles that will minimise with continuous improvement, the impacts of noise on residents, communities and business. It is expected that flight path design choices will be based on evidence and backed by the provision of analyses of the options and evidencing relevant information, and in particular the impacts of noise and local air quality.

PROPOSED NOISE PRINCIPLE E: MAXIMISE SHARING THROUGH DISPERSAL.

SBC response:

SBC supports the design principles that will minimise with continuous improvement, the impacts of noise on residents, communities and business. It is expected that flight path design choices will be based on evidence and backed by the provision of analyses of the options and evidencing relevant information, and in particular the impacts of noise and local air quality.

Also see response to Night Flights question below.

PROPOSED NOISE PRINCIPLE F: MINIMISE TOTAL POPULATION OVERFLOWN.

SBC response:

SBC supports the design principles that will minimise with continuous improvement, the impacts of noise on residents, communities and business. It is expected that flight path design choices will be based on evidence and backed by the provision of analyses of the options and evidencing relevant information, and in particular the impacts of noise and local air quality.

Also see response to Night Flights question below.

PROPOSED NOISE PRINCIPLE G: DESIGN FLIGHT PATHS OVER COMMERCIAL AND INDUSTRIAL AREAS.

SBC response:

SBC supports this approach, however, HAL must ensure that insulation compensation is available to affected commercial and industrial premises.

PROPOSED NOISE PRINCIPLE H: PRIORITISE ROUTING FLIGHT PATHS OVER RURAL AREAS (RATHER THAN OVER URBAN AREAS).

SBC response:

No comment.

PROPOSED NOISE PRINCIPLE I: PRIORITISE ROUTING FLIGHT PATHS OVER PARKS AND OPEN SPACES (RATHER THAN OVER SURROUNDING RESIDENTIAL AREAS)

SBC response:

No comment.

PROPOSED NOISE PRINCIPLE J: PRIORITISE FLIGHT PATHS THAT REDUCE AIRCRAFT NOISE FOR LOCAL COMMUNITIES OVER THOSE THAT REDUCE FUEL BURN & EMISSIONS

SBC response:

SBC supports the design principals that will minimise, with continuous improvement, the impacts of noise on residents, communities and business. However, in consideration of the impacts on human health, the impacts on air quality cannot be overlooked, as such analysis of the health effects of both must be carried out and compared.

It is expected that flight path design choices will be based on evidence and backed by the provision of the analyses of the options and evidencing relevant information, and in particular the impacts of noise and local air quality.

PROPOSED PRINCIPLE 6: HEATHROW'S AIRSPACE DESIGN SHOULD MINIMISE FUEL/CO2/GREENHOUSE GASES.

SBC response:

For Proposed Principles 6, 7 and 8, the information provided on the enhancements to the operational efficiency and through the introduction of navigational systems relate to their potential to reduce air pollution through the introduction of tighter flight paths and the removal of stacking.

The cost and benefits to operators must be analysed and considered in balance with the costs and benefits to residents and the environment.

PROPOSED PRINCIPLE 7: HEATHROW'S AIRSPACE DESIGN SHOULD ENSURE OPERATIONAL EFFICIENCY TO MAXIMISE BENEFITS TO ALL STAKEHOLDERS.

SBC response:

No comment.

PROPOSED PRINCIPLE 8: HEATHROW'S AIRSPACE DESIGN SHOULD BE BASED ON THE LATEST NAVIGATION TECHNOLOGY WIDELY AVAILABLE.

SBC response:

No comment

PROPOSED PRINCIPLES: NIGHT FLIGHTS.

SBC response:

It is unclear why HAL asked questions in respect of night flight principles if it was not going to use the responses it received in considerations of the new flight path design.

It is evident from the residents 'overwhelming' response to these questions that, along with the findings of HAL's commissioned research on 'Respite from Aircraft Noise', residents exposed to aircraft noise '*wish to have quieter periods at the ends of the day (i.e. early mornings and late evenings)*' and over the night.

While it is understood that respite is an operational issue, it is not acceptable for HAL to discount this information, particularly as this information is pertinent when considering the impacts of spatial separation between flight paths for the minimisation of noise. Further, HAL has accepted that it is possible to have different flight paths at different times of the day.

HAL must reconsider their decision and not discard the findings of these questions when designing the new flight paths, especially in view of the potential higher relative risks for morbidity and mortality associated with night-time noise, which may be cumulative in the long time (CAP 1164, 2014).

There must be greater oversight and control of adherence to night time flights agreements, with higher penalties and better enforcement for infringements. The

Council has highlighted to HAL the need for better control on the various restrictions that are in place; hence, the need for better oversight, control and restrictions on noise generating airport operations especially for night flights, track-keeping and overflights.

CONCLUDING COMMENTS FROM SPELTHORNE BOROUGH COUNCIL

Spelthorne Borough Council is very concerned that the introduction of an additional 25,000 flights along with the introduction of significant flows of road traffic, proposed parking for 25,000 cars and lorries, and various other commercial activities, will significantly worsened the noise environment in which the residents of Stanwell and Stanwell Moor currently live.

For years residents living close to Heathrow have been exposed to high levels of aircraft and airport related noise, and HAL has worked with residents to mitigate some of this noise. HAL needs to urgently demonstrate that the proposed plans and flight path changes will not take away from residents the improvements that have been achieved.

Spelthorne Borough Council is also very concerned about the lack of detail and qualitative data that is being made available for this consultation (and for the consultation for the DCO process). Without data, informed choices cannot be made by the Council or the public.

Spelthorne Borough Council feels the need to highlight the poor response to this consultation and are alarmed that HAL is looking to base decisions for the next stage of their flight path design on such a low powered statistical data.

HAL is urged not to move forward to the next stage of the flight path design until these issues have been rectified.

HAL is proposing to seek an early release for 25,000 Air Traffic Movements (ATMs) for use on the existing two runways. Spelthorne Borough Council is opposed to any early release unless the impacts on residents near the airport and those overflown have been fully assessed, with any impacts minimised and mitigated, and where necessary airspace redesigned. Airspace redesign is of particular relevance in situations where impacts are already being caused by aircraft struggling to fly within the confines of the noise preferential routes or being rerouted by air traffic control, as is the case for the Compton Route[3]; in this instance the Compton route must be deleted within any airspace redesign.

[3]. The Compton route for many years has had a much lower noise and track- keeping compliance, as such, Spelt Horne Borough Council has indicated that aircraft 'climb-out' particularly on this route needs explicit assessment and a commitment towards abandoning it as it is a poorly devised low-flying and highly disruptive route.

Airspace Design Principles

TAG response to Heathrow overview of consultation and feedback

June 2018

Introduction

Heathrow has asked for further feedback on design principles and prioritisation on 13th June by 1st July. This timescale is unfair and unreasonable given the NAP consultation request for feedback by 26th June and the publication of the final airports NPS requiring detailed study and the parliamentary vote. This is indicative of a poorly structured and organised process.

The presentation given to the HCNF does not give any prioritisation of the design principles apart from the prioritisation of **noise sub principles**, so the overall context lacks clarity (for example how weightings should be applied when appraising options).

The CEO of Heathrow told the Transport Select Committee Heathrow must do everything it can to reduce noise, so reducing noise should be the highest priority principle (along with safety). He is correct as Heathrow is by far the worst performing airport in Europe, having regard to its environmental impacts.

The presentation pack proposes high prioritisation should be attached to **minimising the number of people newly overflown**. No justification is provided for reaching this conclusion, notwithstanding such an approach is discriminatory (leading to inequality in outcomes), unsupported by an evidence base in terms of minimising the adverse health and wellbeing impacts and totally opaque in terms of the responses received to the consultation undertaken by Heathrow so far and the justification for reaching this preference.

It is highly inappropriate that flight path design principles are being considered in advance of the formation of ICCAN and the commissioning of fully independent research having regard to the scale of Heathrow's current and future impacts.

Specific comments on the presentation to HCNF combined Working Group 1&2

Absence of Health Research and Quality of Life Assessment Evidence

There is no consideration of Heathrow's present noise footprint and the cost of noise on health. The lack of a Heathrow specific health impact analysis is a critical and fundamental gap in the necessary evidence base for establishing Airspace Design Principles. The same point applies to the absence of independent public attitudinal research relating to aviation noise in respect of impacts on quality of life and wellbeing.

Without knowledge of how Heathrow impacts the lives of people already living within its catchment, there is a fundamentally inadequate foundation for commencing consideration of Airspace Design Principles. This work should be commissioned as a matter of urgency and as a precursor to consideration of airspace principles. In the absence of such an understanding the design of airspace will almost certainly be responsible for causing more deaths, chronic disease and unknown impacts on quality of life, as well as blighting the lives of an enormous number of people.

Fully independent research on health and wellbeing impacts is essential. The work carried out by the CAA in its SoNA report is deficient in many respects and cannot be considered reliable as a foundation for making decisions of this magnitude. Criticisms include:

- Absence of any recent or relevant Heathrow specific health impact research.

- Conflicted position of the CAA, which is funded by the aviation industry and has responsibilities for promoting its growth. The CAA confirmed to the TSC that it is not responsible for noise, health and environmental policies.
- Proven inaccuracies in the CAA's ANCON noise model, particularly in respect of LAmax projections, making SoNA's conclusions and correlations of annoyance and metrics unreliable
- Failure in SoNA to provide a robust justification for the conclusions reached, particularly in relation to statistical analysis of the evidence gathered, and to explain inconsistencies in respect of single mode analysis (essential understanding before designing airspace usage)

It is acknowledged by both the Airports Commission (AC) and the NPS that Respite will be a critical aspect of designing future airspace. Whilst Anderson has undertaken two scoping reports (and the second reached some very important findings), no meaningful conclusions have been drawn about the necessary noise separation of flightpaths and what minimum levels of respite will be acceptable.

Without such knowledge (especially in the context of the NPS assumptions about reduced respite), there is a real danger that substantial areas of London and the South-East will become blighted and stigmatised, as a result of the adoption of inadequate and inappropriate airspace design.

This is not a minor consideration; rather it is a key factor around which (together with health and attitudinal studies) future airspace should be designed. The cost in human and property value terms if these issues are not correctly assessed will run into billions of pounds. Will Heathrow be prepared to bear the financial consequences? The airport, which is given responsibility for coming up with these strategies, should not be proceeding on the basis these burdens should fall on impacted individuals or communities?

The only way to start addressing these issues is to have a robust evidence base on which to base decision making.

Critique of the Sub Principles for Minimise Noise Effects and Proposed Prioritisation

The principles as stated in the Presentation are far too vague and unquantified. In addition to the absence of an adequate evidence base informing selection criteria, they do not present a framework – which should include considerations, weightings and thresholds - that proposals can be evaluated on a transparent basis.

Having regard to this, the Airspace Design Principles presentation document and its proposed 'sub principles' are flawed from the outset.

The whole approach seems to be a PR exercise, leaving large gaps of interpretation with 'sound bites' rather than addressing any relevant detail. It is essential that examples of real flight paths should be given such as those in the AC to demonstrate how the principles would work.

The importance of this issue – totally ignored in the consultation process and the sub principles – is illustrated by the work the AC undertook in relation to alternative flight path strategies.

The AC's analysis showed that the flight path option of minimising the number of people newly overflown – now proposed as the second highest prioritisation - led the worst outcome in terms of noise impacts. On this basis alone, it should be rejected.

This is an issue of great significance as the NPS (on which MPs voted) only reflected the AC's 'minimise total scenario'. On this assumption 'only' 92,700 net 'new people' were considered to fall within the 54 dBLAeq 'significantly annoyed' contours. This compares with approximately 250,000 net 'new people' using the proposed prioritised 'minimise newly affected' using the same basis of assessment.

Based on the prioritisation now proposed by Heathrow, in addition to Parliament being presented with a misleading picture of the noise impacts, this choice of preferred airspace strategy makes a significant negative impact on the net economic benefit of the Heathrow NW runway scheme.

A TAG paper submitted to the Aviation Minister earlier in June (attached) explains how these conclusions have been reached.

To fail to reflect the economic and human impacts of options properly in the choice of proposed sub-principles based on the AC evidence is not only perverse, it opens the way to judicial challenge.

TAG's proposed prioritisation principles

The **preferred option** (which should be reflected in the proposed prioritisation) - based on the AC's analysis and current health and public attitude - should in TAG's view be based on '**maximum respite**'. Not only does this lead to minimisation of noise (and economic) disbenefits, it also has the following positive advantages:

- It is the fairest and most equitable solution. Moreover, it is also anti-discriminatory, minimising causation of greater inequality.
- Whilst Heathrow and the aviation sector might consider it expedient to minimise newly overflown in an apparent attempt to reduce the anticipated level of public protest when a third runway is opened, in practice this will only serve to accentuate the impacts on the afflicted population, quite possibly to breaking point. The further persecution of communities that are already severely affected, without the necessary health and public attitudinal research referred to above, is likely to have unforeseen consequences and to be challenged in the courts on health and equality grounds (as has happened already in a growing number of international cases).
- The impact will be magnified by the introduction of PBN. A copy of TAG's paper presented to the HCNF on these issues, including international examples, is attached to this submission (a response has been promised by Heathrow and the DfT).
- Having regard to all these factors a maximum respite approach should be the adopted priority, as it will reflect the fact that a decision to expand Heathrow was taken by MPs to benefit the whole of UK society. On this basis, the burdens should be shared by society as equally as possible. **Not only is this the fairest approach, in the long run it is the one with the smallest health and wellbeing impacts, is most easily justifiable and for many reasons the least risky.**

Other objections TAG wishes to raise in relation to Heathrow's presentation

The overall process is lacking in many other respects:

- It was not clear that the statement of need only referred to the design of airspace for an expanded airport, many people will have answered because they thought they were addressing a 2-runway redesign. The consultation should be re-run on a clear basis.
- Airspace design is a 3-D process yet Heathrow has only consulted on principles around a 2-D approach as shown by 2-D maps in the accompanying consultation documents. Heathrow should allow comment on heights as this is a major concern to communities and sees daily comment on social media. The consultation should be re-run with an expanded set of questions e.g. if possible would you like planes to fly higher?
- Given this is probably the only major airspace design change in 40 plus years, the approach seems very limited. Innovation can drive improvements so why are only simple 2-D options being considered? For example, is it possible to enshrine a simple rule that planes must manoeuvre in different ways so that noise on the ground is minimised, lower than 60dBLAmax wherever possible and distributed on a fair and equitable basis? Have experts in the field been asked to brainstorm and get new ideas that might also be possible? What

lessons can be drawn from international examples of best practice (e.g. CDG Paris, Sydney and Schiphol)?

- Aircraft have different noise and performance characteristics; many airports have SIDS which differ by plane yet Heathrow does not see this as a relevant matter to highlight. Not surprisingly this issue does not appear in any principles but can be crucial to minimise noise against other considerations for particular aircraft types - one set of principles is therefore an inappropriate way to try and design airspace change. For example, a narrow-bodied twin engine plane could be allowed to manoeuvre sooner as it can gain altitude quicker so could have a different SID, whereas wide bodied twins and quad engine aircraft may need to continue until they have gained altitude. On this basis, these questions should be put out in a new consultation.
- Population densities are very different around the airport but this factor has not been considered. Different principles might apply for Easterly and Westerly operational modes, however has this even been considered? This should be included in a new consultation.
- Heathrow's documentation associated with the consultation, assuming a 3rd runway ever gets built, has suggested that no more people will be affected by noise than today. This is misleading as the NPS (based only on a 'minimise total' scenario) shows 92,700 more people will be affected by more noise in 2030 so more than today and 2.2m people will see increased noise if a 3rd runway is built in 2050. It is misleading only to quote net figures and Heathrow should be clear that there will be winners and losers. The consultation should be re-run without making this clear.

TAG disagrees that providing 740k ATMs at Heathrow is required for the UK to compete in international aviation. In fact, this is likely to disadvantage UK aviation as Heathrow is very high cost and any expansion would only bring minor connectivity benefits compared to the suite of London airports that exist. Business travel is not expanding (Heathrow's users are actually only 30% business, 70% leisure) whereas options to expand other airports would make UK aviation more competitive and spread wealth and freight capability around the country.

Further deficiencies in the consultation and reporting process

Heathrow's consultation on airspace principles covered (as noted earlier) the possibility of both a two or three runway airport. This itself is confusing and even misleading to the public as it reflects two completely different situations.

If the airport is not expanded it could be argued that providing no significant intensification takes place there is much greater justification for a minimise newly affected approach. Ignoring just for a moment the significant changes that have taken place over usage of existing flight paths since 2013, people who moved into an area already under a flight path might have an expectation that noise levels will remain broadly the same.

The position with a third runway is entirely different. The third runway will, by definition, involve new departure and arrival routes. New people will inevitably be affected.

It is also highly relevant to consider the **intensification of the impact** on those already affected by significant increases in overflights, **as this is where the most extreme damage will occur**. Noise relief for this group of people should be prioritised as they will be impacted to a much greater degree – and experience greater jeopardy to their health and wellbeing arising from greater numbers of overflight and aviation noise. These noise levels are already much higher than WHO recommendations. In the absence of site specific related research and public attitudinal research Heathrow, the CAA and the DfT have no idea of the potential impacts.

It is highly irresponsible to be proceeding in the way proposed, especially in the absence of knowledge of the effects, which could include very significant damage to health and wellbeing (as well as blighting extensive areas of London and the South-East as places suitable for bringing up a family).

In the light of the above Heathrow should adopt the following approach in designing future airspace. This should at all times be underpinned by an independent and robust evidence base, especially in relation to the research referred to above.

Proposed priorities in future airspace design

In terms of considering noise principles it is necessary for Heathrow, the CAA and the Government to target outcomes which should enshrine the following principles:

- **There should be an overriding objective in designing future airspace to use all reasonable endeavours to minimise health and wellbeing related impacts.** This should include an acknowledgement of WHO community noise recommendations and a commitment to work to an action plan (with progress monitored) to minimise aviation's impacts having regard to this. This should be the first ranked priority in designing airspace, with equal status to ensuring the safety of those in the air. Airspace strategies that fail to meet both tests should be discounted – as both cost lives.
- The next priority for airspace design principles should be to treat all communities on a fair and equitable basis. This reflects the principle that the benefits and burdens of aviation growth should be shared by all – rather than the discriminatory approach currently proposed.
- There should be an action plan to ensure that communities currently impacted adversely by aviation receive noise levels no greater than 2013. This should be assessed by reference to all the noise metrics now adopted by the DfT, including LAeq, Lden, N70 and N65 and single mode analysis. This should become a feature of Heathrow's Noise Action Plan and be monitored annually. This should become the fourth priority.
- All communities suffering 51dB Laeq on single mode operation should have 50% (8hrs) respite during the day, and a minimum night period respite as recommended by the TSC.
- All noisiest (mainly quad-engine aircraft) should be subject to significantly increased charges, reflecting the impacts they cause and operating as a meaningful disincentive to their future use.
- Subject to achieving the above overriding principles, any overflown community should be entitled to share the benefits of improve airplane technology on a 50-50 basis, calculated on the metrics stated above, if it is proposed that ATMs are to be increased over that community.

[redacted]

[redacted]

1st July 2018

Emerging Airspace Design Principles

TAG response to Heathrow 'Emerging Design Principles Overview' 27 July 2018

Introduction – Process Issues

TAG have already responded to the first request by Heathrow for further feedback on design principles and prioritisation made on 13th June by 1st July. This original timescale was unfair and unreasonable given the NAP consultation request for feedback by 26th June and the publication of the final airports NPS requiring detailed study and the parliamentary vote. This is indicative of a poorly structured and organised process with little concern for stakeholders with a 2-week response time. Even so TAG provided detailed feedback and identified significant process flaws such as lack of prioritisation and any data from the consultation.

Heathrow seem to have recognised this process was flawed and have issued a significantly altered information pack on 13th July but asked for feedback by 27th July again within 2 weeks and this time in the middle of the summer holiday period. Again, we make the point this is unfair and indicative of a poorly structured and organised process with little concern for stakeholders with a 2-week response time in a holiday period.

Heathrow seem to be learning on the run at the expense of the community representatives who have to collate and provide feedback on such important issues as design principles.

The information provided is still not clear and on the 16thJuly we asked for clarity on 2 points with the email in Appendix I. No response has been received by 27th of July.

Our 5-page response to the initial request still stands and the issues identified need addressing. In this 2nd feedback we identify further process issues and challenge the interpretation with the limited new information provided.

New Process Issues Emerging

In answer to a compliant letter sent by communities to the CAA about the HAL process (sent 21st June written by [redacted] and answered by [redacted] on 23rd July), the CAA have stated that;

'HAL must make clear where stakeholders have agreed the principles applied, and where principles have not been agreed, objections must be clearly attributed to relevant parties and clear rationale must be provided for the sponsor's decision in light of this feedback.

We are aware of the delay to HAL collating and publishing their Consultation Feedback Report. Once we are in receipt of it, we will publish this document, along with any associated documentation submitted by HAL, on our website prior to the scheduled 'Define' gateway meeting. We understand that HAL will publish their Consultation Feedback Report, and share it with their stakeholders, in accordance with their engagement strategy.'

Without all the consultation data affected stakeholders cannot fully consider or challenge the principles leading to a unilateral process in favour of the sponsor. It is a flawed process on this basis. The feedback given here is based on limited data.

New Issues Emerging from Prioritisation and Limited Data released

Response rates of those not presently overflown

Heathrow have distributed 2 million leaflets announcing the consultation but received only a total of response of 1834 (less than a 0.1% return rate) suggesting the consultation process has not been effective.

According to the numbers Heathrow have now published under the 'NOISE PRINCIPLE B: MINIMISE NUMBER OF PEOPLE NEWLY OVERFLOW' hidden on p26 they have only 191 responses from those not presently overflow. This represents less than **0.01%** of those consulted. This cannot be considered as representative of those who may be overflown and is a sign of a failed consultation because **people have not been told where flights paths will be.**

Conclusions drawn from only 113 people and limited consultation questions

Heathrow have then drawn a conclusion using only 113 responses (59% of the 191), that these people would prefer to have flight paths that minimise those newly overflown, this question is like asking turkeys to vote for Christmas.

The real question is a crucial follow on question which Heathrow have not consulted on - if you are one of the unlucky ones that will be impacted by new flight paths and high noise levels in the future, would you prefer to share flight paths over a wider area?

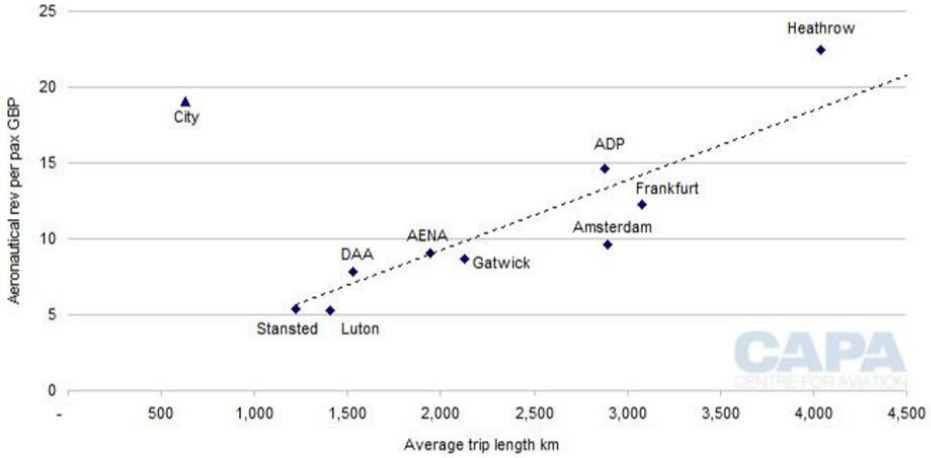
This basic and obvious question has not been asked and demonstrates a **flawed consultation**.

As stated in our first response the principle should be that flight paths should be distributed over a wider area which is now backed up by the majority of responses and data now showing it is the most preferred option preferred by a large margin.

Issues with Prioritisation of Principles - Use of misleading statements

Principle 2 - HEATHROW'S AIRSPACE DESIGN MUST MEET THE ANPS CAPACITY REQUIREMENT. The justification for this principle is incorrect and should not be the priority in redesigning airspace. The statement 'This principle is essential so that we can develop airspace that allows Heathrow and the UK to compete effectively in the international aviation market' is false. Provision of capacity at Heathrow actually increases the costs of aviation to the UK travelling public and makes the UK less competitive in the international aviation market. This is shown in data from IATA submitted to the TSC on 26th February 2018;

London airports, DAA, AENA, Groupe ADP, Frankfurt and Amsterdam: aeronautical revenue per passenger (GBP) vs average trip length 2016*



*Note: revenue per passenger based on Dec-2016 year end for Heathrow, Luton, City, DAA and AENA; Mar-2017 year end for Gatwick and Stansted; Feb-2017 year end for Southend.
Average trip length calculated as ASK divided by seats for calendar 2016.
Source: CAPA - Centre for Aviation, airport company accounts, OAG.

In fact, Heathrow will be taking, even if costs are held at today's levels, ~£15-20 more for every passenger compared with expansion at other London airports. If expansion delivers 50m pax pa it means Heathrow will receive £750mpa to £1bnpa from UK aviation. Over 60yrs this will amount to £45-60bn cash which will be stripped from the UK by Heathrow's foreign owners and totally outweigh the costs of expansion.

Use of misleading statements indicates a flawed and biased process.

Issue with Noise Principle

P20 of the emerging principles contains the following;

PROPOSED PRINCIPLE 3: HEATHROW'S AIRSPACE MUST MEET THE 3 ANPS NOISE POLICY TESTS

Rationale:

• The ANPS has three key noise tests that must be met:
– Avoid significant adverse impacts on health and quality of life from noise;
– Mitigate and minimise adverse impacts on health and quality of life from noise; and
– Where possible, contribute to improvements to health and quality of life.

• Each option will be assessed using WebTAG methodology which includes quantification of health impacts related to noise.

• This is a core requirement of our airspace design

None of these tests have a **defined measure** and therefore are subjective. The TSC committee recommended;

Recommendation 16

Transport Committee recommendation

We recommend that the Government defines in the NPS what constitutes "significant adverse impacts" and define an acceptable noise limit that reflects a maximum acceptable number of people newly exposed to noise due to the scheme.

Without a **measure** this principle does not provide any guidance for Heathrow or assurance for communities. This principle needs to have a **defined measure** otherwise other principles will compromise noise and as the [redacted] in answers to TSC questions replied;

[redacted] I absolutely agree that we should be doing everything we can to minimise noise on the ground.

[redacted] We absolutely need to do everything we can to minimise the impact of noise on the ground, both with expansion and in our normal operation.

In addition, the Airports NPS states in Noise appendix 4 p45 – 'The overall effects of the LHR-NWR scheme on the health and amenity outcomes assessed are considered to be predominantly **Significant Negative**, since it would result in increases in DALYs lost compared with the Do minimum.' (and that is with improved planes and deeper landings) so seems to already contradict the statement 'Avoid significant adverse impacts on health and quality of life from noise;' in the principle slide and suggests expansion and new flight paths cannot be delivered within the suggested principle.

Heathrow need to answer this specific discrepancy.

Heathrow must state the noise metric limits they will be using to assess whether this principle has been achieved which stakeholders can then comment on

There is no consideration of Heathrow's present noise footprint and the cost of noise on health. Without knowledge of how Heathrow impacts the lives of people already living within its catchment, there is a fundamentally inadequate foundation for commencing consideration of Airspace Design Principles.

There is also no specific guidance as to what minimum amount of respite is required to result in acceptable conditions. This is extraordinary as the Respite Working Group was established 4 years ago.

Height, Noise and Air Quality – Principle 4

On page 21 there seems to be a principle that may impact noise by planes flying lower and thus impacting more people with noise for longer. Noting JHK comments Q447 & Q448 above, air quality cannot over ride noise improvements so should come after all noise principles especially as we also note that the CEO of Heathrow said in answer to TSC Q408 'The air quality measure will not be affected by the growth in aircraft. Currently, aircraft are not a significant contributor to air quality. The emissions disperse very quickly and a lot of them are at high level'. Although many would disagree with this, this is Heathrow's stated position.

The principle on p21 states;

PROPOSED PRINCIPLE 4: HEATHROW'S AIRSPACE MUST MEET LOCAL AIR QUALITY REQUIREMENTS

Rationale:

• We will ensure local air quality requirements are met.

• We will design routes that prioritise air quality up to 1000ft in accordance with Government policy: Air Navigation Guidance, 2017, states "emissions from aircraft above 1000ft are unlikely to have a significant impact on local air quality"

• This is a core requirement of our airspace design

However, the impact of this principle is not clear (hence the question by email to Heathrow in appendix 1)

It is not clear if this means that HAL will be designing routes that either;

i) use low thrust to lower emissions to 1000ft, so overall flying much lower on departure, staying below 1000ft for longer and then creating more noise for longer especially further out, or

ii) in accordance with HAL's noise action plan objective - to get planes as high as possible as quick as possible - use full take-off thrust to get to 1000+ft in the shortest time which may or may not reduce emissions below 1000ft

It is not clear that the consultation questions specifically asked about this compromise and no evidence is presented to support this assertion so therefore it is not clear on what basis this has been inserted into flight path principles. Disappointingly this seems to be the only principle that may affect flight path height, even though flight paths are clearly 3-D and height impacts noise, and this principle may actually increase noise?

This again shows poorly thought out consultation questions and a flawed process.

What is clear from the responses to Principle J is that 'Consultation respondents showed a clear preference for prioritising noise over emissions' so might also be expected to object if air quality arguments are used to increase noise impacts. This is also the Governments stated policy that noise will be prioritised below 7000ft. Also, we note the Heathrow response given to TSC is that Air quality needs to be managed by increasing public transport or low emission journeys to the airport.

It is difficult to give reasoned responses without the consultation data but the process so far is not creating confidence or any trust with the communities.

Our previous response addresses many other issues with the process and suggests several alternative approaches and objectives.

[redacted]

Appendix 1

[redacted]

[redacted]

Thank you for this update.

Can we ask for some further clarification on 2 points, prior to making further comments;

1. Principle 3: 'Heathrow's Airspace Must Meet the 3 ANPS Noise Policy Tests' incl 'Avoid significant adverse impacts on health and quality of life from noise' and 'Each option will be assessed using WebTAG methodology which includes quantification of health impacts related to noise.'

Is there a clear definition and specified level for 'significant adverse impacts on health and quality of life' or is this a judgement by Heathrow or CAA?

2. Principle 4 (which you state is one of the core principles that must be met) – what impact does this have?

PROPOSED PRINCIPLE 4: HEATHROW'S AIRSPACE MUST MEET LOCAL AIR QUALITY REQUIREMENTS

Rationale:

• *We will ensure local air quality requirements are met.*

• *We will design routes that prioritise air quality up to 1000ft in accordance with Government policy: Air Navigation Guidance, 2017, states "emissions from aircraft above 1000ft are unlikely to have a significant impact on local air quality"*

• *This is a core requirement of our airspace design*

Does this mean that you will be designing routes that either;

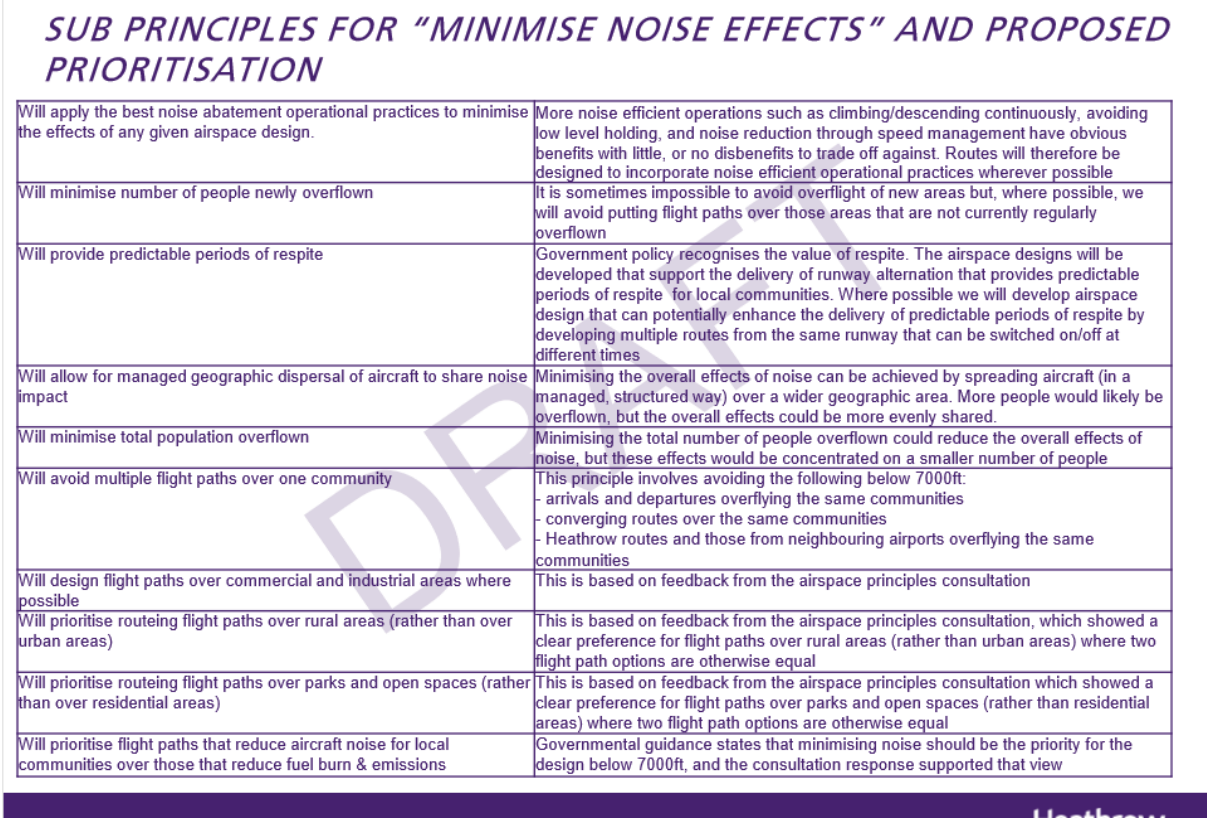
i) use low thrust to lower emissions to 1000ft, so overall flying much lower on departure and creating more noise for longer, or
ii) in accordance with your noise action plan objective - to get planes as high as possible as quick as possible - use full take-off thrust to get to 1000+ft in the shortest time which may or may not reduce emissions below 1000ft

Clearly you must meet air quality targets and hopefully exceed them but I believe the evidence Heathrow gave to Parliament was that it would meet air quality by moving passenger journeys to the airport to use more public transport and with new cleaner aircraft technology not increasing any of the already severe noise impacts.

Rgds

Flightpath Consultation Analysis by Heathrow suggests a 'Minimise Newly Affected' flightpath scenario will be chosen. This means many more people will be impacted by noise, potentially reducing the financial case for expansion by around £1.5bn and making the present marginal economic case become negative.

Last week Heathrow presented their draft analysis of the flight path consultation to the Heathrow Community Noise Forum working group (HCNF WG). The proposal has serious implications which need to be understood. They show that the TSC were correct in recommending flight path scenarios should be understood before decisions were made.

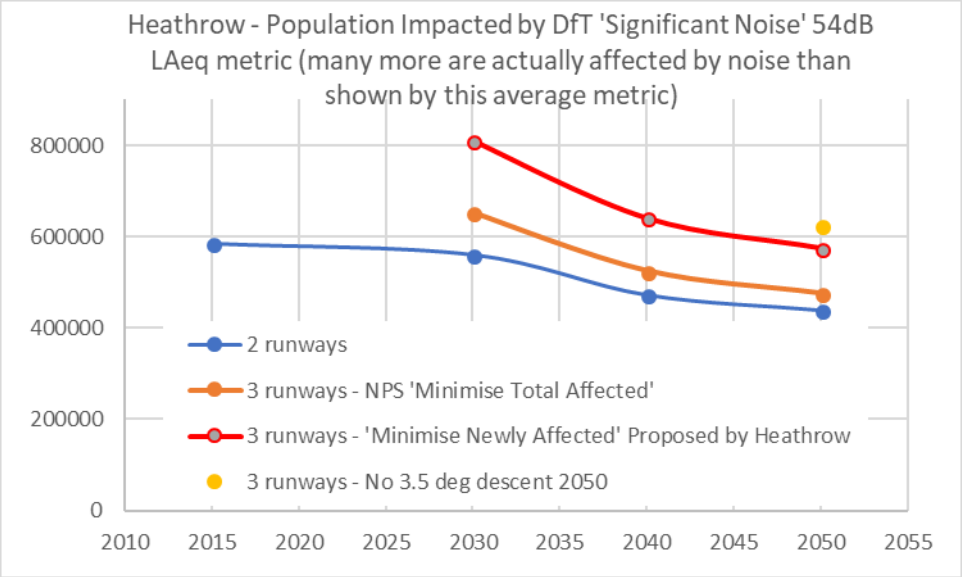


SUB PRINCIPLES FOR "MINIMISE NOISE EFFECTS" AND PROPOSED PRIORITISATION

Will apply the best noise abatement operational practices to minimise the effects of any given airspace design.	More noise efficient operations such as climbing/descending continuously, avoiding low level holding, and noise reduction through speed management have obvious benefits with little, or no disbenefits to trade off against. Routes will therefore be designed to incorporate noise efficient operational practices wherever possible
Will minimise number of people newly overflown	It is sometimes impossible to avoid overflight of new areas but, where possible, we will avoid putting flight paths over those areas that are not currently regularly overflown
Will provide predictable periods of respite	Government policy recognises the value of respite. The airspace designs will be developed that support the delivery of runway alternation that provides predictable periods of respite for local communities. Where possible we will develop airspace design that can potentially enhance the delivery of predictable periods of respite by developing multiple routes from the same runway that can be switched on/off at different times
Will allow for managed geographic dispersal of aircraft to share noise impact	Minimising the overall effects of noise can be achieved by spreading aircraft (in a managed, structured way) over a wider geographic area. More people would likely be overflown, but the overall effects could be more evenly shared.
Will minimise total population overflown	Minimising the total number of people overflown could reduce the overall effects of noise, but these effects would be concentrated on a smaller number of people
Will avoid multiple flight paths over one community	This principle involves avoiding the following below 7000ft: - arrivals and departures overflying the same communities - converging routes over the same communities - Heathrow routes and those from neighbouring airports overflying the same communities
Will design flight paths over commercial and industrial areas where possible	This is based on feedback from the airspace principles consultation
Will prioritise routeing flight paths over rural areas (rather than over urban areas)	This is based on feedback from the airspace principles consultation, which showed a clear preference for flight paths over rural areas (rather than urban areas) where two flight path options are otherwise equal
Will prioritise routeing flight paths over parks and open spaces (rather than over residential areas)	This is based on feedback from the airspace principles consultation which showed a clear preference for flight paths over parks and open spaces (rather than residential areas) where two flight path options are otherwise equal
Will prioritise flight paths that reduce aircraft noise for local communities over those that reduce fuel burn & emissions	Governmental guidance states that minimising noise should be the priority for the design below 7000ft, and the consultation response supported that view

In order of priority the core principle is that they will design flightpaths so that they minimise the total number of people newly affected (point 2 above). This is significantly different to the only scenario presented in the NPS, which is based on minimise number of people affected and so more favourable for the marginal economics of the case. Heathrow's proposal will leave more people being affected at the DfT's defined 'Significant Noise Annoyance' Level of 54dB LAeq to such an extent that the financial case now becomes negative.

The Airport Commission's report, unlike the NPS, did at least look at these options and showed that minimise newly affected (as now being proposed) produces 20-25% more people significantly affected by noise (over a minimise total approach). Using the AC work we can project what this new proposal from Heathrow would do in terms of numbers. Here is a graphic of what the numbers affected might look like;



The result shows many more people will be affected by expansion on opening, nearly 155,000 in the 54dB LAeq contour and around 100,000 2040 onwards. Even after 20yrs of aircraft technology improvements more people will be affected than today's 'worst in Europe' performance from Heathrow.

It is worth noting the numbers impacted by the DfT 54dB LAeq number is based on an average and hides the fact that many more people are affected by noise outside the contour and many more people will see an increase in noise.

A full impact analysis should be undertaken using the DfT webTAG approach. However, a high-level* approach indicates the level of financial impact will be significantly negative and potentially reduce the NPV by £1.5bn. As the revised NPS case today stands at a range of outcomes from -£2.2bn to £2.9n such an adjustment will make the outcome negative at -£1.2bn in the mid case (the range would now be -£3.7bn to £1.4bn).

**The potential £1.5bn high level impact figure is calculated as follows – the NPS shows that for 92,700 more people affected 2030 there are 1047 Disability Adjusted lost years, so an extra 155,000 impacted will create around an extra 1750 DALYs in early years @ £60k pa so ~£100mpa impact, dropping to an extra 100,000 impacted 2040 onwards so around 1000 DALYs lost in later years @£60k so £60mpa. This creates around £3bn cash impact over 60yrs. Put these into a NPV calculation over 60yrs using a 3.5% discount rate e.g. from webTAG and you get £1.5bn.*

In addition to

- Only 2 new long-haul routes will be created by expansion on an existing 80 i.e. a very marginal difference in 20yrs
- Key regional airports now having daily access to worldwide hubs in the US & Middle East or the Far East provided by traditional hub operators who provide freight services and worldwide passenger connectivity (this has happened in the last 2yrs with new plane technology and seemly not incorporated into DfT modelling)
- Regional airports can now develop their own regional airfreight services e.g. 50% increases in freight over 2yrs to China as shown by the Manchester case (given by the DfT in their recent aviation strategy paper)
- Popular long-haul routes can be provided at lower cost at regional airports reducing demand at Heathrow allowing more frequency of connections at Heathrow for the long haul sparse routes

It seems that both the economic and even the strategic cases for expansion have fallen apart?

Heathrow Community Noise Forum

16 May 2018

Performance Based Navigation (PBN), Flight Paths and Airspace Capacity

A community group's perspective

[redacted]

Teddington Action Group

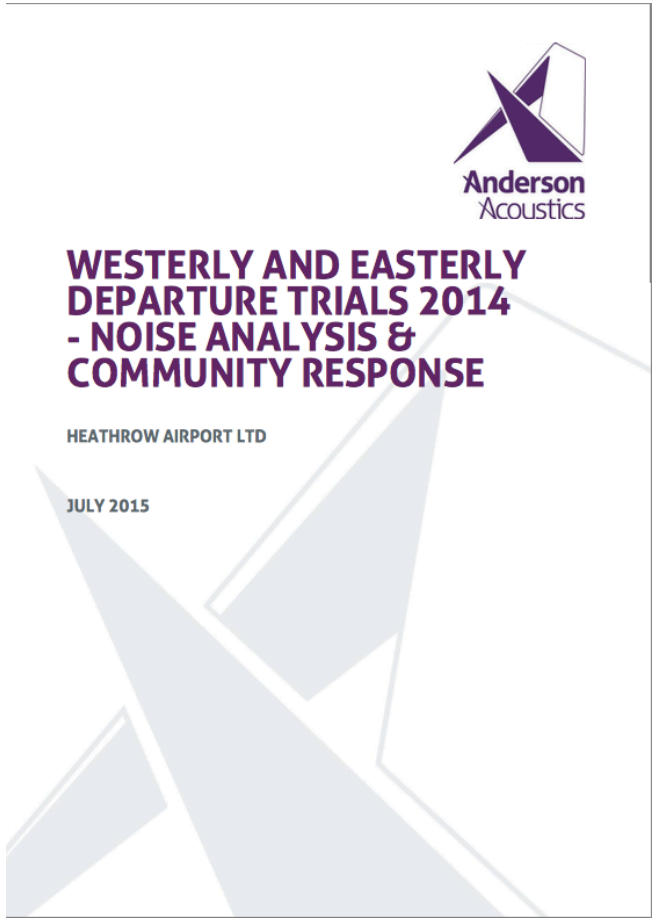
Introduction

- This presentation addresses PBN and flight path issues based on TAG's experience under easterly departures, the 2014 PBN trials and other investigations our group has recently carried out.

- It draws on work undertaken for actions arising from the last CNF meeting on 14 March 2018, particularly concerning international examples of PBN, as well as in relation to projected noise impacts on local communities in relation to the NPS (which was prepared for the Transport Select Committee).

- It culminates in setting out a series of questions which must now be addressed – not just by Heathrow, but especially by the DfT - before airspace modernisation in general and the NPS in particular are considered by MPs.

Experience of PBN so far at Heathrow



The trials in 2014:-

- Only affected areas under departures
- Led to a huge rise in complaints
- Led to public protest meetings from Ascot to Teddington
- The trials were terminated earlier than originally planned
- Most residents believe that noise conditions never returned fully to pre-trial conditions
- The trials led to the establishment of many community groups who now attend the HCNF

This leads to the key question – what can be learned from this experience and how should it influence the shape of things to come?

International experience of concentrated flight paths

It is clear the introduction of highly concentrated routes has led to massive levels of outrage, opposition and protest from affected communities in the USA and Europe.

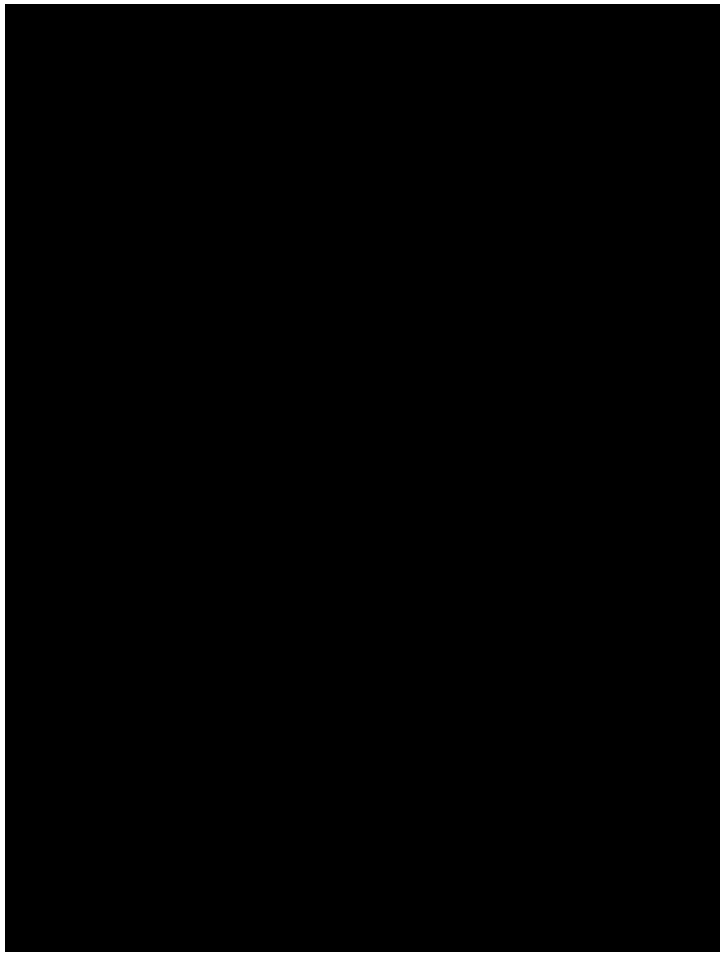
Examples include;

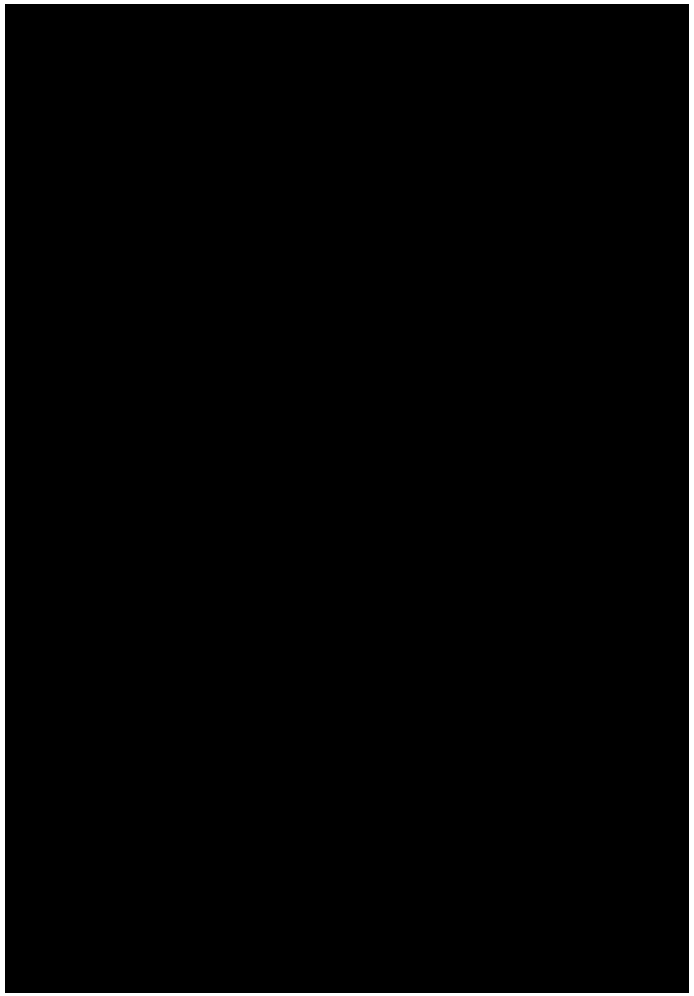
- In North America - Phoenix, Chicago, Los Angeles, San Francisco, Boston, Charlotte, San Diego, Santa Cruz, Denver, Palo Alto, Baltimore, Des Moines, Seattle and Washington, Toronto, Calgary, and Montreal.

- In the UK and Europe - Brussels, Paris, Notre-Dame Nantes, Munich, Belfast, Edinburgh, Manchester, Gatwick, Heathrow (2014 trials) and London City, in the UK.

For further details - https://www.nextgennoise.org

Examples of international experience of concentrated flight paths, contd.





Further international experience
The Washington Post on 8 March 2018

https://www.washingtonpost.com/local/trafficandcommuting/inspector generals report says the faa has bungled a 36 billion project/2018/03/08/5436c6ba 22f6 11e8 badd 7c9f29a55815_story.html?utm_term=.b96dc38b6db6

Transportation

Inspector general's report says the FAA has bungled a $36 billion project

By Ashley Halsey III March 8 Email the author

The Federal Aviation Administration has mishandled a $36 billion project to modernize the antiquated aviation management system, according to a harshly critical inspector general's report released Thursday.

It was the fourth inspector general's critique in as many years of a program known as NextGen, on which more than $7 billion in federal funds has already been spent.

This latest report says the FAA lacks "a clearly established framework for managing the overall oversight of NextGen."

Much of the 50-page report — done for the House Appropriations Committee and prepared by Matthew E. Hampton, assistant inspector general for aviation audits — focuses on specific examples of program mismanagement.

The report said the FAA "has lacked effective management controls" in awarding contracts, sometimes spent money on low-priority projects and allocated an estimated $370 million for projects that were still awaiting approval.

Further international experience
The Washington Post on 12 March 2018

https://www.washingtonpost.com/opinions/the unheard of noise pollution from the faas wasteful nextgen program/2018/03/12/67214410 253c 11e8 a227 fd2b009466bc_story.html

Letters to the Editor • Opinion

The unheard-of noise pollution from the FAA's wasteful NextGen program

A plane takes off from Reagan National Airport on Sept. 1, 2017. (Chip Somodevilla/Getty Images)

March 12

Regarding the March 9 news article "FAA botched $36 billion effort to modernize air traffic system, report says":

While the Federal Aviation Administration may have denounced the House Appropriations Committee-ordered audit of its NextGen program, it is time that Congress denounced NextGen. It's a failed program with bad design. The airlines don't like it, and it isn't saving them money. More important, NextGen is torturing hundreds of thousands of taxpaying citizens all over the country with noise pollution never heard before. The concentrated flight paths over heavily populated areas at low altitudes are causing health problems and lowering property values.

In our area, Georgetown University has sued the FAA, and a lawsuit from Maryland is imminent. Efforts across the country to negotiate fixes with the FAA have been futile. After a year of meetings between the DC Metroplex BWI Community Roundtable and FAA reps, the FAA has offered merely insignificant "notional" tweaks to flight paths, without addressing altitudes and dispersion. Last month, the FAA suddenly required that the roundtable submit Freedom of Information Act requests, to be vetted by the FAA's legal team, for any information about redesign of our airspace.

Legal Challenges are mounting; Phoenix, USA

http://www.azcentral.com/story/news/local/phoenix/2017/03/13/court hear phoenix arguments against faa flight paths sky harbor/98956558/

Court to hear Phoenix arguments against FAA flight paths at Sky Harbor

Brenna Goth, The Republic | azcentral.com Published 6:03 a.m. MT March 13, 2017 | Updated 8:59 a.m. MT March 14, 2017

The city and affected neighborhoods will make their case in front of the U.S. Court of Appeals District of Columbia Circuit.

(Photo: Michael Chow/The Republic)

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Central Phoenix residents and city officials who argue noise from flight paths at Phoenix Sky Harbor International Airport is destroying their neighborhoods will voice their complaints against the Federal Aviation Administration in court March 17.

The U.S. Court of Appeals District of Columbia Circuit will hear oral arguments in two cases that have brewed for years. The FAA changed the flight paths in September 2014 as part of a national program for safety and efficiency.

Backlash to the noise the changes created was immediate. Phoenix filed a lawsuit against the FAA in June 2015; neighborhood associations filed their own complaint a few months later.

Legal Challenges are mounting; Montreal, Canada

http://www.cbc.ca/news/canada/montreal/class action airplane noise 1.4614458

Class action lawsuit to fight Montreal airport noise pollution gets go-ahead

Citizen group says noise made by airplanes flying over their homes is ruining their quality of life

CBC News · Posted: Apr 11, 2018 1:19 PM ET | Last Updated: April 11

According to Aéroports de Montréal, the highest noise level in 2015 was 63 decibels recorded in Dorval. (Francois Mori/Canadian Press)

A group of homeowners who live along the flight paths of Montreal's Trudeau International Airport say they're thrilled the class action lawsuit request they filed has been authorized to go forward.

"The noise is intolerable," said Pierre Lachapelle, president of the citizen group Les Pollués de Montréal-Trudeau. "The people have had enough."

The lawsuit targets the airport authority, the federal Ministry of Transport and Nav Canada, the company that runs Canada's civil air navigation service.

Lachapelle, who lives in Ahuntsic, says when a plane flies over his home, it sounds like a home invasion.

"It fills your space — for a short period of time — but it's awful. It's awful to hear," he said.

Legal Challenges are mounting; Schiphol, Holland

https://nltimes.nl/2018/04/03/local residents sue schiphol failing noise management

LOCAL RESIDENTS SUE SCHIPHOL OVER FAILING NOISE MANAGEMENT

By Janene Pieters on April 3, 2018 - 11:30

A plane approaches Schiphol Airport. Photo: @Schiphol / Twitter

People living around Schiphol are taking the airport to court. They want the court to force Schiphol to properly monitor noise pollution caused by air traffic, and for violations to be punished, a spokesperson for the Human Environment and Transport Inspectorate confirmed to NU.nl after reports in the Volkskrant.

According to the Inspectorate, currently violations are mainly monitored and recorded according to the new standards and enforcement system that was implemented in 2015. But at this stage, the airport is not penalized for violations. This is "the result of the application of the rules from the new system", which have not yet been formally laid down in the law, the spokesperson said to NU.nl.

Local residents now call on the court to force the Inspectorate to take action against violations when it comes to noise pollution. How many noise pollution violations the Inspectorate recorded for Schiphol since the introduction of the new system, is not clear.

The number of flight movements at Schiphol increased significantly over the past years, and the airport is very close to reaching its 500 thousand flight movements per year limit, which is in place until 2020. According to local residents, the noise pollution around the airport increased with the number of flights.

Heathrow correctly recognises the PBN issue in its 2016 response to a European airspace modernisation consultation

https://www.easa.europa.eu/sites/default/files/dfu/CRD%202015 01 0.pdf

comment	*103* comment by: *Heathrow Airport Limited* Whilst Heathrow Airport Limited fully supports airspace modernisation, this document does not support current UK CAA guidance and is not in line with current UK airspace projects such as LAMP. The time scale suggested here is unrealistic and could jeopodise these projects. In addition, as subsequent comments highlight, we have the following concerns: • The Social Impact of PBN trials in the UK has been enormous, therefore this should be considered and not dismissed in one sentance. • There does not appear to be an environmental assessment of this proposed change in terms of noise. • The Benefit section takes no account of the cost of airspace consultation which results in an incomplete assessment. • Mixed conventional and PBN operations are not supported by the UK CAA. Consequently, this NPA is not supported by Heathrow Airport Limited.
response	*Noted.*

Why understanding PBN's impacts and limitations are so important?

- Plans for Heathrow expansion in the NPS only assume 'Minimise Total' concentrated flight paths, but based on the trials and international experience the airport and the DfT know this approach will not be acceptable.
- There are evidently practical, technical and acoustic limitations associated with the implementation of PBN - but these have not been widely disclosed or discussed with the public or politicians.
- These limitations include the numbers of alternative flight paths that can be accommodated viably around Heathrow, what physical separation between routes is needed to deliver effective noise relief and the timescale and practicalities for PBN's full introduction - which could be years away – potentially 2030-35.
- The medical implications of living under concentrated flight paths are not understood – however England's Chief Medical Officer's report for 2017 makes it clear that noise is an extremely serious health issue;

'In terms of the health effects of environmental pollution in Europe, environmental noise comes second in burden of disease to air pollution and arguably is responsible for more disturbance of quality of life. Environmental noise is also responsible for more life years lost than other significant environmental pollutants such as lead, ozone and dioxins.'

www.teddingtonactiongroup.com/2018/05/08/effects of noise and the annual report of the chief medical officer 2017/

The relationship between PBN and Respite

- Respite is concerned with the distribution of noise – spatial and temporal – i.e. flight paths
- Assumptions concerning respite are reflected in how average noise contours and the noise analysis have been modelled in the NPS
- The NPS states that with Heathrow expansion respite will be reduced from one half to one third of the time
- However the health and social impacts of both this and extreme concentration under PBN are not known
- Anderson have produced two interim studies on Respite on behalf of Heathrow
- This work started in 2014 but the research has not yet been concluded

Anderson's key findings to date in relation to separation of routes and noise impacts

About noise levels – from the sound lab;

- 2-3 dBLAmax difference in successive sounds not particularly noticeable
- 5-6 dBLAmax may be needed for people to tell the difference
- At least 7-8 dBLAmax may be needed to provide a valuable break from noise

About increases and decreases in noise levels;

- Residents are more likely to notice increases in noise than equivalent decreases
- The judged value of respite may or may not be applicable to those newly exposed to aircraft noise
- Public sensitivity in the field may be greater than in the sound lab

These findings are of critical importance to the consideration of PBN and establishing acceptable flight path strategies

Why does this matter so much?

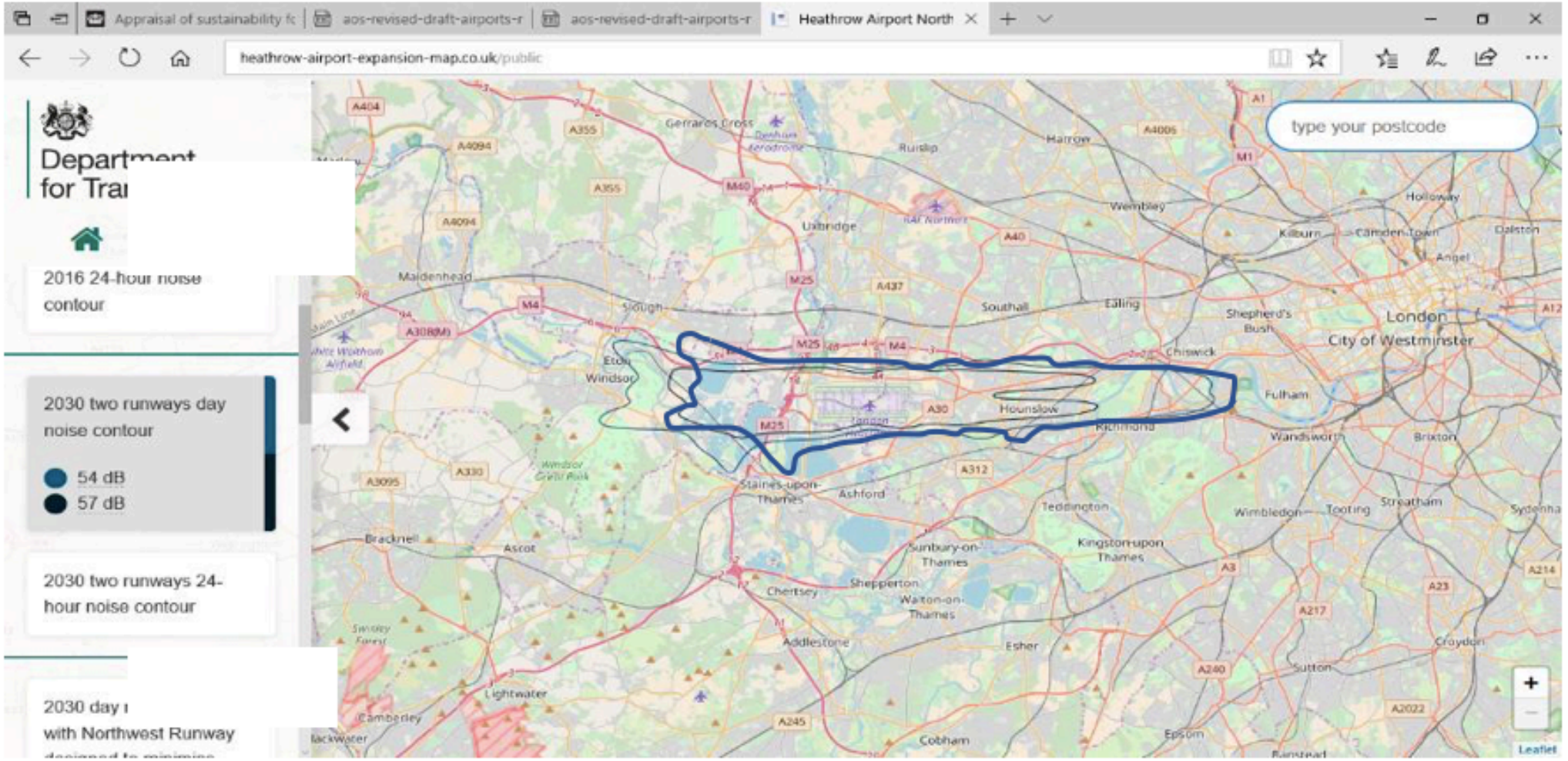
The Transport Select Committee found that if Heathrow is expanded the impacts on neighboring populations by 2030 will be massive;

- 653,900 people will fall within the 54 dBLAeq ‘significantly affected’ contour
- Over half of these, 323,684, will come into this category for the first time
- 419,803 people experiencing above 54 dBLAeq will receive 3 dB increase, equivalent to doubling the number of overflights
- 1,193,227 will be impacted by over 51 dBLAeq , a key new DfT threshold metric (LOEL)

These are minimum figures because;

- They are based on concentrated ‘minimise total’ flight path assumptions
- The noise impacts will be worse immediately after a third runway opens i.e. 2026-2029 - which will be the period of maximum public sensitivity
- The DfT’s new supplementary metrics were omitted from the NPS and its appraisal of sustainability. A far greater number of people would have been shown to be significantly affected, for example using single mode analysis
- The NPS webTAG Noise Workbook indicates that over 2.2 million people will experience increased noise by 2050 (the forecast year) and this will be after the fleet has transitioned to quieter planes. The situation will be far worse in 2030.

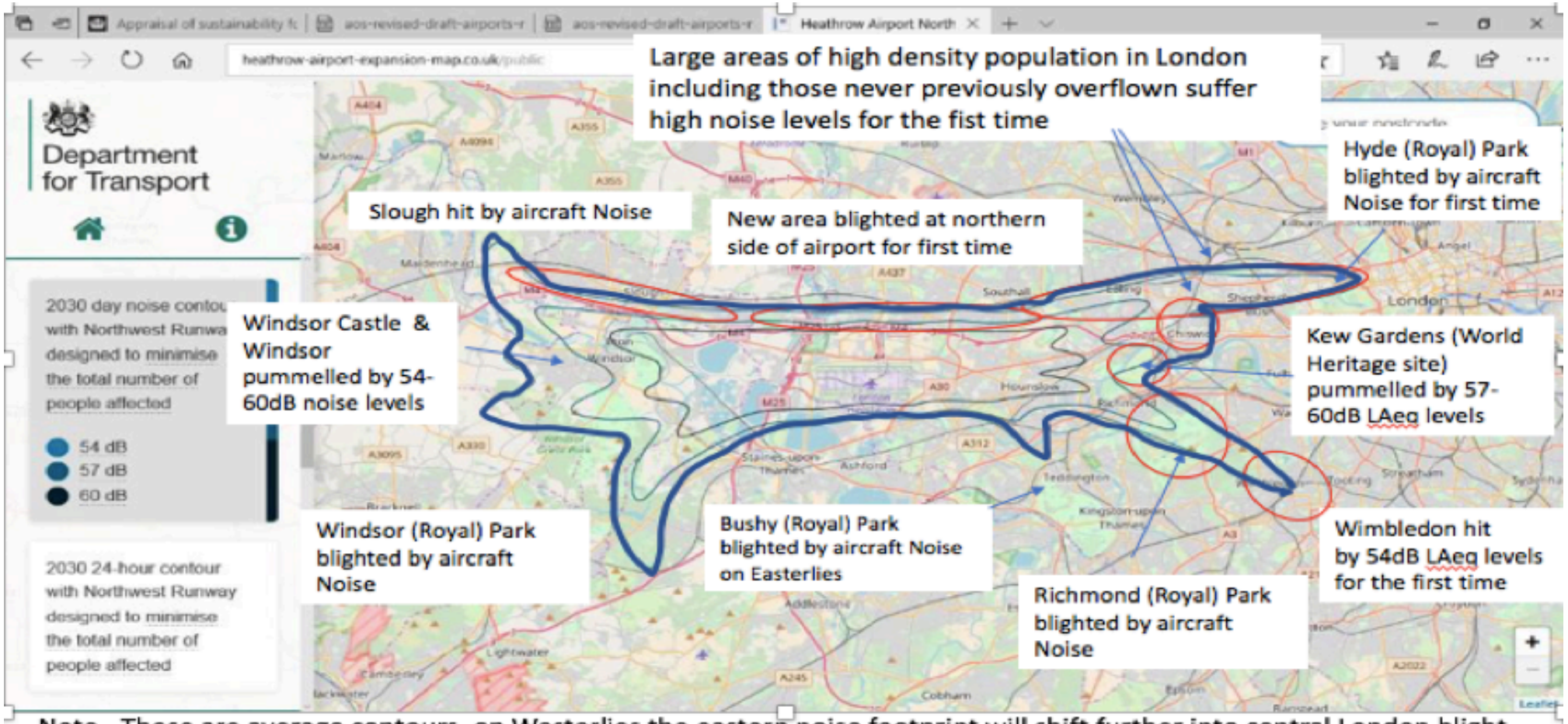
This is what Heathrow's noise contour will look like in 2025



Note – this is the NPS's 'Do Minimum' scenario in fact mitigations such as deeper landings should be also be applied making area smaller

And this is what it will look like in 2030 (even worse in 2028)

This is the ‘best case’ scenario used for the financial modelling of noise annoyance in the NPS ‘Minimise Total Impacted



Note - These are average contours, on Westerlies the eastern noise footprint will shift further into central London blight an even larger area than shown. Similarly for Easterlies areas to the south and north will get blighted.
Contours will be much bigger for 51dB ‘LOAEL’

Key issues that need to be addressed in relation to the introduction of PBN and possible expansion of Heathrow

How many routes can feasibly be flown using PBN in terms of;

- airspace capacity
- technical capability (harmonizing flight management systems)
- safety
- acceptable health and environmental impacts?

What are the implications for London's airspace strategy arising from the above in terms of;

- consideration and appraisal of alternative flight path scenarios?
- the balance between achieving quality of life for communities and optimising aviation efficiency
- assessment of the environmental and health consequences associated with Heathrow expansion and the NPS and DCO processes?
- the roll out of new flight paths (particularly timing, airspace change procedures and consultations)?

Challenges to Government and the aviation industry

Very significant impacts to health and quality of life are apparent having regard to UK and international experience of concentrated flight paths (PBN).

These have an even greater importance than otherwise might be the case given the extent of Heathrow's exceptionally densely populated hinterland, the projected environmental impacts and especially the proposal to expand Heathrow ATMs by 54%.

The general public and politicians should be made aware of these issues. How will this be done and how will they to be factored in Parliamentary decision making?

Given the implications for the huge numbers of people who will be affected, these matters need to be addressed now by Government – before the NPS is considered further – not at some future time.

It is not satisfactory to say good research is being done and that the industry is looking for solutions, if irreversible far reaching decisions are currently being made. There is no available evidence to suggest that concentrated flight paths can ever lead to acceptable living conditions over residential areas.

A full and open public debate is required – now!

Discussion