



AIRSPACE MODERNISATION AIRSPACE CHANGE PROPOSAL

STAKEHOLDER ENGAGEMENT APPENDIX E

ADDITIONAL STAKEHOLDER GROUP MEETINGS





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The material in this document is shown in chronological order.

This document does not include correspondence that specifically relates to one of Heathrow’s engagement workshops. Workshop RSVPs and follow up emails are provided within the engagement evidence for each workshop series.

All airspace design options in this document are subject to change throughout the airspace change process, as options are matured in detail and refined in accordance with safety requirements, design principles, appraisals and stakeholder engagement and consultation.

RE: Airspace Modernisation

DD - Airspace <airspace@heathrow.com>

Wed 02/02/2022 11:52

To: [REDACTED] DD - Airspace <airspace@heathrow.com>

Dear [REDACTED]

Our Community Relations Team have passed on your details to me following your call on Monday regarding our design principles for Airspace Modernisation.

I can confirm that we invited Friends of Richmond Park to join us at a workshop in November (email attached) but we did not receive a response. We didn't have any individual contact details for your group so we used the email address from your website.

We have now completed our design principles and we will be submitting them to the CAA this week. As required by CAP1616, we undertook stakeholder engagement at this stage and we took input from a number of Local Authorities, community groups and environmental groups. You will be able to see a record of all of the engagement undertaken (including our email to Friends of Richmond Park) in the submission on the CAA's portal: [Airspace change portal \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-portal).

Our design principles will be used to help guide the airspace designers to consider options that meet the wide-ranging needs of our stakeholders. They are not geographically-specific and include consideration of noise, carbon (climate change) and local air quality issues to ensure we develop flight path options that meet the overall environmental objectives set by the Government.

We will be engaging with stakeholders further at the next stage of the design process and sharing our 'comprehensive list of route options' later this year. We would be happy to include Friends of Richmond Park in our engagement at that stage – would you like me to email you about that directly?

Kind regards,

[REDACTED]

[REDACTED] | Airspace Modernisation Programme

Heathrow

Re: Airspace Modernisation

Wed 02/02/2022 17:56

To: DD - Airspace <airspace@heathrow.com>

Cc: [REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED],

a lot of water's passed under the bridge since our meetings with you and your colleagues at Heathrow, and in Richmond Park, in 2019 and early 2020. I hope you're in good health and doing well!

And thanks very much for inviting the Friends of Richmond Park (FRP) to join the November Design Principle workshops. Our apologies for not taking you up on that invitation. We now discover that it arrived right in the middle of a rather hectic transition between our outgoing chairman [REDACTED] (who you will recall) and our incoming new chairman [REDACTED], and fell between the cracks.

So, yes, please do include FRP in all your engagement processes point forward. Please email me directly, and copy both [REDACTED] (cc'd above), in future.

As we've missed out on the Heathrow ACP's Step 1b engagement, would it be possible for you to help us catch up by:

- providing copies of the presentations, papers, minutes, etc. received by the participants in the engagement phases; and
- providing a list of all the parties involved in the first phase of engagement in September/October, and the second phase in November?

Finally, for the avoidance of doubt, can you confirm that the current Heathrow ACP Design Principles, to be lodged on the CAA Portal next week, supersede Heathrow's Airspace Design Principles of 31-Aug-2018?

Do feel free to call me if you'd like to talk about any of this.

Best regards,

[REDACTED]
Friends of Richmond Park
[REDACTED]

RE: Airspace Modernisation

DD - Airspace <airspace@heathrow.com>

Tue 15/02/2022 11:33

To: [REDACTED] DD - Airspace <airspace@heathrow.com>

Cc: [REDACTED]

Dear [REDACTED]

I'm well thanks – hope you are too! I have added email addresses for you and [REDACTED] to the stakeholder list. I don't have one for [REDACTED] so please could you provide that and cc [REDACTED] so we know [REDACTED] is happy for us to contact him in future?

I can confirm that our Design Principles for this airspace change proposal (ACP) have been submitted to the CAA now and they will be available to view on the CAA's portal in the next couple of days: [Airspace change portal \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-portal). The design principles we developed for Expansion back in 2018 are not relevant to this airspace change. The CAA's airspace change process ([CAP1616](#)) requires us to identify and engage on design principles for each proposed airspace change separately.

I have attached a few documents for you:

1. The slide pack we shared with stakeholders at our Phase 1 workshops (September/October)
2. The matrix we emailed to workshop attendees to request their feedback on the initial list of proposed design principles (these design principles were proposed by stakeholders at Phase 1 workshops)
3. The slide pack we shared with stakeholders at our Phase 2 workshops (November)
4. Our final list of Design Principles
5. Our stakeholder log – this lists all parties invited to engage in our development of design principles. I have included the membership of some of the groups (e.g. Heathrow Strategic Planning Group and Heathrow Community Noise Forum) on the last page in case this is of interest. Note this is a redacted version so some personal information has been hidden for legal reasons.

I hope this information is reasonably clear but do let me know if you have any questions at all. We look forward to having FRP involved in our next stage of engagement later this year.

Many thanks,

[REDACTED]

Richmond Park

[REDACTED]

Sat 26/02/2022 20:43

To: DD - Airspace <airspace@heathrow.com>

Cc: [REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

thanks very much for your helpful email and its attachments (below).

And we see you've uploaded the Design Principles Stage 1 documents onto the CAA portal.

[REDACTED] email address is [REDACTED], [REDACTED] is cc'd, and yes, [REDACTED] is happy for you to contact [REDACTED] in future.

Would it be possible for us to have a Zoom meeting with you in the next fortnight or so? We'd like to get up to speed on Heathrow's plans for the CAP1616 Stage 2 process.

If you're ok with this, could you suggest a few dates/times that would work for you? We can then rig up a Zoom.

Best wishes,

[REDACTED]

Friends of Richmond Park

[REDACTED]

RE: Richmond Park

DD - Airspace <airspace@heathrow.com>

Fri 18/03/2022 11:10

To: [REDACTED] DD - Airspace <airspace@heathrow.com>

Cc: [REDACTED]

Dear [REDACTED],

Sorry for the delay in getting back to you. We are in the process of developing our approach and programme for Stage 2 so it would be better for us to meet once those are finalised. We can then discuss timescales for involving Friends of Richmond Park in the planned stages of engagement.

Thanks for providing [REDACTED] contact details as well – I have added [REDACTED] to our stakeholder list.

I will be in touch to arrange a Zoom/Teams meeting with you once we have our plans for Stage 2 approved and ready to share.

Many thanks,

[REDACTED]

From: [REDACTED]

Sent:

21 May 2022 12:56

To:

DD - Airspace

Cc:

Subject:

[REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED],

are you free to meet in the coming week? Our apologies for the short notice, but we've just discovered that June is looking rather busy.

Having now set Heathrow's Stage 2 Gateway proposed date to 30-Jun-23, and given the upcoming holiday season and its inevitable delays (plus of course the time needed for Stage 2b), we're keen to know **how Heathrow's thinking of going about Stage 2a** e.g. what you think of how Luton went about it (while complying with CAP1616 of course), and how we can input to the process. We could then relay this to The Royal Parks to keep them in the loop.

Also you (and no doubt [REDACTED]) will be interested to know about the **Richmond Park noise research** now coming to completion (and its companion light survey, completed last year).

Finally, you requested [REDACTED] email address for the stakeholder list: it's [REDACTED] and [REDACTED] is, of course, happy for you to contact [REDACTED] in future.

Best regards,

[REDACTED]

Friends of Richmond Park

[REDACTED]

From: DD - Airspace
Sent: 24 May 2022 13:32
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Richmond Park

Dear [REDACTED],

Thanks for your email, and for confirming that we can add [REDACTED] to our stakeholder list.

We're keen to meet with you to share our plans for engagement and to agree a process for keeping FRP in the loop. It would also be good to discuss the recent Richmond Park research/surveys.

I'm afraid the next two weeks are very busy with a number of us off for school half-term holidays. I'm checking diaries our side and will come back to you with a couple of potential dates for the second half of June. Please let me know if there are any particular days or times that would suit you best?

Many thanks,

[REDACTED]

From: DD - Airspace
Sent: 24 May 2022 14:51
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: Richmond Park

Hi [REDACTED]

I have checked diaries our side and we would be able to meet you on:
Monday 6 June - 12:30pm-2pm
Monday 13 June – 12:30pm-2pm
Monday 20 June – 12:30pm-2pm

Would one of those times work for you? And would it suit you if we send a Teams link and meet you virtually?

Many thanks,
[REDACTED]

From: [REDACTED]

Sent:

24 May 2022 16:26

To:

DD - Airspace; [REDACTED]

Cc: [REDACTED]

Subject:

Re: Richmond Park - June 20th

Some people who received this message don't often get email from [REDACTED] [Learn why this is important](#)

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Hi [REDACTED],

thanks for your swift response.

Monday 20 June – 12:30pm-2pm is best for us.

And Teams is fine - though pls note that [REDACTED] will be connecting from Corsica: does Teams need to be enabled for France?

Best wishes,

[REDACTED]
Friends of Richmond Park
[REDACTED]

From: DD - Airspace
Sent: 24 May 2022 17:54
To: [REDACTED] DD - Airspace [REDACTED]
Cc: [REDACTED]; [REDACTED]
Subject: RE: Richmond Park - June 20th

Thanks for getting back to me so quickly [REDACTED]. I have sent you all a Teams invite for that time. I'm pretty sure Teams can be used globally so [REDACTED] should not have a problem if he is happy to join from Corsica!

Many thanks,
[REDACTED]

From: [REDACTED]

Sent: 13 June 2022 09:36

To: [REDACTED]

Cc: [REDACTED]

Subject: Re: Meeting with Friends of Richmond Park

Some people who received this message don't often get email from [REDACTED]. [Learn why this is important](#)

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Good morning [REDACTED]

thanks for the Teams invite for next Monday 20 June – 12:30pm-2pm.

We'd like to add two of our trustees to the attendee list: [REDACTED], and [REDACTED] (both copied). I assume it's ok for them to click on the MS Teams link (below) without further ado. Can you let us know who will be attending from HAL?

Re agenda, how about:

1. Brief recap on FRP and its past engagement with HAL (& CAA);
2. HAL's Stage 2 plans
3. FRP's Richmond Park noise research.

We will have a few slides. **Does Teams allow us to show these?**

Best regards,

█

Friends of Richmond Park

█

On 24 May 2022, at 17:50, █ > wrote:

Dear █

Thanks for getting back to me to confirm your availability. We look forward to meeting with you and discussing our Airspace Modernisation plans.

Kind regards,

█

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)

RE: Meeting with Friends of Richmond Park

[REDACTED]
Tue 14/06/2022 15:23

To: [REDACTED]

Cc: [REDACTED]

[REDACTED] D - Airspace <airspace@heathrow.com>

Dear [REDACTED]

We're looking forward to meeting with you on Teams next Monday. [REDACTED] and [REDACTED] are welcome to join us - I will forward the Teams invite to them.

I will be joined by [REDACTED] and [REDACTED] from Heathrow.

We had also drafted an agenda and it was very similar to your proposal. I think the below would cover everything if that works for you?

1. Introductions
2. Brief recap on FRP and past engagement with HAL (& CAA)
3. Summary of the Airspace Modernisation Programme
4. Approach to future engagement
5. FRP's Richmond Park noise research
6. AOB

You'll be able to share your slides on Teams.

Many thanks,
[REDACTED]

Meeting with Friends of Richmond Park

Monday 20 June 2022, 12:30 - 14:00, Online Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park

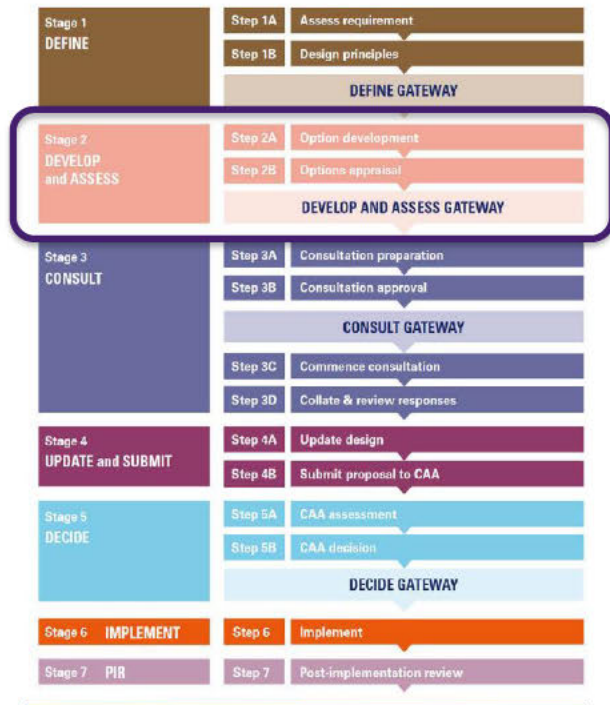


Heathrow's Airspace Modernisation Programme

June 2022

Heathrow
17

We are now beginning Stage 2 of the CAP1616 Process



- 7 Stage process
- Formal stages of engagement:
 - Stage 1 Design Principles ✓
 - Stage 2 Options Development
 - Stage 3 Flight Path Options
- Anticipated Implementation: 2027 - 2030

Heathrow's Design Principles for Airspace Modernisation

	Final Design Principles	
Our new airspace design must	Be safe	1
	Remain in accordance with the CAA's published Airspace Modernisation Strategy and any current or future plans associated with it and all other relevant UK policy, legislation and regulatory standards (for example, Air Navigation Guidance). This includes preventing any worsening of local air quality due to emissions from Heathrow's aircraft movements, to remain within local authorities' limits	2
	Use noise efficient operational practices to limit and, where possible, reduce adverse impacts from aircraft noise	3
	Reduce the contribution to climate change from CO ₂ emissions and other greenhouse gas emissions arising from Heathrow's aircraft activities	4
	Enable Heathrow to make the most operationally efficient and resilient use of its existing two runways, to maximise benefits to the airport, airlines and cargo handlers, passengers, and local communities	5

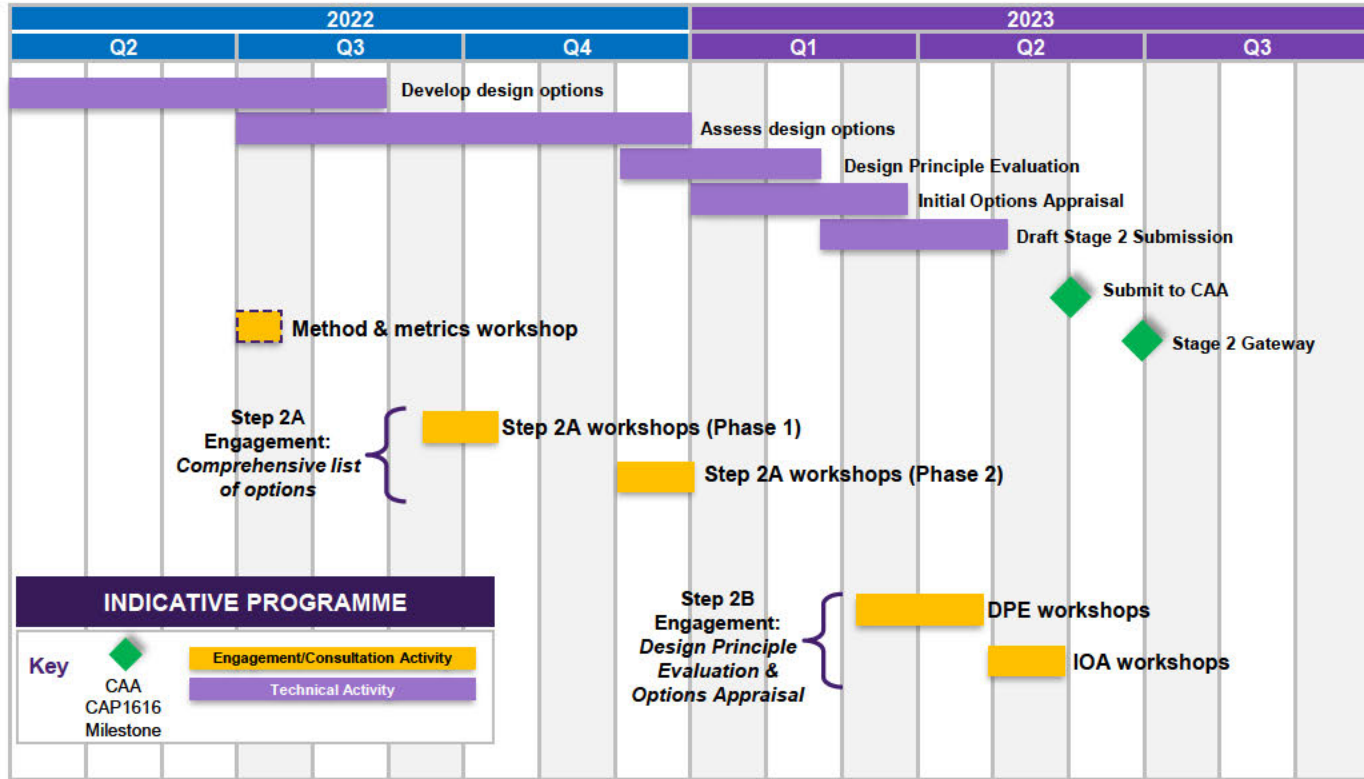
Heathrow's Design Principles for Airspace Modernisation

	Final Design Principles	
And should also	Provide predictable and meaningful respite to those affected by noise from Heathrow's movements	6
	Seek to avoid overflying the same communities with multiple routes including those to/from other airports	7
	Contribute to minimising the negative impacts of night flights	8
	Keep the number of people who experience an increase in noise from the future airspace design to a minimum	9
	Keep the total number of people who experience noise from the future airspace design to a minimum	10
	Enable the efficiency of other airspace users' operations	11
	Minimise the impact to all stakeholders from future changes to Heathrow's airspace	12

Indicative Timeline for Airspace Modernisation at Heathrow

CAP1616 Stage	2021	2022	2023	2024	2025	2026	2027	2028	2029
Stage 1 Define	Active								
Stage 2 Develop & Assess		Active	Active						
Stage 3 Consult				Active	Active				
Stage 4 Update & Submit						Active	Active		
Stage 5 CAA Decide							Active		
Stage 6 Implement							Active	Active	Active

We have developed a plan for regular stakeholder engagement throughout Stage 2



- **DPE:** The Design Principle Evaluation sets out how the design options have responded to the design principles
- **IOA:** The Initial Options Appraisal compares the design options, using metrics set out in CAA and DfT Guidance/Policy (CAP1616 and WebTAG)

There are four engagement activities planned over Stage 2

1. **Methods and Metrics Engagement:** Workshop where we explain our proposed methodology for Stage 2. This will include a discussion on the metrics we will use to present our findings, and an opportunity for attendees to share their views.
2. **Comprehensive List of Options Engagement:** *Statutory* engagement required by CAP1616. Workshops need to include the stakeholders we engaged on design principles (plus other known stakeholders where appropriate).
3. **Design Principle Evaluation:** Workshops where we share the outputs from our Design Principle Evaluation so that stakeholders can see how the options performed against the design principles that they helped develop. We will explain the work undertaken, the methods of analysis used and the results.
4. **Initial Options Appraisal:** We will share the key findings of the Initial Options Appraisal with stakeholders (at HCNF and/or other workshops as required).

Heathrow

From: [REDACTED]
Sent: 01 September 2022 10:18
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: The Queen's infant year at White Lodge - with [REDACTED]
[REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]
you may like to watch the first 11 minutes of this - on [Channel 4 catch-up](#) (but it's only available for a few more days)

[REDACTED]
FRP

From: [REDACTED]

Sent: 12 September 2022 10:27

To: [REDACTED]

Cc: [REDACTED]

Subject: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

When we met (via Teams) on 20th June 2022 [REDACTED] said Heathrow were open to the thinking of the Friends of Richmond Park on the CAP1616 environmental assessment, and you would be glad to meet directly with us on this in Sep./Oct.

To assist this, we have prepared an environmental assessment for Richmond Park (attached with a covering letter). As no flight path Options have yet been tabled, this environmental assessment is necessarily preliminary. This can be advanced to a full environmental assessment when flight path Options are tabled.

In summary, this preliminary environmental assessment of the impact of additional, especially Heathrow approach, flight paths over Richmond Park has confirmed that such changes would threaten the survival of Richmond Park as an iconic place, renowned as a haven of tranquility for people and wildlife.

Given this conclusion, we would like to take up your offer of a meeting to discuss the environmental issues. Would you be able to provide some meeting dates in September when we could do this?

I am copying this to [REDACTED], who I understand was deeply involved in this matter in the 2019 Expansion discussions and will recall discussing Richmond Park with our then chairman, [REDACTED] (also copied).

Best regards

[REDACTED]

Chairman
The Friends of Richmond Park
www.frp.org.uk



12th September 2022

Via email: [REDACTED]

Dear [REDACTED]

Heathrow Airspace Change Proposal (ACP)
Richmond Park preliminary environmental assessment

I am writing on behalf of the Friends of Richmond Park¹ regarding the Environmental Assessment (EA) required under CAP1616 in Stage 2B and subsequent stages.

The Heathrow ACP is currently in Stage 2A, with flight path Options set to be tabled shortly. Given that the ACP may include flight paths Options over Richmond Park, the Friends of Richmond Park has prepared a *preliminary* environmental assessment.

Richmond Park is a specific area that should be avoided. Options including flights over Richmond Park should not be taken forward into Stage 2B and subsequent stages. But if such Options are taken forward, we would expect that the Environmental Assessments, that Heathrow as change sponsor is required to carry out, should as a minimum and to ensure proper compliance with CAP1616 include and address all the points set out in the document we attach to this letter.

This preliminary assessment can be advanced to a full environmental assessment when ACP flight path Options are available.

¹ Founded in 1961, The Friends of Richmond Park (FRP) is a charity dedicated to “*the conservation and protection ...of Richmond Park and its peace and natural beauty for the benefit of the public and future generations*” and to “*advance public education about the Park*”. <https://www.frp.org.uk>

Richmond Park is world famous, of national and international importance for wildlife conservation, and visited by over 5.5m people each year. It is the quietest (extraordinarily quiet at <25dB) place in London, and the most heavily protected urban park in the UK. We are concerned that the Heathrow ACP could result in arrival flight paths over Richmond Park with aircraft noise levels of up to 83dB(A) and NOx emissions of up to 44 tonnes pa. Such changes would have very significant effects on the mental health and wellbeing of the Park's visitors and the habitats and behaviour of its wildlife.

The main conclusions of this preliminary environmental assessment are:

As the most heavily protected urban park in the UK, regularly used by millions of people, Richmond Park should be accorded the highest status in this ACP – equal to Areas of Outstanding Natural Beauty (AONB) and National Parks. The Heathrow ACP should seek to avoid flight paths below 7,000 feet over Richmond Park.

1 Noise element:

- 1.1 Bursts of intense (L_{max} of 68-83dB) noise from numerous arrivals would overwhelm Richmond Park's exceptionally low ambient noise levels (23-40dB);
- 1.2 The current occasional departures over Richmond Park should not continue. As per government noise policy, their adverse effects on people should be reduced;
- 1.3 L_{eq} with 16/8hr average is not an appropriate metric to assess the noise impact of flight path impacts on Richmond Park and its visitors;
- 1.4 Given the >5.5m visitors to Richmond Park each year, people affected – not resident population affected, is an appropriate measure; and
- 1.5 The assessment of noise impacts should include the effect on both human mental health and wellbeing and wildlife – see the Tranquillity and Biodiversity sections.

2 Air Quality element:

- 2.1 Up to 44 tonnes of NOx could be emitted over the Park vs. the 10-15kgN/ha/yr critical load level of the Park's protected acid grassland, causing decline in typical species and in species richness, with significant cumulative effects over years and decades; and
- 2.2 Because of the uncertainty and lack of specific research of the cumulative effects on such sensitive receptors, the EA should adopt the precautionary principle.

3 Tranquillity element:

- 3.1 Richmond Park should be treated the same as National Parks and AONBs in requiring a tranquillity assessment;
- 3.2 A baseline survey of Richmond Park per the Bentley methodology should be done, including the benefits for the mental health and wellbeing of visitors and for the Holly Lodge Centre and for the Royal Ballet School at White Lodge; and
- 3.3 Preliminary assessments of the impact of flight paths: using the Bentley rating shows Richmond Park's tranquillity falling from Excellent (9/10) to Just/Fairly Tranquil (5-6/10); and using WebTAG shows Large Adverse to Very Large Adverse impact.

4 Biodiversity element:

- 4.1 Richmond Park is covered by the CAP1616 requirements that the sponsor should be mindful of “biodiversity implications... identified by stakeholders”;
- 4.2 A change from very low background noise currently to frequent bursts of very high noise would impact significantly bats and birds (especially owls and skylarks);
- 4.3 NOx emissions are likely to impact the habitats of acid grassland and veteran trees and the thousands of species they support;
- 4.4 A preliminary assessment using WebTAG shows Very Large Adverse impact; and
- 4.5 A ‘before’ baseline biodiversity survey and an ‘after’ (with overflights) should be carried out, especially of habitats and species most at risk.

Further details are provided in our preliminary EA paper attached.

If the ACP includes flight path Options over Richmond Park, under CAP1616 Heathrow should carry out the necessary work to provide sufficiently robust environmental assessments to satisfy the CAA. This must cater for the decades ahead that these changes will inevitably impact, and it follows that a precautionary approach is required.

In summary, this preliminary environmental assessment of the impact of additional, especially Heathrow approach, flight paths over Richmond Park has confirmed that such changes would **threaten the survival of Richmond Park as an iconic place, renowned as a haven of tranquility for people and wildlife.**

When we met on 20th June 2022, [REDACTED] said Heathrow Airports Limited were open to FRP’s thinking on the EA and would be glad to engage directly with FRP on this in Sept./Oct. We would be glad to discuss this preliminary EA with you then.

I am copying this letter and assessment to [REDACTED], Chief Executive of The Royal Parks and [REDACTED], MP for Richmond Park, but no further, pending our meeting with you.

Yours sincerely,

[REDACTED]

[REDACTED]

Chairman, The Friends of Richmond Park

[REDACTED]

Richmond Park Preliminary Environmental Assessment

The Friends of Richmond Park

Executive summary

As the most heavily protected urban park in the UK, regularly used by millions of people, Richmond Park should be accorded the highest status in this ACP – equal to Areas of Outstanding Natural Beauty (AONB) and National Parks. The Heathrow ACP should seek to avoid flight paths below 7,000 feet over Richmond Park.

1 Noise element:

- 1.1 Burst of intense (L_{max} of 68-83dB) noise from numerous arrivals would overwhelm Richmond Park's exceptionally low ambient noise levels (23-40dB);
- 1.2 The current occasional departures over Richmond Park should not continue. As per government noise policy, their adverse effects on people should be reduced;
- 1.3 L_{eq} with 16/8hr average is not an appropriate metric to assess the noise impact of flight path impacts on Richmond Park and its visitors;
- 1.4 Given the >5.5m visitors to Richmond Park each year, people affected – not resident population affected, is an appropriate measure; and
- 1.5 The assessment of noise impacts should include the effect on both human mental health and wellbeing and wildlife – see the Tranquillity and Biodiversity sections.

2 Air Quality element:

- 2.1 Up to 44 tonnes of NO_x could be emitted over the Park vs. the 10-15kgN/ha/yr critical load level of the Park's protected acid grassland, causing decline in typical species and in species richness, with significant cumulative effects over years and decades; and
- 2.2 Because of the uncertainty and lack of specific research of the cumulative effects on such sensitive receptors, the EA should adopt the precautionary principle.

3 Tranquillity element:

- 3.1 Richmond Park should be treated the same as National Parks and AONBs in requiring a tranquillity assessment;
- 3.2 A baseline survey of Richmond Park per the Bentley methodology should be done, including the benefits for the mental health and wellbeing of visitors and for the Holly Lodge Centre and for the Royal Ballet School at White Lodge; and
- 3.3 Preliminary assessments of the impact of flight paths: using the Bentley rating shows Richmond Park's tranquillity falling from Excellent (9/10) to Just/Fairly Tranquil (5-6/10); and using WebTAG shows Large Adverse to Very Large Adverse impact.

4 Biodiversity element:

- 4.1 Richmond Park is covered by the CAP1616 requirements that the sponsor should be mindful of "biodiversity implications... identified by stakeholders";
- 4.2 A change from very low background noise currently to frequent bursts of very high noise would impact significantly bats and birds (especially owls and skylarks);
- 4.3 NO_x emissions are likely to impact the habitats of acid grassland and veteran trees and the thousands of species they support; and
- 4.4 A preliminary assessment using WebTAG shows Very Large Adverse impact; and
- 4.5 A 'before' baseline biodiversity survey and an 'after' (with overflights) should be carried out, especially of habitats and species most at risk.

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 - 5.2 CO2 emissions element
 - 5.3 Air Quality element
 - 5.4 Tranquillity element
 - 5.5 Biodiversity element
-
- Appendix A General principles for environmental assessments
- Appendix B Richmond Park's international and national designations and relevant legislation

1. The Importance of Richmond Park

Richmond Park is one of the most important parks in the UK. It is London's largest Royal Park and the largest enclosed urban park in Europe, covering 955 hectares. It is a Special Area of Conservation, a Site of Special Scientific Interest, and a National Nature Reserve - and is probably the most heavily protected park in the country. It is one of only two areas in the Heathrow wider area with this triple designation (the other being the much smaller Burnham Beeches). It is of both national and international importance for wildlife conservation – especially veteran trees, invertebrates, acid grasslands, bats, and birds.

Richmond Park is also the quietest place (with background noise of less than 25dB(A), equivalent to a deep rural area), and at night the darkest place, in London. People come to Richmond Park from all over London and wider afield to enjoy its peace and tranquillity, as a respite from the bustle and noise of the city.

It is a Grade 1 Registered Historic Park and Garden of '*high historical significance*': established in its present form by King Charles I in 1637 and preserved carefully ever since.

Richmond Park is world famous. It is visited by over 5.5 million people per year (similar in popularity to the British Museum at 5.8 million, and matching the number of visitors to all 163 NNRs managed directly by Natural England combined²), with a rapidly increasing number of overseas visitors, drawn by social media.

It is a haven for wildlife, a home to thousands of species of birds, bats, butterflies, beetles, bees and wasps, other invertebrates and fungi (many of them rare and protected) and 630 red and fallow deer. It has over 1,200 veteran trees, some over 600 years old, and is the largest area of lowland acid grassland in London, with its accompanying grasses and wildflowers.

It's a magical space, loved by hundreds of thousands of Londoners.

2. Heathrow's airspace change proposal (ACP)

In the context of the CAA's Airspace Change Masterplan CAP2312a³ and in compliance with the requirements of CAP1616⁴, on 30th July 2021 Heathrow as a change sponsor initiated their local airspace change proposal (ACP) by lodging their Statement of Need on the CAA portal⁵.

Heathrow's ACP is a 'Level 1' proposal.

CAP1616 requires that, as part of Stage 2B – Options Appraisal, the change sponsor must undertake environmental assessments⁶. At the time of writing, Heathrow's ACP is in Stage 2A and, though the process has been set out, no flight path Options have yet been tabled.

² [Richmond Park Management Plan](#) p18

³ <https://publicapps.caa.co.uk/docs/33/CAP2312A%20Masterplan%20assessment%20and%20acceptance.pdf>

⁴ https://publicapps.caa.co.uk/docs/33/CAA_Airspace%20Change%20Doc_Mar2021.pdf

⁵ <https://airspacechange.caa.co.uk/PublicProposalArea?PID=386>

⁶ CAP1616 p156 B8

Therefore, this environmental assessment is preliminary. This can be advanced to a full environmental assessment when flight path Options are published.

3. CAP1616 environmental assessment (EA) requirements

CAP1616 states that an EA must be included, or taken account of, in several Stages⁷:

- Stage 2B Option appraisal;
- Stage 3A Consultation preparation;
- Stage 4A Update design; and
- Stage 5A CAA assessment.

CAP1616 (in its Appendix B) and the CAP1616a technical annex⁸ provide guidance on assessing the environmental impacts of an airspace change⁹. Principles of environmental assessments particularly germane to Richmond Park are in Appendix A.

The following EA elements must be assessed by Level 1 change sponsors¹⁰:

1. Noise;
2. CO2 emissions;
3. Local air quality;
4. Tranquillity; and
5. Biodiversity.

4. Richmond Park's international and national designations and exceptional visitor numbers

Summary

Richmond Park is a site of national and international importance for wildlife conservation, designated as:

- Site of Special Scientific Interest (SSSI);
- National Nature Reserve (NNR); and
- Special Area of Conservation (SCA).

It is/has:

- Grade 1 Registered Historic Park and Garden;
- Green Flag Award; and
- Green Heritage Site Accreditation.

As the most heavily protected urban park in the UK, Richmond Park should be accorded the highest status in this ACP – equal to Areas of Outstanding Natural Beauty (AONB) and National Parks. Given the exceptionally high number of visitors and this equivalence, the Heathrow ACP should seek to avoid flight paths below 7,000 feet over Richmond Park.

CAP1616 notes the requirement on change sponsors to take into account and seek to avoid adverse impacts on AONBs and National Parks **and any other local areas with similar characteristics that are identified through community engagement.**

⁷ CAP 1616 p154

⁸ CAP1616a 1.1 p2

⁹ CAP1616 138 p41

¹⁰ CAP1616 B12,13 p156

As to AONB/NP equivalence, CAP1616 notes that *“the statutory purpose of National Parks is to conserve and enhance their natural beauty, wildlife, and cultural heritage and to promote opportunities for the understanding and enjoyment of their special qualities by the public. The statutory purpose of AONBs is to conserve and enhance the natural beauty of their area. Change sponsors are required to have regard to these statutory purposes when developing airspace change proposals”*.

The Royal Parks management plan notes that *“Richmond Park is one of the 10 largest NNRs in the country, but what makes the Park unique is its accessibility”*¹¹ NNR is the highest level of conservation protection provided by UK legislation alone and NNRs must be managed for the purposes of conservation of wildlife and habitats and, provided it does not compromise the conservation objectives, for the recreational enjoyment of nature. For Richmond Park’s full range of designations and relevant international and national legislation, refer Appendix B. Given Richmond Park’s statutory designations, it is clearly a local area that has similar characteristics to an AONB or National Park.

The Government’s relevant policy framework (as set out in ANG17) includes three environmental objectives, of which the first is to limit and, where possible, reduce the number of people significantly affected by adverse impacts from aircraft noise¹².

Against that background, CAP1616 says *“It will not always be practical to completely avoid overflying National Parks or AONBs – and there are no legislative requirements to do so, as this would be impractical However, it is important that local circumstances, including **community feedback on specific areas that should be avoided**, are taken into account where possible”*. And change sponsors must show *“... how they have considered and taken account of this impact as part of their option development and final design”*.¹³

ANG17 notes that, in the context of AONBs and NNRs, *“The government’s policy continues to focus on limiting and, where possible, reducing the number of people in the UK adversely affected by aircraft noise and the impacts on health and quality of life associated with it.”*¹⁴

The underlying assumption in CAP1616 (and ANG17¹⁵) is that AONBs and NPs and other areas with similar characteristics are generally fairly empty of people. One of the key principles involved in airspace design will usually be avoiding overflight of populated areas below 7,000 feet (amsl) where possible. However, Richmond Park is unusually heavily visited, to such an extraordinary extent – attracting over 5.5m visitors per year - that, in this very special case, in order to deliver on Government ANG17 policy objectives, one of the key principles in designing Heathrow’s airspace should be to avoid overflight of Richmond Park even though it is not a “populated area”.

The assessment presented here demonstrates that Richmond Park is ‘a specific area that should be avoided’ because of the impact flight paths would have on it and on a huge number of people.

¹¹ [Richmond Park Management Plan](#) p18

¹² ANG17 1.2a p8 from The Civil Aviation Authority (Air Navigation) Directions 2017

¹³ CAP1616 B76-78 p172

¹⁴ ANG17 3.32 p23

¹⁵ ANG17 3.31-3.35 p23-24

5. Richmond Park Environmental Assessment elements

5.1 Noise element

Baseline

- Richmond Park is currently the **quietest place in London**. It is typically 35-40dB in the daytime, 25-32dB in shoulder periods, and less than 25dB at night. These noise levels would be considered to be very low, but in the context of an urban environment such as Greater London these noise levels are **exceptionally low**; and
- The current regular arrival flights passing to the north of the Park affect the northern periphery of the Park only; in contrast occasional flight departures over the south and centre of the Park affect much of the Park and are highly intrusive.

Post-implementation

- No flight path Options have yet been proposed under Heathrow's ACP. However, flight envelopes in the 2019 Heathrow Expansion included arrivals directly across the Park, with **L_{max} of 68-83dB** from each overflight; and
- These bursts of intense noise would propagate across the **whole Park** – 83dB attenuating to ca. 61dB on the periphery.

Preliminary assessment

1. Bursts of intense (**L_{max} of 68-83dB**) noise from numerous arrivals would overwhelm Richmond Park's exceptionally low ambient noise levels (23-40dB);
2. The current occasional departures over Richmond Park should not continue. As per government noise policy, their adverse effects on people should be **reduced**;
3. **L_{eq}** with 16/8hr average is not an appropriate metric to assess flight paths over Richmond Park. Appropriate metrics are: **L_{max}, N65**, difference contours, and **L_{max}** for specific aircraft types at a number of locations in Richmond Park;
4. Given the >5.5m visitors to Richmond Park each year, **people affected** – not resident population affected, is the most appropriate measure of achieving the government's key environmental objective of minimising the number of people significantly affected by adverse impacts from aircraft noise. The effects of noise, including the peaks and intervals effects of noise intrusion having disproportionate effects, on the >5.5m annual visitors must be properly assessed; and
5. The assessment of noise impacts should include the effect on both **human mental health and wellbeing** and **wildlife** – see the Tranquillity and Biodiversity sections.

5.1.1 Noise baseline in Richmond Park

In May 2021 Dragonfly Acoustic Consulting Ltd. conducted a Noise Assessment of Richmond Park to establish typical diurnal and areal ambient and background noise levels using industry standard methodologies.

Noise measurements were taken at 15 'short-term' locations, and 4 'long-term' locations, distributed across Richmond Park. These locations were chosen to match the characteristics of different areas, e.g. known wildlife habitats, centre and periphery, near gates and roads.

The survey was done intentionally when aircraft movements were limited due to the Covid-19 pandemic, in order to establish 'normal' ambient noise without the influence of aircraft.

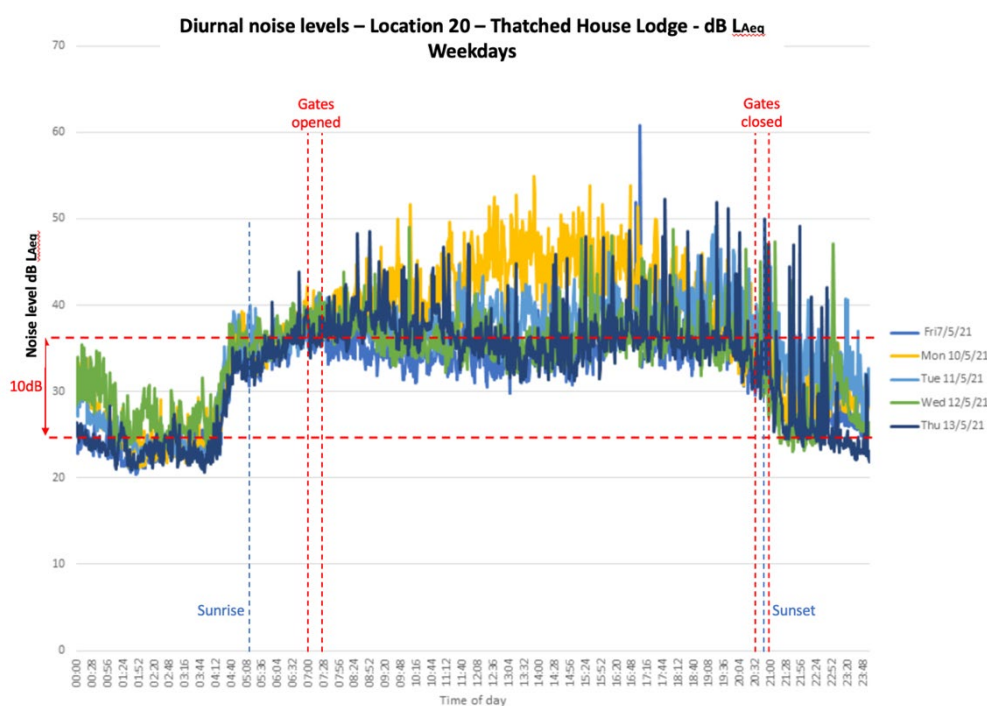
However, a few arrivals were taking place on Heathrow runway 27L, as usual on westerly operations. Departures also took place (under easterly operations) for a period and were captured by the survey.

The main findings of the survey were:

1. The quietest area is the central core of the Park; the loudest is the periphery which is nearest to the gates, internal and external roads and residential areas; the areas of known concentration of wildlife were among the quietest areas;
2. The lowest noise levels reached in the normal diurnal variation at the long-term measurement locations are **below 25dB**;
3. In isolation, these noise levels would be considered to be very low, in the context of an urban environment such as Greater London these noise levels would be considered to be **exceptionally low**; and
4. The most significant noise during the day is from traffic (internal and external to the Park). However, the impact of traffic noise from internal roads is limited away from roads and noise levels fall quickly after the sunset gate closures (see below).

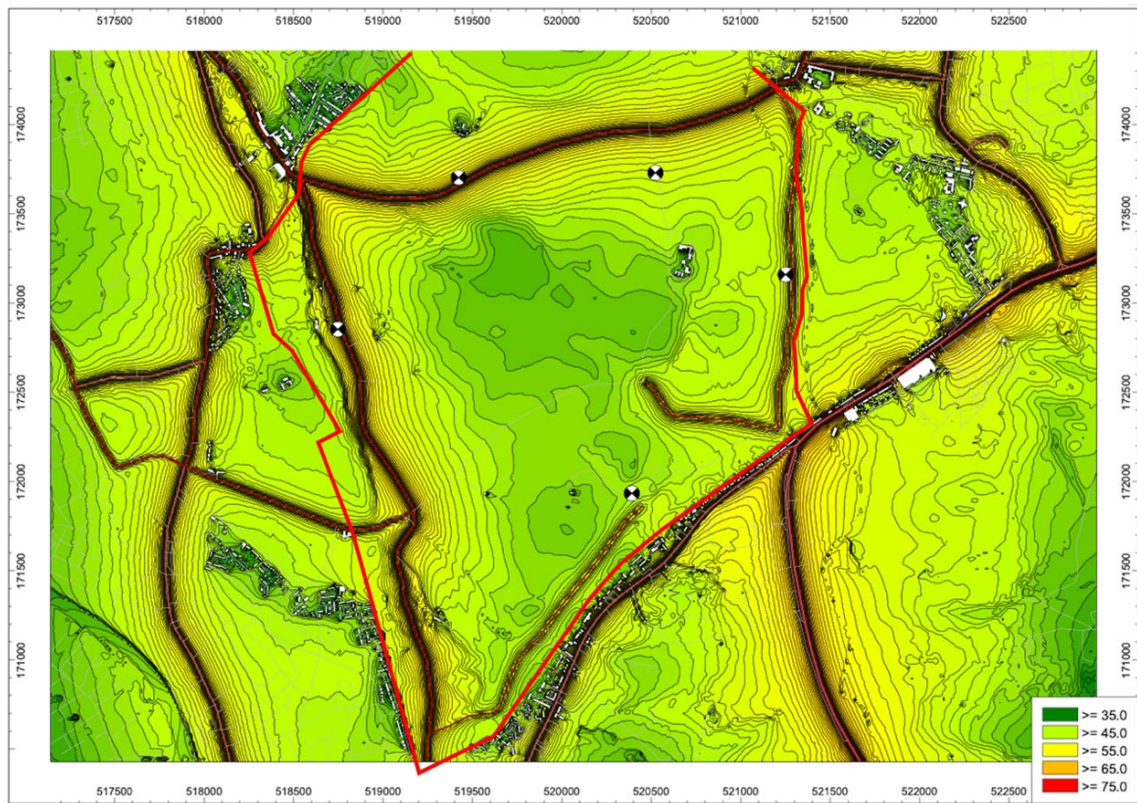
Diurnal noise variations were recorded at the long-term measurement locations. Note that Richmond Park opens to vehicle traffic at 07:30 (winter) or 07:00 (summer), but the closing time varies week by week through the year, from 16:00 in mid-winter to 21:00 in mid-summer. As per the Dragonfly report¹⁶ and Fig. 1 below:

- The lowest noise levels recorded at the long-term measurement locations were **22.6-25.1dB LAeq, 5mins**, at around 03:00;
- General noise levels rose with sunrise / dawn chorus (from 04:30 at the time of the survey) by some 10dB to **around 35dB**;
- When the vehicle gates open to traffic (07:00) general noise levels remained at this level, or slightly higher, i.e. **35-40dB, throughout the day**;
- With the closing of the vehicle gates at sunset the noise levels fall steeply by 5-10dB to **25-32dB throughout the evening**.



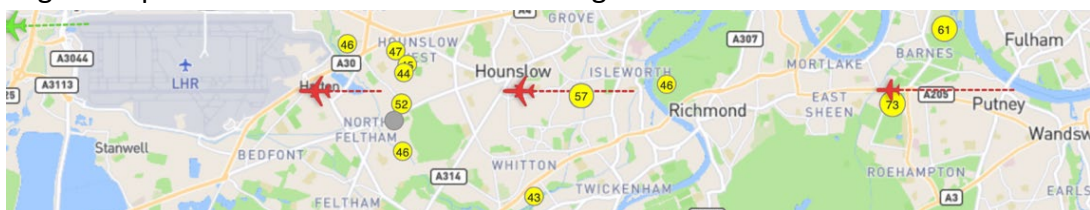
¹⁶ Richmond Park Noise Monitoring Summary Report, Dragonfly Consulting, DC3555-R1v3 8-Aug-22

Vehicle traffic noise propagation within the Park was modelled by Dragonfly using the CadnaA noise modelling software package by Datakustik based on one hour traffic flows at key points around the Park. As illustrated by Fig. 2 below, this confirmed that traffic noise from within the Park is not only restricted to gate opening times, but when open does not propagate far from the roads (perhaps due to the 20mph speed limit), and noise from roads outside the Park does not significantly penetrate the Park.



Current aircraft noise in Richmond Park comes from two sources:

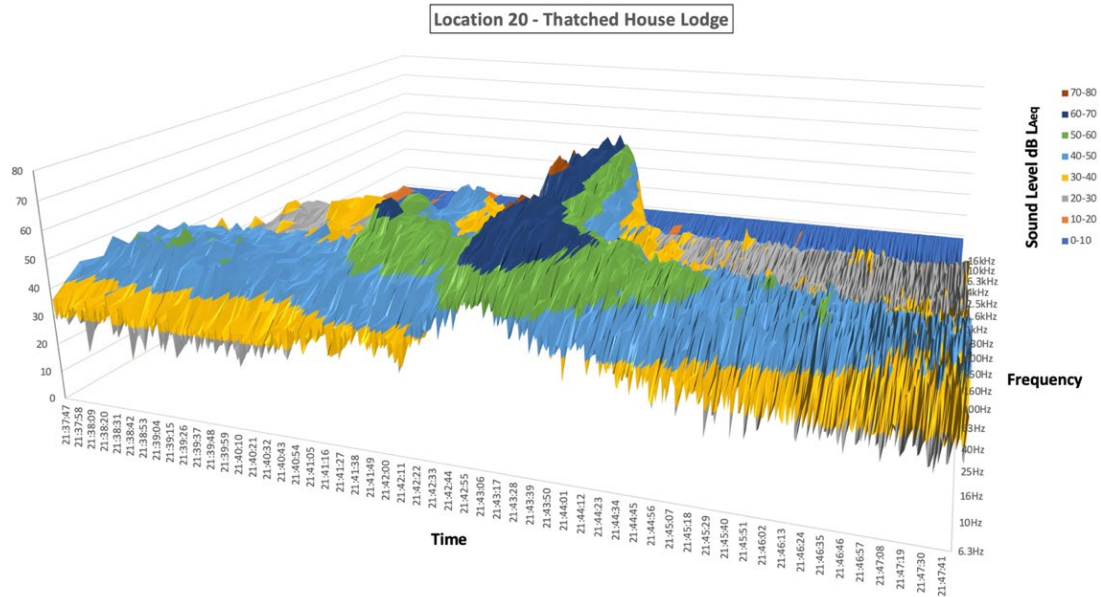
1. Aircraft passing to the north of the Park: on approach to runway 27L under westerly operations - along the Upper Richmond Road, about half a mile from the Park's northern boundary. These aircraft are present every day with two runway operation from 06:00-07:00 and with alternation for 18 night flights from 04:30-06:00 and then either 07:00-15:00 or 15:00-23:00. These aircraft do not 'overfly' Richmond Park under the CAP1498 definitions. However, monitoring by Friends volunteers in October 2021 when operations were returning to normal showed noise from these aircraft at the Park boundary: 60dB avg. and 65db max near Sheen Gate; and 65dB avg. and up to 75dB max to the west near Bog Gate.



2. Aircraft passing over the southern part of the Park: departures using flight corridors D09L/RDET. This occurs for some 30% of the year when Heathrow is on easterly

operations and then comprises around 25% of all departures i.e. up to 10 aircraft/hour¹⁷.

These aircraft tend to pass over Richmond Park at 4,000-5,500ft (a CAP1498 overflight cone of 700-1,500m) and are **highly intrusive** - resulting in short bursts of 70-80dB against a background level of 35-40dB in the day or 25-32dB in the evening (Fig. 4 below).

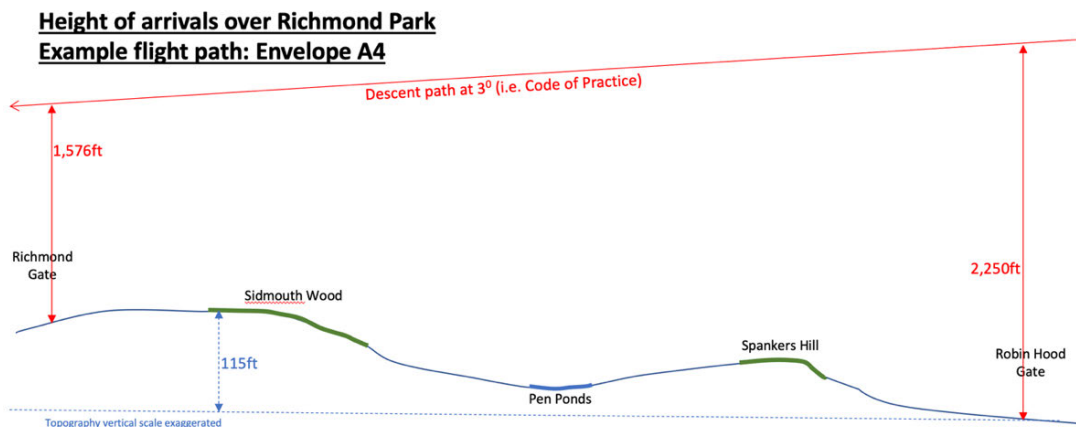


5.1.2 Noise post-implementation

At the time of writing, Heathrow’s ACP is in Stage 2A and, though the process has been set out, no flight path Options have yet been tabled.

However, other data allow the noise levels from such flights to be estimated. In Heathrow’s Airport Expansion Consultation in 2019, flight path envelopes were tabled – including several westerly operations arrivals envelopes over Richmond Park (envelopes A4, IPA A2, and I2). These, combined with NATS data, can be used to gauge what arrivals over Richmond Park could mean:

- An example arrival in envelope A4¹⁸, on the standard 3⁰ approach to runway 27L, would have an altitude between 2,250ft and 1,576ft above ground level while passing over Richmond Park (Fig 5 below);



¹⁷ Noise Action Plan 2019-2023 Supporting Annexes p7

¹⁸ A4 envelope: “Heathrow’s Airspace Design Envelopes for Expansion - January 2019” p9

- According to NATS data¹⁹ using UK civil Aircraft Noise Contour model “ANCON” version 2, the L_{max} experienced at ground level from these flights would peak at between 68dB (50-seat regional jet) and 83dB (400 seat 4 engine jet) around Sidmouth Wood / Sawyers Hill on the west side of the Park. L_{max} earlier in the approach, around Spankers Hill on the east side of the Park, would be 5-6dB less.

Modelling of aircraft noise propagation shows that, when an aircraft is passing over Sidmouth Wood / Sawyers Hill its noise would propagate across the whole extent of Richmond Park, attenuating by some 22dB by the far limits of the Park. So, when (say) a 400 seat 4 engine jet on the standard 3⁰ approach gradient is passing over Sidmouth Wood / Sawyers Hill, the L_{max} experienced by people and wildlife in Richmond Park would be:

- 83dB directly below the aircraft; reducing to
- 61dB or so on the far peripheries of the Park.

This is much greater than the ambient noise level at any point in the Park at any time.

Moreover, under Envelope A4 alone 0-47 arrival flight per hour could pass over the Park - up to one every 77 seconds. As it would take aircraft some 40 seconds to transit Richmond Park, this would amount to virtually constant noise because, as the noise of one aircraft is fading, the approach of the next is heard – building to its ca. 83dB crescendo.

Note that the effective impact of the noise on the Park and its visitors is likely to be even greater than these dB levels suggest, because of:

- The enormous difference between the ambient noise and aircraft noise - much greater than, say, nearby major roads, such as the Upper Richmond Road;
- The unhindered propagation of the aircraft noise across the Park’s open grassland: it is there wherever people go;
- There being nowhere to escape from it - no houses, shops or other buildings; and
- The chasm between visitors’ expectations of a quiet space for rest and relaxation and the cacophony of low and loud overflights every 77 seconds.

5.1.3 Noise CAP1616 requirements and guidance

- On noise impacts, CAP1616 says “... the CAA will weight the outcomes from ‘primary’ metrics over ‘secondary’ metrics. Primary metrics will be those that are used to quantify significant noise impacts, such as WebTAG outputs. Secondary metrics will be those that are not being used to determine significant impacts but which are still able to convey noise effects, such as ... L_{max} levels.”²⁰
- Change sponsors have the option to “... use additional noise metrics for explaining and portraying noise impacts to affected communities. ... **engagement with affected communities** may reveal other metrics that they feel would be useful for explaining noise impacts”.²¹
- CAP1616a says change sponsors may produce diagrams showing L_{max} for specific aircraft types at a number of locations at ground level beneath the airspace under consideration.²²

¹⁹ <https://www.nats.aero/environment/noise-and-emissions/measuring-noise/lmax/>

²⁰ CAP1616 B54 p165

²¹ CAP1616 B55 p165

²² CAP1616a 1.45, p13

- CAP1616 requires change sponsors to “... demonstrate that they have considered the impacts that any changes in noise will have on those significantly affected by noise, most importantly the impacts on communities’ health and quality of life as a result of noise”.²³

5.1.4 Noise preliminary assessment

Given the >5.5m visitors to Richmond Park each year, **people affected** – not resident population affected, is the most appropriate measure. This would comply with the first of the government’s three key environmental objectives with respect to air navigation: “... to limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise.”²⁴ The effects of noise on the >5.5m annual visitors must be properly assessed, including the peaks and intervals effects of noise intrusion having disproportionate effects.

Clearly bursts of intense (L_{max} of 68-83dB) noise from numerous **arrivals** would overwhelm Richmond Park’s exceptionally low ambient noise levels (23-40dB). While current arrivals are half a mile from the Park’s northern boundary and only affect one part of the Park, the flight paths envelopes proposed in 2019 spanned the centre of the Park, meaning the noise would be heard throughout the Park. They would be damaging and intrusive for both people and wildlife and should not be proposed as an Option.

The current occasional departures over Richmond Park already generate this level of noise over the centre of the Park, and should not continue for the same reason. As per government noise policy (ANG17), “... the total adverse effects on people as a result of aviation noise should be limited and, where possible, **reduced** ...”²⁵

This preliminary assessment is based on the most appropriate noise metrics for Richmond Park. L_{eq} with 16/8hr average is not an appropriate metric to assess the noise impact of flight path impacts on Richmond Park and its visitors. More appropriate metrics are: **L_{max} , N65, and difference contours**.

1. L_{max} noise levels – it is recommended that typical and noisiest aircraft types are portrayed, at typical and ‘worst case’ altitudes. Noise values can be portrayed at key locations (as identified via engagement or consultation).²⁶
2. N65 contours showing the locations where the number of events (i.e. flights) exceeds a pre-determined noise level, expressed in dB L_{max} ²⁷.
3. Difference contours. “These illustrate relative changes in noise impacts, both increases and decreases by geographic area”.

The assessment of noise effects on Park visitors should include the human health effects of noise on **mental health and wellbeing**. Richmond Park is an oasis of tranquillity in the hustle and bustle of London and visitor surveys show this as the main reason for people visiting the Park. Low noise level is particularly important for the autistic children and young people

²³ CAP 1616 B47 p164

²⁴ ANG17 1.2 p8

²⁵ CAP1616 B46 p164 – from ANG17

²⁶ CAP1616 B55 p165

²⁷ CAP1616 p162

who visit Holly Lodge Centre and for charities such as Dose of Nature who use the Park as part of the therapy they provide. This is dealt with more fully in the Tranquillity section.

The assessment should also include the effect of noise on wildlife. Noise pollution is also a threat to **wildlife**. The assessment of noise exposure on wildlife is complex. Intermittent and unpredictable noise is often perceived as a threat, and chronic and frequent noise, such as from regular aircraft arrivals, can impair sensory capabilities, masking sounds used for communications, foraging, detection of predators and navigation. The resulting changes in behaviour can reduce fitness (either directly or indirectly) and survival²⁸. This is dealt with more fully in the Biodiversity section.

5.2 CO2 emissions element

This element is of little relevance to Richmond Park: CO2 emissions are only prioritised above 7,000ft and are globally dispersed.

However, if Heathrow include Options of, say, PBN arrivals making sharp turns over Richmond Park for a joining point close to touchdown, the extra fuel burn resulting from increased engine thrust needed for the banked turn would increase CO2 emissions and this must be taken into account when evaluating such an Option, along with the increased noise of such manoeuvres.

5.3 Air Quality element

Baseline

- Richmond Park is currently **the cleanest place** in southwest London, possibly in all of London, with the current NOx level being extraordinarily low, at **12µgm⁻³**;
- Richmond Park supports the largest area of lowland acid grassland in Greater London - **a nationally important habitat and highly sensitive to NOx**; and
- Richmond Park also has 1,200 veteran trees, some over 600 years old, which have developed in an environment of very low NOx.

Post-implementation

- A consequence of the ACP could be up to 47 arriving aircraft per hour passing over the Park at 1,500-2,300ft, with significant emissions of NOx; and
- While some of the emissions may disperse into the upper atmosphere, a proportion is likely to fall to the ground, on a scale unprecedented in the Park's history.

Preliminary assessment

1. Up to 44 tonnes of NOx could be emitted over the Park vs. the 10-15kg N/ha/year critical load level of the Park's acid grassland, causing decline in typical species and in species richness, with significant **cumulative effects over years and decades**; and
2. Because of the uncertainty and lack of specific research of the cumulative effects on such sensitive receptors, **the EA should adopt the precautionary principle**.

²⁸ [A framework for understanding noise impacts on wildlife: an urgent conservation priority](#). Francis & Barber, Frontiers in Ecology and the Environment 2013

5.3.1 Air quality baseline in Richmond Park

The 2021 Air Quality Status report²⁹ for Richmond shows Richmond Park to have the lowest annual mean NO₂ concentration in the Borough at 12µgm⁻³. This is exceptionally low. In the last seven years it has never been above 21µgm⁻³, compared with the EU target of 40µgm⁻³.

Richmond Park's SSSI designation also recognises that Richmond Park supports the largest and most important area of lowland acid grassland in the Greater London region. Lowland acid grassland is a habitat of principal importance and regarded as a priority for the conservation of biodiversity in England and in the London and Richmond Action Plans (refer Appendix B). Some of the Park's acid grassland date back to its enclosure in 1637.

Acid grasslands form on low-nutrient, acidic soils (pH 4 to 5.5) overlying acidic rocks or on free-draining, gravelly and sandy soils. Acid grasslands are generally N limited³⁰ and are vulnerable to N deposition - which provides a fertilisation effect. UK surveys³¹ show clear, nitrogen-driven declines in species richness.

Richmond Park is among the top five sites in the UK for ancient and veteran trees and their associated invertebrate assemblage. The veterans are 400 to over 600 years old and have developed over the centuries in an environment of very low nitrogen.

Richmond Park is managed to minimise the level of nitrogen. No fertilisers are used anywhere. The deer are not given additional feed except sometimes in winter and then only with grass cut in the Park. These long-established practices help to maintain a low nitrogen environment for both acid grassland and veteran trees.

5.3.2 Air quality post-implementation

At the time of writing, Heathrow's ACP is in Stage 2A and, though the process has been set out, no flight path Options have yet been tabled.

However, as noted above, ACP Options could include arrivals under westerly operations passing over the Park at altitudes between 2,250ft and 1,576ft above ground level, at up to 47 aircraft per hour. The average aircraft on arrivals approach will generate 400gm of NO_x while passing over Richmond Park, with a total of up to 44 tonnes for all the arrivals per

NO_x emissions from aircraft on arrivals approach over Richmond Park

Calculation summary

- NO_x emissions by aircraft on Heathrow approach = 626.87 tonnes (2017, Heathrow)
- Arrivals per year = 237,017 (2017, Heathrow)
- NO_x emissions per aircraft on Heathrow approach = 2.64kg
... while over Richmond Park this would amount to 400gm
- Potential no. of arrivals over Richmond Park = 0-47/hr (Heathrow 2019 consultation)
- Max no. per year, allowing for alternation & easterly operations = 109,000
- Potential NO_x emissions per year over Richmond Park (arrivals only) = **43.7 tonnes**

²⁹ https://www.richmond.gov.uk/media/25357/annual_status_report_2022.pdf - location 28

³⁰ <https://www.apis.ac.uk/node/963>

³¹ Maskell et al 2010; Stevens et al 2004, 2010

year, after allowing for alternation and easterly operations. While some of the emissions will disperse into the upper atmosphere, a proportion is likely to fall to the ground.

The scale of such NOx emissions is totally unprecedented in the history of Richmond Park's acid grasslands.

5.3.3 Air quality CAP1616 requirements and guidance

The third of the government's three key environmental objectives with respect to air navigation is: "*... to minimise local air quality emissions...*"³²

CAP1616 states that air quality "*... assessment is only required to be undertaken when the proposed change has the potential to have an impact on emissions (either their volume or distribution) below 1,000 feet and in the vicinity of a location that has been designated as an Air Quality Management Area (AQMA)*"³³ and "*Due to the effects of mixing and dispersion, emissions from aircraft above 1,000 feet ... are unlikely to have a significant impact on local air quality. Therefore, the impact of airspace design on local air quality is generally negligible*"³⁴.

It also says "*... there could be circumstances where local air quality is a consideration because emissions from aircraft ... landing ... have the potential to contribute to overall pollution levels in the area. Where these activities are directly affected by the airspace change proposal, this could lead to a situation where prioritising noise creates unacceptable impacts in terms of local air quality or might risk breaching legal limits for air quality*"³⁵.

Furthermore, CAP1616a states³⁶ that change sponsors "*... must include consideration of whether local air quality could be impacted when assessing airspace change proposals*

In different guidance, ICAO10031³⁷ states that, while air quality changes incl. NOx are most relevant below 1,000ft, they are **also relevant up to 3,000ft**, citing ICAO9889³⁸ "*... differences to emissions above 1,000ft (300m) AGL will normally have little impact on changes in ground level concentrations... but may need to be included in air quality assessments for other reasons.*"

5.3.4 Air quality preliminary assessment

The CAP1616 guidance follows the standard view that NOx emissions from aircraft flying above 1,000 ft are dispersed into the atmosphere and any falling to the ground are insignificant in the context of ground levels of at least 40µgm⁻³ and often much higher. It does not adequately deal with a situation where ground levels are 12-21 µgm⁻³ and where the key concern is the cumulative very long-term impact (up to 50 years).

³² ANG17 1.2 p8

³³ Richmond Park is included inside the [LBRuT AQMA](#)

³⁴ CAP1616 B72,74 p171

³⁵ Cap1616 B75 p172

³⁶ CAP1616a 1.96 p26

³⁷ Guidance on Environmental Assessment of Proposed Air Traffic Management Operational Changes

³⁸ ICAO 10031 Guidance on Environmental Assessment of Proposed Air traffic Management Operational Changes para 3.3.4 Table 3-1 <https://www.icao.int/environmental-protection/Pages/EnvironmentalAssessment.aspx>

Dry acid grassland covers 210 (22%) of the Park's 955 hectares and 37% of the ground flora. It supports a wide range of species, including a rich variety of wildflowers and some 200,000 anthills of the yellow meadow ant, which is the main food source for the green woodpecker, generally considered the iconic bird of the Park. The anthills in turn support a valuable ecosystem of plants and insects.

The acid grassland is found primarily in the north, in the rough of the golf course in the east and in the far south of the Park³⁹. The first two would be the areas most likely to be overflowed by any new arrival flight paths. The third would be overflowed by departure paths, although the aircraft would be at higher altitude.

Work by UNECE suggests a critical load level of nitrogen for dry acid grassland of 10-15 kg N/ha/yr⁴⁰ above which there is an increase in graminoids, a decline of typical species and a decrease in total species richness.

The calculation in section 5.3.2 suggests that up to 44 tonnes of NO_x could be emitted by aircraft passing over Richmond Park on arrivals approach every year. If only a small proportion of these total annual NO_x emissions of arrival aircraft flying over Richmond Park were to fall to the ground it could well exceed the critical N load/level of the Park's acid grassland

In addition, Richmond Park is among the top five sites in the UK for ancient and veteran trees and their associated invertebrate assemblage, which is a rare habitat across Europe. There are around 1,200 veterans, the vast majority oaks, most of which are 4-500 years old, with a very few older than 600 years. They occur throughout the park in wood pasture and woodlands, shelterbelt, remnants of old hedgerows and the ornamental gardens.

With their associated decay, hollowing, aerial and lying deadwood they provide rare and specialised habitat for hundreds of species of wildlife including birds, bats, mammals, invertebrates, and fungi. Many of these are threatened or notable species and include a large number of specialised saproxylic invertebrates - one of the features for which the Park is designated as a SSSI.

The effects of diffusion of NO_x from aircraft on such sensitive receptors as acid grasslands and veteran trees, the effects of dispersion across the Park, and the cumulative effects over years and decades, are **unproven**. Given the importance of the Richmond Park lowland acid grasslands, and the lack of scientific knowledge of the cumulative effects on such sensitive receptors, **the EA should adopt the precautionary principle**.

³⁹ https://www.royalparks.org.uk/_data/assets/pdf_file/0009/109890/Richmond-Park-Management-Plan-Printable.pdf

⁴⁰ <https://www.apis.ac.uk/node/963>

5.4 Tranquillity element

Baseline

- Richmond Park is probably the most tranquil place in London. Visitor surveys have regularly shown tranquillity is the main reason for visitors coming to it.
- There is no quantitative tranquillity baseline for Richmond Park and, as CAP1616 says, no accepted metric for tranquillity;
- However, based on the very low noise levels, visitor comments and the location of facilities using the tranquillity, it is sensible to conclude that the Park is very tranquil
- A preliminary qualitative assessment using the Bentley methodology also rates Richmond Park's tranquillity as Excellent.

Post-implementation

The effect of flight arrivals over Richmond Park on its tranquillity is likely to be severe; the arrival paths proposed in 2019 went directly over some of the most tranquil areas of the Park, and over both the Holly Lodge Centre and the Royal Ballet School.

Preliminary assessment

1. Richmond Park should be treated the same as National Parks and AONBs in requiring a tranquillity assessment;
2. A baseline survey of Richmond Park per the Bentley methodology should be done, including the benefits for the mental health and wellbeing of visitors, and for the Holly Lodge Centre and the Royal Ballet School at White Lodge; and
3. An assessment of the impact of flight paths using the Bentley rating shows the Park's tranquillity falling from Excellent (9/10) to Just/Fairly Tranquil (5-6/10)
4. A WebTAG assessment shows Large Adverse to Very Large Adverse impact.

5.4.1 Tranquillity baseline in Richmond Park

There is an increasing focus throughout the country on mental health and the importance of green spaces and the contact with nature and the tranquillity they provide, for health and quality of life. This is particularly important in urban areas, especially London with its population density, noise and stress.

Richmond Park is probably the most tranquil space in the London area and is visited by millions of Londoners every year for exactly that reason. Access is both public and free - and easily accessible via public transport. There is no membership/access fee and it is not somewhere that can only be reached by car (unlike many AONBs, National Parks or NNRs). Richmond Park provides opportunity for meaningful respite and physical and mental refreshment for absolutely everyone. In visitor surveys people usually give 'tranquillity' or 'peace and quiet' as the number one reason for visiting the Park, with a high satisfaction with what they find.

Some facilities are located in Richmond Park because of the tranquillity. The Holly Lodge Centre provides educational activities for children and young people from twenty special needs schools across south and west London and Surrey, using three classrooms and a large, specially designed nature trail and allotment. Most of the visitors are autistic and sensitive

to loud noise and particularly value the tranquillity. Other charities such as Dose of Nature use the Park's tranquillity as the key part of the therapy they provide to their patients.

In addition, the Royal Ballet School (11-16 year olds) is located at White Lodge near the centre of the Park. It benefits from the tranquillity in both its teaching and the students experience of living there.

There is no comprehensive quantitative tranquillity baseline for Richmond Park – although the recent Dragonfly survey of noise, usually considered the most important element in tranquillity, found that noise levels in Richmond Park are exceptionally low (see the noise section of this report for details). This measure alone suggests Richmond Park is exceedingly tranquil.

As the CAA says “... there is no universally accepted metric by which tranquillity can be measured ...”, but two of the most recognised methodologies are from the CPRE and Bentley. Also, CAP1616 notes that “Qualitative assessment of tranquillity impacts can be undertaken as part of the options appraisal via WebTAG under ‘Landscape’”⁴¹

The CPRE produced a tranquillity map for England in 2006. From our discussions with the CPRE lead on tranquillity mapping, its use of a 500m grid is a significant drawback. Richmond Park extends to 955 hectares and while some CPRE squares lie wholly within the Park, many extend across the periphery and therefore are heavily influenced by surrounding road noise (the CPRE may correct this in a future update by using a finer grid).

More practically, Bentley’s Natural Tranquillity Method offers the potential for areal mapping of the current tranquillity of Richmond Park. We have made a (mostly qualitative) preliminary baseline assessment of Richmond Park’s tranquillity, using the factors identified by Bentley and his rating scale⁴².

Factors Affecting Tranquillity	1. Chaotic / frantic / harsh 2. Busy / noisy 3. Unsettled / slightly busy 4. Not quite tranquil 5. Just tranquil 6. Fairly tranquil 7. Good tranquillity 8. Excellent tranquillity 9. Perfect tranquillity										
	1	2	3	4	5	6	7	8	9		
1 Sound											Very low level, type is mainly background with some bird noise
2 Visual Appearance											Beautiful landscape, main buildings Georgian or designed to fit with parkland
3 Neighbourhood tranquillity											In area of similar parkland and quiet residential, some gates come off major road
4 Water											Thirty ponds, one very large, but no large river
5 Perceived safety											Virtually no crime in Park, birdsong predominant identifiable noise, except near internal roads, some incidence of ticks etc, probably the safest place in London
6 Comfort											Numerous places to rest, seating at vantage points
7 Smells & textures											Fresh smell from open parkland, water, trees; range of strong natural textures – grassland, woodland
8 Personal factors											Park creates feeling of peace and relaxation, strong emotional attachment from regular visitors and expectations of escape from the city

The overall score is Excellent tranquillity, or 62/72 (86%). We think this is a relatively conservative assessment since there is a good case for scoring Richmond Park as Perfect in terms of its visual appearance and/or perceived safety and/or smells and textures.

⁴¹ CAP1616 B76, p172

⁴² Bentley, Part 2, Factors Affecting Tranquillity, pp18-39. Also Table 5.10 p97

A full quantitative tranquillity assessment of Richmond Park using the Bentley or a similar methodology should be carried out.

5.4.2 Tranquillity post-implementation

At the time of writing, Heathrow's ACP is in Stage 2A and, though the process has been set out, no flight path Options have yet been tabled.

Given the lack of a tranquillity baseline or tabled flight path Options, there are difficulties at this point in quantifying the post-implementation state of tranquillity of Richmond Park under the ACP.

However, if the ACP includes flight arrivals over Richmond Park, the effect of the aircraft noise on its tranquillity is likely to be severe. The arrival flight paths proposed in 2019 went directly over some of the most tranquil areas of the Park, and over both the Holly Lodge Centre and the Royal Ballet School.

5.4.3 Tranquillity CAP1616 requirements and guidance

CAP1616 states that *"The impact upon tranquillity need only be considered with specific reference to Areas of Outstanding Natural Beauty (AONB) and National Parks **unless other areas for consideration are identified through community engagement**. Qualitative assessment of tranquillity impacts can be undertaken as part of the options appraisal via WebTAG under 'Landscape' (TAG Unit A3 – Section 6)"⁴³.*

As discussed in detail in Section 4, Richmond Park is such an area, with similar characteristics to an AONB or National Park (evidenced by its numerous landscape and nature conservation designations listed in Appendix B), and, therefore, the impact on its tranquillity must be considered.

As we say above, the CAA notes that *"... there is no universally accepted metric by which tranquillity can be measured, no formal guidance can be issued at present. ... Assessment by the CAA of these aspects will be on a case-by-case basis"*⁴⁴.

The use of qualitative factors for measuring tranquillity is supported by CAP1616. While it requires that *"... specific metrics must be used in order to derive a quantitative output"*⁴⁵, a qualitative assessment is acceptable if the change sponsor thinks the quantitative way will show little difference (though in that case the change sponsor must justify this, with evidence).

Given that the introduction of overflights with up to 83dB L_{max} into an exceptionally quiet acoustic environment could not possibly be described as *"little difference"*, it follows that it is necessary to quantify the Park's tranquillity baseline.

⁴³ CAP1616 B76, p172

⁴⁴ CAP1616a 1.101,2 p28

⁴⁵ Cap1616 B26, p159

5.4.4 Tranquillity preliminary assessment

Richmond Park should be treated on a par with National Parks and AONBs in the EA. Its legal protection is equivalent to, if not higher than AONBs, its tranquillity is equivalent to them and the statutory purpose of the SSSI, NNR, SAC and listed landscape designations are broadly the same as AONBs.

Noise is usually considered the most important element in tranquillity. As the Noise element assessment says:

- Bursts of intense (L_{max} of **68-83dB**) noise from numerous arrivals on westerly operations would overwhelm Richmond Park's exceptionally low ambient noise levels (23-40dB) and destroy its tranquillity across the whole Park;
- On easterly operations, the Park's tranquillity would suffer from the current highly intrusive departures, with short bursts of 68-83dB;

In addition, people's perception of the noise would be greater than the dB figures suggest because of the enormous difference between the ambient noise and the aircraft noise; the unhindered propagation of the aircraft noise across the Park's open grassland such that it's there wherever people go; there being nowhere to escape from it; and the chasm between people's expectations of a quiet space for rest and relaxation and the cacophony of low and loud overflights every 77 seconds.

On the Bentley rating, 'Sound' will move from Excellent to at least Busy/noisy and maybe Chaotic/frantic/harsh.

There will also be knock-on impacts on visitors' perception of the tranquillity of the Park, for example perceived safety, as harsh aircraft noise replaces birdsong as the dominant noise, and personal factors with visitors concerned about what to expect when they arrive in the Park.

All of these factors are reflected in the preliminary 'after' Bentley rating shown below. The overall score is 44/72 (61%).

Preliminary assessment	Bentley rating scale									Description
	1. Chaotic / frantic / harsh	2. Busy / noisy	3. Unsettled / slightly busy	4. Not quite tranquil	5. Just tranquil	6. Fairly tranquil	7. Good tranquility	8. Excellent tranquility	9. Perfect tranquility	
1 Sound	█									Frequent bursts of intense aircraft noise
2 Visual Appearance								█		Beautiful landscape, main buildings Georgian or designed to fit with parkland
3 Neighbourhood tranquillity			█							Generally poor neighbourhood tranquillity, frequent overflights at low level
4 Water							█			Thirty ponds, one very large, but no large river
5 Perceived safety		█								Aircraft predominant noise, even near internal roads, some incidence of ticks etc, virtually no crime in Park - probably the safest place in London
6 Comfort						█				Numerous places to rest, seating at vantage points - but views include low flying aircraft
7 Smells & textures								█		Fresh smell from open parkland, water, trees; range of strong natural textures – grassland, woodland
8 Personal factors		█								Park creates feeling of stress and disappointment.

Tranquillity only appears in the WebTAG impact assessment as one of the elements under 'Landscape' – see WebTAG Unit 3 – Section 6⁴⁶. Richmond Park scores very highly on all the

⁴⁶ [WebTag Landscape worksheet](#)

elements of ‘Landscape’; it is listed a Grade 1 Historic Park. The impact of new flight paths will be on the Tranquillity element and potentially on the acid grassland from Nox emissions but clearly will not affect other elements.

TAG Landscape Impacts Worksheet

Features	Step 2		Step 3			Step 4
	Description	Scale it matters	Rarity	Importance	Substitutability	Impact
Pattern	Mixed common land, historic deer park	Largest open space in London	NNR, SSSI and SAC	National/international	None - pattern 400 years old	Large Adverse, acid grass vets damaged
Tranquillity	Very low noise, views with no bldgs	>5.5 million visitors, haven for Londoners & tourists	Quietest place in London	London-wide and international importance	No substitute so close to London	Very Large Adverse, mitigation impossible
Cultural	Royal hunting Park and connections	Part of National history	Rare historical & Royal connections	Historical & Royal connections	No - part of national history	No impact
Landcover	Mixed grassland, woodland, water	Veteran trees in UK top 5	Acid grassland, veteran trees	Veteran trees top 5 nationally	No substitute so close to London	Very Large Adverse, to acid grasslands & veteran trees
Summary of character	Developed over 400 yrs, magical space	Grade 1 Historic Park, national & international icon	High, rare in London area	London, national & international	Impossible to substitute	Very Large Adverse, character destroyed
Reference Sources						
Refer main report						
Step 5 - Summary Assessment Score						
Large Adverse to Very Large Adverse						
Qualitative Comments						

In summary, the EA should include:

- A ‘before’ baseline tranquillity, using the Bentley or an equivalent methodology, incorporating the Dragonfly noise survey and the surveys of visitors etc recommended by Bentley. It should also cover the benefits of the Richmond Park’s tranquillity for mental health, including for the Holly Lodge Centre and the Royal Ballet School.
- An ‘after’ survey of the impact of the relevant flight path options.

5.5 Biodiversity element

Baseline

- Richmond Park has a rich biodiversity, developed over the centuries – probably the richest in the London area;
- There is no comprehensive biodiversity baseline, but there is a wealth of habitat and species surveys and data; and
- The Park’s biodiversity is protected by a range of legislation and statutory obligations.

Post-implementation

- Flight arrivals over Richmond Park would have a significant impact on its biodiversity from frequent very high noise levels and NOx emissions.

Preliminary assessment

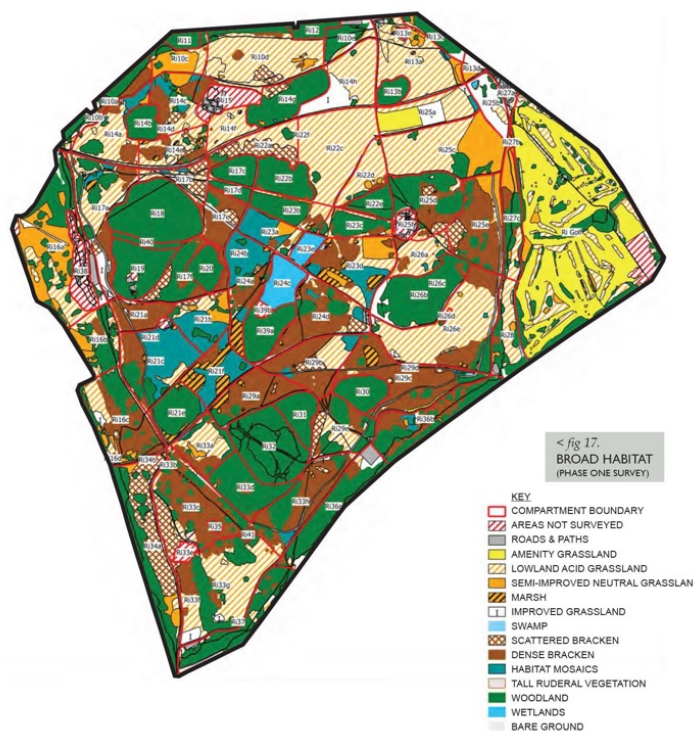
1. Richmond Park is covered by the CAP1616 requirements that the sponsor should be mindful of “*biodiversity implications ... identified by stakeholders*”;
2. A change from very low background noise currently to frequent bursts of very high noise would impact significantly bats and birds (especially owls and skylarks);
3. NOx emissions are likely to impact the habitats of acid grassland and veteran trees and the thousands of species they support;
4. A preliminary assessment using WebTAG shows Very Large Adverse impact; and
5. A ‘before’ baseline biodiversity survey and an ‘after’ (with overflights) should be carried out, especially of habitats and species most at risk

5.5.4 Biodiversity baseline in Richmond Park

Biodiversity encompasses all the plants and animals that are present within a given place, the habitats they need to survive, and the processes that operate in the natural environment. Richmond Park has a rich biodiversity, probably the richest in London. Its habitats are dominated by lowland acid grassland and woodland (mainly oak), but it also has

GROUND FLORA VEGETATION COMMUNITY AREAS
*excluding woodlands, and scrub
v Table 2.

Community	Area (ha)	% of ground flora*
U4b	211.75	36.96
U20c	138.40	24.16
Amenity grassland	60.21	10.51
Habitat mosaics	41.80	7.30
MG1a	37.99	6.63
U20a	32.66	5.70
M25b	9.86	1.72
MG6a	9.49	1.66
MG7b	7.65	1.34
U1f	5.90	1.03
MG10a	3.73	0.65
MG9b	3.14	0.55
MG9a	2.81	0.49
U1b	2.21	0.39
MG7a	1.98	0.35
U2a	0.95	0.17
MG10b	0.61	0.11
OV23a	0.56	0.10
OV25b	0.55	0.10
Unclassified acid grassland	0.33	0.06
OV26d	0.12	0.02
S6	0.09	0.01
U5	0.06	0.01
Total	572.86	100.00



large areas of wetland and marshland, bracken semi-improved neutral grassland and habitat mosaics.

This mix of habitats has developed over the centuries. Five of the Park's 42 woodlands were planted before enclosure in 1637 and some of the acid grassland and the anthills it supports date back at least 200 years. Each of the 400-600+ year old veteran oak trees support up to 1,000 species of invertebrates, fungi, birds and bats, with the number of species supported increasing as the tree ages.

The mix of habitats has a wide variety of species, many of them scarce or threatened⁴⁷. The list includes 9 species of bat⁴⁸, 120 species of birds (of which over 50 nest)^{49,50,51,52}, 730 of moth (of which 46 are scarce or threatened), 170 species of bees, wasps and ants and more than 350 species of fungi. The Park's invertebrate assemblage is one of the top 5 in the

⁴⁷ Acid grasslands, normal and veteran trees & long-term cover, grasslands, water bodies incl. Pen Ponds, wetland habitats, marshlands, fenced scrub, Isabella Plantation, Beverley Plain and Brook, Dann's Valley, woodland understorey, standing and fallen timber ('deadwood habitat')

⁴⁸ Brown Long-eared, Noctule, Leisler's, Serotine, Daubenton's, Common Pipistrelle, Nathusius' Pipistrelle, Soprano Pipistrelle, Natterer's

⁴⁹ RSPB Red-listed (of serious concern): Starling, Mistle Thrush, Song Thrush, Grey Wagtail, Skylark, and Starling.

⁵⁰ RSPB amber-listed: Reed Bunting, Greenfinch, Dunnock, Meadow Pipit, Kingfisher, Stock Dove, Tawny Owl, Mute Swan and Kestrel

⁵¹ Resident owl species: Tawny (yellow listed) and Little Owl

⁵² Average 119 species of birds per year includes numerous red and amber listed, some of which over-winter.

<https://www.frp.org.uk/wp-content/uploads/2019/01/The-Birds-of-Richmond-Park-2009-2018-Final.pdf>

country, with 1,350 species of beetle, including 347 saproxylic (of which 140 are of conservation status).

While there is no comprehensive biodiversity survey of Richmond Park, there is a wealth of specific habitat and species surveys, either commissioned from professional firms or annual or special recordings done by the Park's wildlife groups (including birds, butterflies, wildflowers, fungi and riverfly). Professional surveys done in recent years include yellow meadow ants, nocturnal mammals, dragon/damselflies, soil, veteran trees and bats (a current survey).

Much of this data is kept on the GIGL (Greenspace Information for Greater London) database, with The Royal Parks also keeping its own database of trees, including veterans and those affected by OPM and other tree diseases.

It's sometimes said that Richmond Park must be the most documented large green open space in the UK.

Richmond Parks' biodiversity is protected by various legislative and other statutory obligations. The Royal Parks have statutory obligations to conserve Richmond Park's exceptional biodiversity⁵³, and a charitable object to maintain and develop the biodiversity of the parks. Richmond Park's biodiversity is an integral part of its SSSI and SAC designations, and under the Countryside and Rights of Way Act 2000 and Natural Environment and Rural Communities (NERC) Act 2006, The Royal Parks has a statutory duty to further the conservation of biological diversity in the UK (refer Appendix B).

5.5.2 Biodiversity post-implementation

At the time of writing, Heathrow's ACP is in Stage 2A and, though the process has been set out, no flight path Options have yet been tabled.

Given the lack of tabled flight path Options, there are difficulties at this point in quantifying the post-implementation state of biodiversity of Richmond Park under the ACP.

However, given the conclusions of various meta-studies⁵⁴ and studies of individual species and the scale of potential change (from exceptionally low levels of noise to up to 47 bursts of maybe 83dB per hour), it is possible that flight arrivals over Richmond Park would have a significant effect on its biodiversity, especially birds and bats.

As covered in the Air Quality section, Nox emissions over many years could also significantly impact the key habitats of acid grassland and veteran trees and the wildlife they support.

5.5.3 Biodiversity CAP 1616 requirements and guidance

CAP1616 states that;

⁵³ [Richmond Park Management Plan](#)

⁵⁴ [The effects of anthropogenic noise on animals: a meta-analysis](#), Kunc & Schmidt, Royal Society publishing, 20-Nov-19; ⁵⁴ [A framework for understanding noise impacts on wildlife: an urgent conservation priority](#). Francis & Barber, Frontiers in Ecology and the Environment 2013

- *“In general, airspace change proposals are unlikely to have an impact upon biodiversity because they do not involve ground-based infrastructure. As such they are unlikely to have a direct impact that would engage the Birds or Habitats legislation”;*
- However, given that *“all changes below 7,000 feet should take into account local circumstances in the development of airspace structures”*, change sponsors should *“include in [their] consultations and engagement potential biodiversity implications ... and should be mindful of such potential impacts as are identified by stakeholders”;*
- *“The CAA will, in its environmental statements, verify that any biodiversity factors have been considered proportionately”;* and
- *“Explicit consideration of, and assessment **where necessary**. [Though] Most airspace change proposals are unlikely to have an effect upon biodiversity and therefore the inclusion within the design principles is expected to be the full extent of any consideration in most instances”⁵⁵.*

CAP1616 also notes that the CAA is required to be familiar with the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2010. The CAA states via its environmental statement they *“... will aim to verify that all environmental factors have been considered in line with relevant Government policy and explain why the CAA agrees that these have been balanced appropriately”*.

5.5.4 Biodiversity preliminary assessment

While flight paths over Richmond Park do not involve any ground-based infrastructure, we consider that the scale of both Richmond Park’s biodiversity and of the potential impact of arriving aircraft on that biodiversity requires that it be assessed in full to meet the CAA’s requirement that *‘... any biodiversity factors have been considered proportionately’*.

The impact of repeated highly intrusive anthropogenic noise events on wildlife has been the subject of numerous specific studies.^{56,57,58,59,60,61} A recent meta-study⁶² published by The Royal Society concluded that anthropogenic noise must be considered as a serious form of environmental change and pollution.

The impact is complex. Species differ in their sensitivity to the level and type of noise exposure, in their resulting changes in behaviour and in how that behavioural change affects their fitness. The largest impact is likely to come from the increase in noise levels from very low background noise to up to 47 bursts of up to 83dB per hour.

⁵⁵ CAP1616 Appendix B Summary p162

⁵⁶ Traffic noise reduces foraging efficiency in wild owls: <https://www.nature.com/articles/srep30602>

⁵⁷ Impact of anthropogenic noise on songbirds: American Naturalist, 2010: Behavioural Plasticity Allows Short-Term Adjustment to a Novel Environment by Karin Gross,^{1,2} Gilberto Pasinelli,^{1,3} and Hansjoerg P.

Kunc. <https://www.journals.uchicago.edu/doi/abs/10.1086/655428?mobileUi=0&journalCode=an>

⁵⁸ Bats hunting methods effected by noise: Andrea Schaub, Joachim Ostwald, Björn M. Siemers, Journal of Experimental Biology 2008 <https://jeb.biologists.org/content/211/19/3174>

⁵⁹ Anthropogenic noise threatens animals in Richmond Park: Dr Hansjoerg Kunc & Dr Rouven Schmidt, 2019 <https://www.frp.org.uk/songbirds-owls-and-bats-under-threat-from-proposed-new-flight-paths-over-richmond-park/>

⁶⁰ Aircraft noise leading to aggression and hearing loss in birds. Andrew D. Wolfenden, Slabbekoorn, Kluk, de Kort. 21-Aug-19 <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2656.13059>

⁶¹ Daytime noise predicts nocturnal singing in urban robins. Fuller, Warren & Gaston, Royal Society publishing, 20-Nov-19

⁶² [The effects of anthropogenic noise on animals: a meta-analysis](#), Kunc & Schmidt, Royal Society publishing, 20-Nov-19

This would be particularly noticeable to wildlife in the early morning (04:30-06:00 'night' flights and the 06:00-07:00 rush of arrivals) because of the difference from the very low noise levels in the Park at night and because it would coincide with the dawn chorus of birdsong, which would be drowned out by the aircraft noise. But it is also likely to be very intrusive over the long 8 hour daytime period of flights, which are less frequent but equally loud and harsh, and particularly at dusk.

Intermittent and unpredictable noise is often perceived as a threat, whereas chronic and frequent noise, such as from regular aircraft arrivals, can impair sensory capabilities, masking sounds used for communications, foraging, detection of predators and navigation. More intense noise, especially compared with normal background noise, will increase the severity of the impact, and for some species exceed a threshold.

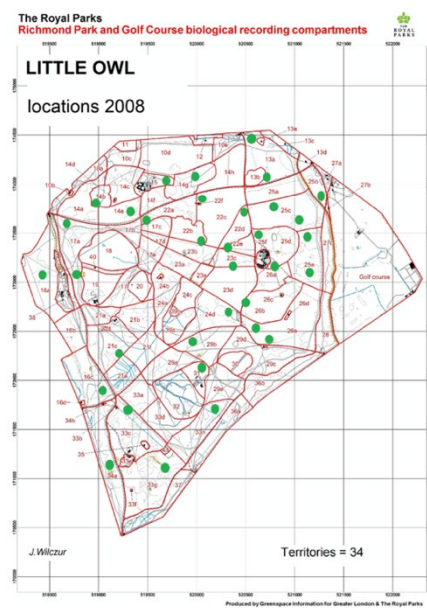
For birds and bats, the key species in Richmond Park likely to be affected directly by noise exposure (rather than indirectly through degradation of their habitat), there are four types of likely behaviour change:

- Temporal patterns, such as the timing of foraging, singing to attract mates or sleeping. The increased energy or reduced effectiveness can impact fitness.
- Spatial distribution, abandoning territories or hunting areas because of the noise disturbance, resulting in lower numbers or fitness.
- Decreases in foraging or predator detection because of sound masking, with an obvious impact on fitness and maybe survival
- Reduced mate attraction, feeding or fledging of offspring because of sound masking communication

There is a large body of research on the behavioural changes and impact on fitness specific to certain species from noise exposure. A key observation is that *"the presence of a species in a noisy area"* (such as bats in the vicinity of Heathrow airport) *"cannot be taken as an indication that it is not being impacted by elevated sound levels"*. Studies have shown, for example, that owls nesting in areas of higher levels of traffic noise fledged fewer offspring and grouse in noisy areas had higher stress levels.

For the birds of Richmond Park, owls are the most likely to be impacted because of their use of sound for locating and hunting prey. The Park has thriving populations of tawny and little owls. High noise levels at dusk will affect their ability to identify and follow prey. The smaller population of other raptors, such as kestrels and buzzards, which feed on small mammals and other prey they identify by sound, will be similarly affected.

Skylarks could also be severely impacted, since the likely flight paths would go directly over their main habitat of Crown Field. In recent years there has been a big and successful public effort to reverse years of declining skylark numbers, which will now be at risk. Their singing is likely to be drowned out by arrival



aircraft, affecting their marking of territories – and the joy that visitors get from their singing.

Bats are also likely to also be severely impacted by aircraft noise which will affect their ability to use echolocation for finding prey at dusk. Richmond Park has 9 of the 17 breeding species of bat in the UK, with good numbers of most of them. Noise could also impact on other birds, such as parakeets who are guided by their noise to assemble and fly to their roosts.

As discussed in the Air Quality section, Nox emissions will potentially have an enormous impact on both acid grassland and veteran trees over a timespan of 25-50 years. Lowland acid grassland supports a wide range of species particular to it, including yellow meadow ants, flora and their pollinators, ground living bees and wasps and, of course, deer. Many of these species could be severely affected by changes in the acid grassland because of Nox/nitrogen. Similarly, the wide range of species dependent on veteran trees could be severely affected by changes in the trees due to Nox emissions.

Many of these factors are uncertain and therefore an EA should thoroughly investigate the potential impact of flight paths on Richmond Park’s biodiversity, including:

- A comprehensive quantitative baseline survey, using the wealth of data already available
- The impact of changes in noise levels on bats and birds, especially owls and skylarks
- The impact on relevant species of likely changes in nitrogen levels in acid grassland and veteran (and other trees) over 25-50 years

A biodiversity impact assessment under WebTAG Unit 3 – Section 6⁶³ yields the following results. Richmond Park’s SAC and SSSI designations mean that it is potentially accorded “very high value” and “high value”⁶⁴. Note also the impossibility of substituting 200 year old woodland⁶⁵.

Step 2		Step 3				Step 4	Step 5
Area	Description of feature/ attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value	Magnitude of impact	Assessment Score
Richmond Park	Lowland Acid Grassland	National	High- Largest area in London	Quality improving	High	Major negative over long-term	Very large adverse
(NNR, SSSI, SAC)	Veteran Trees	International	Very high - one of top 5 in UK/Europe	Stable - occasional losses	Very high	Major negative over long-term	Very large adverse
Part of NE 115 (Thames Valley)	Invertebrates, esp. beetles	International	Very high SAC	Stable -	Very high	Major negative over long-term	Very large adverse
	Bats	Regional	One of largest pops in London	Pop increasing	High	Major Negative	Very large adverse
	Birds - Owls	Regional	One of largest pops in London	Stable	High	Intermediate negative	Large adverse
	Birds - Skylarks	Regional	One of largest pops in London	Stable to increasing	High	Major Negative	Very large adverse
Reference Sources							
Refer main report							
Summary Assessment Score							
Very Large Adverse							
Qualitative Comments							
For acid grassland, veteran trees and invertebrates the impact is from low level NOx emissions over 25-50 years; for bats and birds the impact is from noise affecting their ability to hunt, mate and nest.							

The Friends of Richmond Park
12th September 2022

⁶³ [WebTAG biodiversity worksheet](#)

⁶⁴ [WebTag Unit A3 Environmental Impact Appraisal](#) Table 10 p67

⁶⁵ [WebTag Unit A3 Environmental Impact Appraisal](#) 9.2.4 p65

General principles for environmental assessments

CAP1616 Appendix B sets out, among other things, general principles for environmental assessments⁶⁶. Notably:

- a. "... a number of *specific metrics must be used in order to derive a **quantitative output** ...*". However, change sponsors can use a *qualitative* assessment if they think the quantitative way will show little difference. "*In such circumstances, the change sponsor must present its rationale to justify that a quantitative assessment is unnecessary plus supporting evidence*". (CAP1616 p159, B26)
- b. "**A baseline** will be required for all environmental assessments. This will be a 'do nothing' scenario and will largely reflect the current-day scenario... All environmental assessments must illustrate the difference between a pre-implementation ('do nothing') scenario and a **post-implementation** scenario...". (CAP1616 p159, B27).
- c. "... sponsors may choose to present **additional analysis** on any of the environmental impacts if they feel it would aid stakeholders' understanding of those impacts." (CAP1616 p159, B28).
- d. Altitude-based priorities. "... in the airspace from the ground to below 4,000 feet, the Government's environmental priority is to limit and, where possible, reduce the total adverse effects on **people**" – and if two Options show similar numbers of people affected, the exiting flight path is preferred. Also routes below 7,000 feet should seek to avoid flying over Areas of Outstanding Natural Beauty (AONB) and National Parks, and "**All changes below 7,000 feet should take into account local circumstances in the development of the airspace design and will not be agreed by the CAA before appropriate community engagement has been conducted**" (Cap1616 p159, B29)
- e. **Operational diagrams** are "... used to illustrate the patterns of current or anticipated aircraft movements on geographical maps ...". (CAP1616 B57, p166)
- f. "*Where a proposal is expected to change traffic patterns below 7,000 feet, the Secretary of State has specified that 'overflight' must be portrayed.*" (CAP1616 B61, p170 from ANG17 3.11. Definition in CAP1498)
- g. CAP1616a says change sponsors may produce diagrams showing **L_{max} for specific aircraft types** at a number of locations at ground level beneath the airspace under consideration (CAP1616a, p13 1.45)

The CAP1616a technical annex, "... to be read alongside [CAP1616] ... gives an outline of relevant methodologies for use in environmental assessment." (CAP1616a 1.1, p2).

Notably:

- h. "*The environmental assessment must include a high-quality diagram of the airspace change in its entirety as well as **supplementary diagrams** illustrating different parts of the change, as necessary.*" (CAP1616a 1.4 p2)
- i. "*Change sponsors should provide indications of the likely **lateral dispersion** of traffic about the centre line of each route.*" (CAP1616a 1.6, p3)

⁶⁶ CAP1616 Appendix B B26-40, p159-161

- j. ***Nx contours*** show the locations where the number of events (i.e. flights) exceeds a pre-determined noise level, expressed in dB L_{Amax} ... Typically, contours ranging from 10 events to 500 events are plotted.” (CAP1616a 1.28-30, p9)
- k. ***Difference contours*** are particularly applicable where the degree of redistribution of noise impact may be large, for example, revising arrival and departure routes ...” (CAP1616a 1.35, p10)

Richmond Park's international and national designations and relevant legislation

Richmond Park was designated as a **Site of Special Scientific Interest (SSSI)** in 1992. The SSSI designation recognises its diverse deadwood beetle fauna associated with the ancient trees found throughout the Parkland.

SSSIs are designated and protected under national legislation by Natural England under the Wildlife and Countryside Act 1981, as amended and strengthened by the Countryside Act 2000; they are chosen to represent the UK's best nature conservation sites.

The Park also supports lowland acid grassland which is a habitat of principal importance for the conservation of biodiversity in England. Habitats of principal importance are the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK post-2010 Biodiversity Framework (JNCC, 2012). Lowland acid grassland is also both a London and London Borough of Richmond upon Thames Biodiversity Action Plan habitat.

The Wildlife and Countryside Act (1981) states that:

- Public bodies have a duty in exercising their functions to take reasonable steps to further approximation of SSSI (Section 28G);
- There is an obligation to give notice to Natural England of any operation likely to damage the SSI. The operation can only be carried out with the consent of Natural England (Section 28E);

The Park was designated by English Nature (now Natural England) as a **National Nature Reserve (NNR)** in 2000 for its habitats and in recognition of its importance as a recreational resource for the London area. NNRs are designated primarily on the basis of the value for, supporting the UK's most important habitats, species and geology, but also on the basis of their importance for scientific research, recreation and opportunities to experience at first hand.

Richmond Park is one of the 10 largest NNRs in the country, but what makes the Park unique is its accessibility. The terrain is very comfortable, and the landscape is appealing to many visitors who can travel here quickly and easily – it is understandably a very popular place to visit. Indeed, Richmond Park's >5.5 million visitors per year matches the number of visitors to all 163 NNRs managed directly by Natural England. That is particularly impressive and challenging given that Richmond has less than 2% of the matching 66,800 area.

Natural England and the other managing partners have developed "The National Nature Reserve Strategy⁶⁷", a joint approach that puts Richmond Park at the heart of 21st Century conservation.

The park was designated as a **Special Area of Conservation (SAC)** in 2005 due to the population of Stag Beetle *Lucanus cervus* supported on the site. The stag beetle is considered

⁶⁷ <http://publications.naturalengland.org.uk/publication/6291868196798464>

to be globally threatened and is listed as a species of principal importance in the UK Post-2010 Biodiversity Framework. It is a protected species through its listing in Schedule 5 of the Wildlife and Countryside Act (1981, as amended).

SACs were designated and protected under the EC Habitats Directive which was transposed into UK Law as the Habitat Regulations. SACs formed part of a Europe-wide network of protected sites supporting Europe's most important habitats and species. If a plan or project which is not connected with or necessary for the management of the SAC is considered likely to have a significant effect on the site, an appropriate assessment must be carried out to determine whether it will have an adverse effect on the integrity of the site in relation to its designated interest features. Post-Brexit the substantive obligations remain under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

The Park (including the golf course) was registered in October 1987 as a **Grade 1 listed landscape on the Historical England 'Register of Historic Parks and Gardens'** and is entered on the National Heritage List for England (NHLE), reference number 1823, as having '*high historical significance*'.

The Park has **Green Flag status** at 80+ (the Top Bandscore). Among other things, this is awarded for places that: encourage users to enjoy healthy activities; have a positive impact on the environment, locally and globally, both now and for the future; focus on conservation of natural features, wildlife and flora; and have recreational facilities and activities for all sectors of the community.

The Park has **Green Heritage site accreditation** at 80+ (the Top Bandscore). Among other things, this is awarded for places that: have historic features maintained to high conservation standards; and maintain their historic character and appearance.

Relevant international and national legislation

- **Countryside and Rights of Way Act 2000 and Natural Environment and Rural Communities (NERC) Act 2006.** The Royal Parks has a statutory duty to further the conservation of biological diversity in the UK. The implementation of The Royal Park's biological recording strategy provides a means to record and monitor biodiversity gains (and losses).
- **Wildlife & Countryside Act (1981, as amended).**
- **Water Framework Directive 2000.** The WFD became part of UK law in 2003 and requires all water bodies to reach "Good Ecological Status" or for artificial or heavily modified water bodies "Good Ecological Potential" by 2015, 2021 or 2027 depending on feasibility. The objective is to reach GEP by 2027.
- **Ancient Monuments and Archaeological Areas Act 1979; and 2010-2015 Policy Paper (DCMS) – Conservation of Historic Buildings and Monuments.** TRP is obliged to put in place measures to protect and conserve its buildings, monuments, sites and landscapes of historic interest.
- The **National Planning Policy Framework (2019)**, is a material consideration in planning decisions. Sections most relevant to the Park are Sec.15 'Conserving and enhancing the natural environment'; and Sec.16 'Conserving and enhancing the historic environment'.

From:

DD - Airspace

Sent:

23 September 2022 16:15

To:

Cc:

[REDACTED]; DD - Airspace; [REDACTED]

Subject:

RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Dear [REDACTED]

Thank you for your email, and for the work you have put into setting out your thoughts on the environmental importance of Richmond Park.

We are currently at Stage 2A of the Airspace Change Process (ACP) and we are developing our “Comprehensive List of Options” to share with stakeholders later this year. We will be inviting you to attend one of our workshops over the next few weeks, where we will share the process we have followed to develop a broad range of flight path options. We will also share the full list of options and provide an opportunity for you to provide feedback at this stage. It would be sensible for us to wait until after this stage of engagement to decide whether a separate meeting on Richmond Park is required, and we will be happy to schedule a meeting with you then if it would be beneficial.

As you probably know, an initial environmental appraisal of our airspace change proposals is required at Stage 2B, once we have designed and shared a comprehensive list of flight path options. We are aware of the statutory protection afforded to Richmond Park and other sites of its kind, which will inform our optioneering process so that consideration is paid to whether particular options generate more or less impacts than occur currently. We will have regard for your report as we prepare our methodology for the assessment of these sites.

Once we have narrowed options we are then required to undertake a full environmental appraisal of each option’s environmental impacts. Should these options result in changes over Richmond Park, and in particular if an option would result in more overflight of the Park (or component parts of the Park), we will need to assess whether this would have any effect on its ecology or tranquillity, or on the recreational and amenity benefits it provides. The outcome of that assessment will be considered alongside other environmental and operational factors when identifying our preferred options.

We look forward to engaging with you further over the coming months.

Kind regards,

[REDACTED]

From: [REDACTED]

Sent: 07 October 2022 08:50

To: DD - Airspace

Cc: [REDACTED]

Subject:

[REDACTED]; DD - Airspace; [REDACTED]
RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for your email acknowledging receipt of our Preliminary Environmental Assessment and for the subsequent invitation to the workshops in early November. I will respond separately on the workshops which we would like to attend.

We are content to wait until the options are presented to stakeholders before taking you up on your offer of a meeting re the Environmental Assessment of Richmond Park.

Thank you for confirming that the points made in the report will be considered as part of preparing your methodology for your required environmental assessments under CAP1616 and associated legal requirements.

Kind regards

[REDACTED]
[REDACTED]
Chairman, The Friends of Richmond Park
www.frp.org.uk
Friends of Richmond Park | Twitter, Instagram, YouTube | Linktree



From: DD - Airspace
Sent: 14 November 2022 15:36
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Dear [REDACTED],

I hope you are all well. Thanks very much for attending our recent workshops on our “Comprehensive List of Options”.

We had previously discussed arranging a separate meeting to discuss your concerns around impacts to Richmond Park and I wanted to check whether you would have availability to meet us next week?

If you let me know times that might work for you then I can check the team’s diaries. Availability currently looks quite good for:

- Tuesday 22nd afternoon
- Wednesday 23rd morning
- Thursday 24th afternoon

We could meet at Compass Centre if that suited you.

Many thanks,

[REDACTED]

From: [REDACTED]
Sent: 15 November 2022 08:33
To: DD - Airspace
Cc: DD - Airspace; [REDACTED]
Subject: RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

[REDACTED]

Thank you for your email and for offering a meeting.

We could meet you 3pm Thursday 24th if that works for you.

[REDACTED] and I could attend in person. [REDACTED] would attend online. I am assuming that a hybrid meeting is an option.

Regards

[REDACTED]

[REDACTED]
Chairman, The Friends of Richmond Park
www.frp.org.uk
Buy the Friends 2023 Calendar and Christmas Cards online:
Shop 2022 - Friends of Richmond Park (frp.org.uk)



From: [REDACTED]
Sent: 16 November 2022 16:32
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Hi [REDACTED]

I have been back to the team to confirm availability and I'm afraid [REDACTED] is only available on Wednesday 23rd November in the morning. Would that time work for you?

We would like [REDACTED] to be present as [REDACTED] is best-placed to answer questions relating to biodiversity, tranquillity and noise modelling.

Many thanks,

[REDACTED]

From: [REDACTED]

Sent:

17 November 2022 13:40

To: [REDACTED]

Cc:

DD - Airspace; [REDACTED]
[REDACTED]

Subject:

RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

[REDACTED]
Thank you.

[REDACTED] (online), [REDACTED] and I can all attend on Wednesday 23rd in the morning.

Would you be able to let us know what time you propose, how long you envisage the meeting being and who will be attending from Heathrow.

Thank you

From: [REDACTED]

Sent:

17 November 2022 13:45

To: [REDACTED]

Cc:

DD - Airspace; [REDACTED]

Subject:

RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

Thanks [REDACTED]

We would propose 9:30-10:30 if that works for you all?

Heathrow attendees will be:

- Me

- [REDACTED]

- [REDACTED]

If you'd like to send through a list of questions/agenda items beforehand then we can ensure we have the right people there to cover everything.

Thanks,

[REDACTED]

From: [REDACTED]
Sent: 17 November 2022 14:10
To: [REDACTED])
Cc: DD - Airspace; [REDACTED]
[REDACTED]
Subject: RE: Heathrow ACP - Richmond Park Preliminary Environmental Assessment

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[REDACTED]

Thank you. We will see you 9.30 on Wednesday.

[REDACTED]

From: [REDACTED]
Sent: 18 November 2022 15:41
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: FRP - HAL meeting on Wednesday 23rd

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

[REDACTED]

You have suggested that I send you a list of questions/agenda items before our meeting on Wednesday 23rd at 9.30am so that you can ensure you have the right people there to cover everything.

This meeting was originally (back in June) envisaged as being about the Environmental Assessment of options and following our provision of our Preliminary Environmental Assessment in September you suggested we discuss this after your recent workshop. We still consider this is important for us to discuss.

At the recent workshop, [REDACTED] suggested we meet to discuss issues emerging from the workshop and we would like to take up that offer.

So we envisage, this meeting covering:

(1) Environmental Assessment and Process for next few months / Stage 2B

- The environmental assessment
- Our related concerns re the Methods and Metrics Further Stakeholder Feedback response
- Further Stage 2 stakeholder engagement.

(2) Comprehensive List of Options Stakeholder Engagement

- Clarification of various issues in the slides you sent us e.g. convergence points, do nothing option(s), etc.

(3) Design Principle Evaluation

- Clarification of the proposed Design Principle Evaluation process e.g. the status of the Comprehensive List of Options, the Design Principle Evaluation metrics used, etc.

I think that the 60 minutes scheduled may not be enough to cover this ground. Would you be able please to extend the length of the meeting. If so, I suggest to 90 minutes, although it may be sensible to allow for over run on that (up to 2 hours) to ensure proper consideration of the issues.

Regards

[REDACTED]

From: [REDACTED]

Sent:

22 November 2022 15:26

To: [REDACTED]

Cc:

DD - Airspace; [REDACTED]

Subject:

RE: FRP - HAL meeting on Wednesday 23rd

Hi [REDACTED]

Thanks for this and all noted. We have a room tomorrow for 90 minutes so hopefully that will be sufficient.

In the interests of time, we suggest we approach the agenda in the following order:

1. Recap of Airspace Change Process and where we are now
2. Comprehensive List of Options Stakeholder Engagement: clarification/questions
3. Design Principle Evaluation: Clarification of the proposed Design Principle Evaluation process e.g. the status of the Comprehensive List of Options, the Design Principle Evaluation metrics used, etc
4. Environmental Assessment and Process for next few months / Stage 2B
 - a. The environmental assessment
 - b. Related concerns re the Methods and Metrics Further Stakeholder Feedback response
 - c. Further Stage 2 stakeholder engagement.

We look forward to seeing you tomorrow.

Thanks,
[REDACTED]

From:

[REDACTED]
22 November 2022 16:29

Sent:

To:

Cc:

[REDACTED]
DD - Airspace; [REDACTED]
[REDACTED]

Subject:

RE: FRP - HAL meeting on Wednesday 23rd

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

[REDACTED]
Thank you.

[REDACTED] will be attending online. Could you please send [REDACTED] Zoom or Teams details.

We look forward to seeing you tomorrow.

Regards

From: DD - Airspace
Sent: 22 November 2022 16:38
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: RE: FRP - HAL meeting on Wednesday 23rd

Hi [REDACTED]

Yes I have sent Teams details to [REDACTED] now (I cc'ed you).

Many thanks,
[REDACTED]

Meeting with Friends of Richmond Park

Wednesday 23 November 2022, 09:30 – 11:00, Compass Centre & Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park

From: DD - Airspace
Sent: 25 November 2022 17:18
To: [REDACTED]
Cc: [REDACTED]; DD - Airspace; [REDACTED]
Subject: RE: FRP - HAL meeting on Wednesday 23rd
Attachments: 2211_Stakeholder Engagement Record_FRP.docx

Dear [REDACTED], All,

Thank you for making the journey over to the Compass Centre on Wednesday – we appreciated the chance to have a detailed discussion with you about our airspace modernisation proposal and I hope you found it useful as well.

As agreed, I have attached a draft Stakeholder Engagement Record for you to review and return to us. We will then provide a response to each of the issues in this document so that we have one clear record of the topics we've discussed. We can then seek to agree an approach to addressing each issue as we progress through the CAA's CAP1616 process.

Many thanks,
[REDACTED]

From: [REDACTED]
Sent: 21 December 2022 10:02
To: DD - Airspace
Cc: [REDACTED]
Subject: FRP - HAL Stakeholder Engagement Record
Attachments: HAL-FRP Stakeholder Engagement Record - v2.docx; Stage 2A Heathrow Feedback Form - FRP .pdf; 2211_Stakeholder Engagement Record_FRP.docx

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED],

as requested your email of 25-Nov, and as noted in our holding response of 9-Dec, we have now reviewed your draft Stakeholder Engagement Record.

Please find attached our revised draft ('HAL-FRP Stakeholder Engagement Record - v2').

Please note that it refers extensively to our ACP Stage 2A Feedback of 9-Dec, which is also attached for ease of reference.

Best regards, and wishing you all a well deserved Christmas break,

[REDACTED]
The Friends of Richmond Park

From: DD - Airspace
Sent: 21 December 2022 17:32
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: FRP - HAL Stakeholder Engagement Record

Thank you [REDACTED]. Most of the team are on leave now so we will review your amendments to the draft Stakeholder Engagement Record in January. The next step will be for us to provide comments alongside each of yours.

I hope you have a lovely Christmas break,
[REDACTED]

From:

Sent:

To:

Cc:

[REDACTED]
13 February 2023 09:35

DD - Airspace

Subject:

FRP-HAL Stakeholder Engagement Record - update

Attachments:

HAL-FRP Stakeholder Engagement Record - v3.docx

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

you will recall that when FRP met with yourselves at the Compass Centre on 23-Nov-22, HAL proposed that a Stakeholder Engagement Record (SER) be used to track progress on resolving the various FRP-HAL issues, and that HAL then sent us a first draft (V1).

We responded with an update, V2 on 20-Dec-22, incl. a full list of all FRP's ACP issues to date.

Please find attached a further update, V3, now incorporating the M&M2 workshop progress & issues. We're glad to see three of the original (V2) issues were resolved at M&M2, though some new issues emerged.

Kind regards,

[REDACTED]
Friends of Richmond Park (FRP)

From: DD - Airspace
Sent: 28 February 2023 14:18
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: Heathrow ACP - Friends of Richmond Park Meeting

Dear [REDACTED],

Thank you for updating the Friends of Richmond Park Stakeholder Engagement Record following the Methods & Metrics 2 workshop at the end of January. This was useful for our review of the Record, and we are currently working with the Technical Team to draft responses. We would like to invite the Friends of Richmond Park for a meeting to discuss, and hopefully resolve, a number of the issues on the Record before we hold the next set of engagement workshops at the end of March. As the Record is now a long document covering many topics, it will not be possible to cover every issue in a 1.5hr session. Therefore, we suggest prioritising the concerns you have raised on the Record relevant to activities that we have already completed to date in Stage 2. There will be further opportunity to discuss ongoing and future Stage 3 work in our upcoming engagement sessions.

Please could you let us know your availability on 16 and 17 March 2023 to meet us at Compass Centre, and who will be attending?

If you let me know times that might work for you then I can confirm a slot with the Team. Our availability currently looks good for:

- Thursday 16th March 11:00-12:30
- Thursday 16th March 13:00-14:30
- Friday 17th March 09:00-10:30

We will then send you an email to confirm the meeting arrangements and suggest an agenda to guide the discussion. We will also be inviting you to an engagement workshop to summarise the Stage 2A feedback and our approach to the DPE. Outside of these topics, if there is anything pressing that you would like to discuss, please let us know for inclusion in the meeting agenda.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 01 March 2023 19:30
To: DD - Airspace
Cc: DD - Airspace [REDACTED]
Subject: RE: Heathrow ACP - Friends of Richmond Park Meeting

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

[REDACTED]

Thank you for the invitation to a meeting.

We would like to attend on Thursday 16th: 11 to 12.30.

Attendees will be:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Regards

[REDACTED]

[REDACTED]
Chairman, The Friends of Richmond Park
www.frp.org.uk
Friends of Richmond Park | Twitter, Instagram, YouTube | Linktree



From: DD - Airspace
Sent: 06 March 2023 17:49
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: RE: Heathrow ACP - Friends of Richmond Park Meeting

Dear [REDACTED]

Thanks for your email confirming the meeting date of Thursday 16th March 11:00-12:30 at Compass Centre. As before, please use the visitors car park if driving and we will meet you in the reception area once you have signed in. Any issues with this on the day, please get in touch.

Attendees from HAL will include:

- [REDACTED]
- [REDACTED]
- [REDACTED] (remote)
- [REDACTED]
- [REDACTED]
- [REDACTED]

We will suggest an agenda using our Stakeholder Engagement Record with Friends of Richmond Park and email this to you before the meeting. As mentioned below it will not be possible to cover every item on the Stakeholder Engagement Record in a 1.5hr session, however there will be further opportunity to discuss the other items at a later date.

Kind regards,

[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From:

DD - Airspace

Sent:

14 March 2023 17:11

To:

DD - Airspace; [REDACTED]

Cc:

DD - Airspace; [REDACTED]; [REDACTED]; [REDACTED]

Subject:

RE: Heathrow ACP - Friends of Richmond Park Meeting

Dear [REDACTED]

As discussed in my previous email, please see the suggested agenda below for the meeting:

1. Introductions & latest Stakeholder Engagement Record
2. CLOO Feedback: Additional option avoiding Richmond Park
3. Consideration of Richmond Park in Stage 2
4. Use of “People” vs “Population” metrics
5. Clarification on issues relating to metrics (biodiversity, AQ, adverse effects)
6. Response to FRP queries on the DPE

We will have copies of the latest Stakeholder Engagement Record at the meeting so that we can use it to guide our discussion. If you'd like to make any amendments to the agenda or have any other item you'd like to prioritise please do let me know.

We look forward to seeing you all at Compass on Thursday.

Kind regards,

[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]

w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport

a: [heathrow.com/apps](https://www.heathrow.com/apps)

Meeting with Friends of Richmond Park

Thursday 16 March 2023, 11:00 – 12:30, Compass Centre & Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED] (Online)	Heathrow
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park

From: DD - Airspace
Sent: 22 March 2023 13:30
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: FRP-HAL Stakeholder Engagement Record - update
Attachments: 230322 HAL-FRP Stakeholder Engagement Record_v4.docx; Avoid Richmond Park_departure option.pptx

Dear [REDACTED],

Thank you for coming to meet with us last week. We found it a constructive and useful discussion and hope you did too.

We have updated the Stakeholder Engagement Record (SER) to provide responses to all of the issues set out in version 3. Please review this latest version and use this record to capture any additional issues you would like us to respond on. We are hopeful that some of these issues might now be marked as “resolved” but will leave it for you to decide!

We have also attached the new “Avoid Richmond Park” easterly departure option that we discussed.

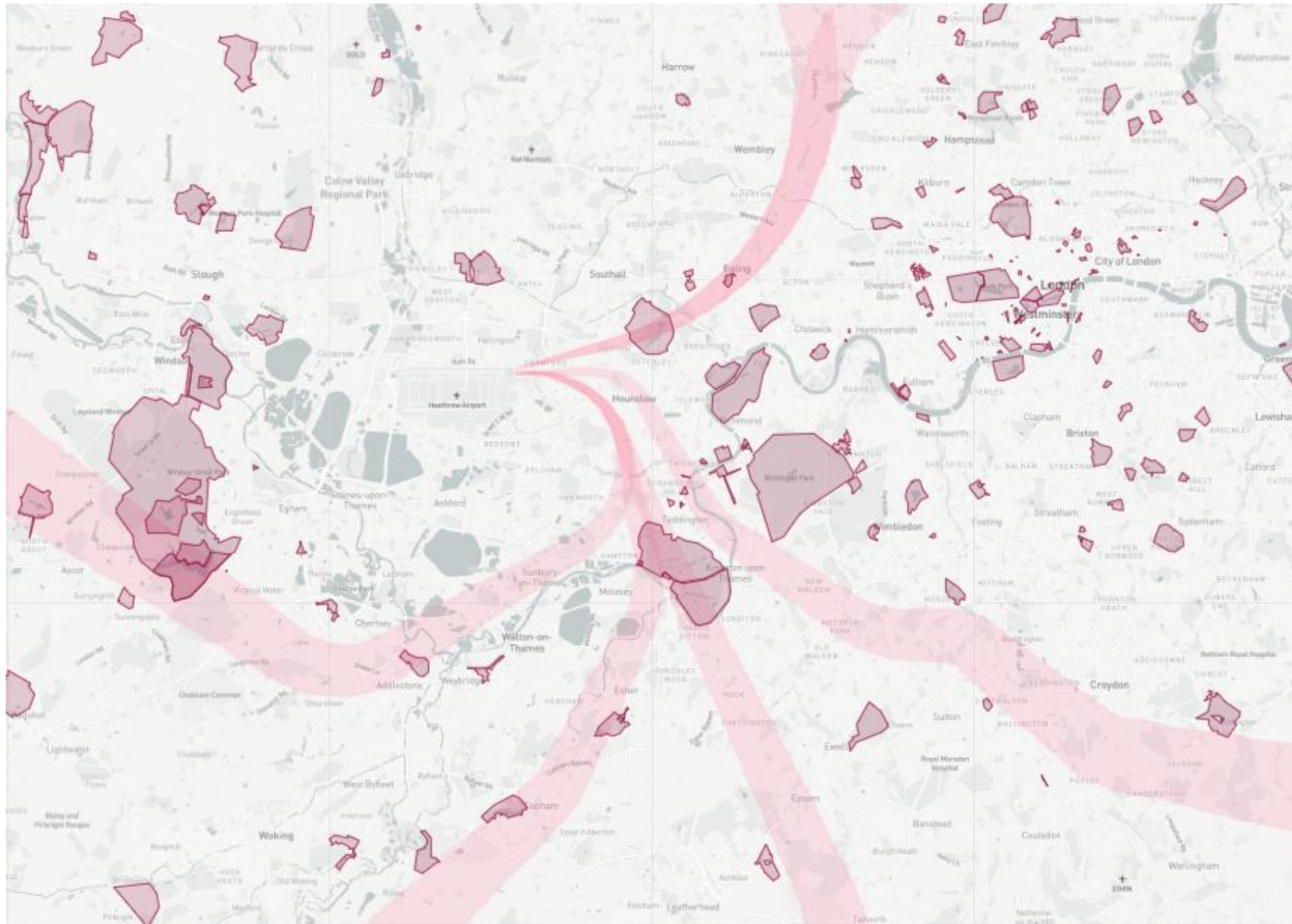
You also asked us to let you know how many options we have in total:

PBN departures: 40 options
PBN arrivals: 93 options
Vectored arrivals: 48 options
= 181 options in total.

Many thanks,

[REDACTED]

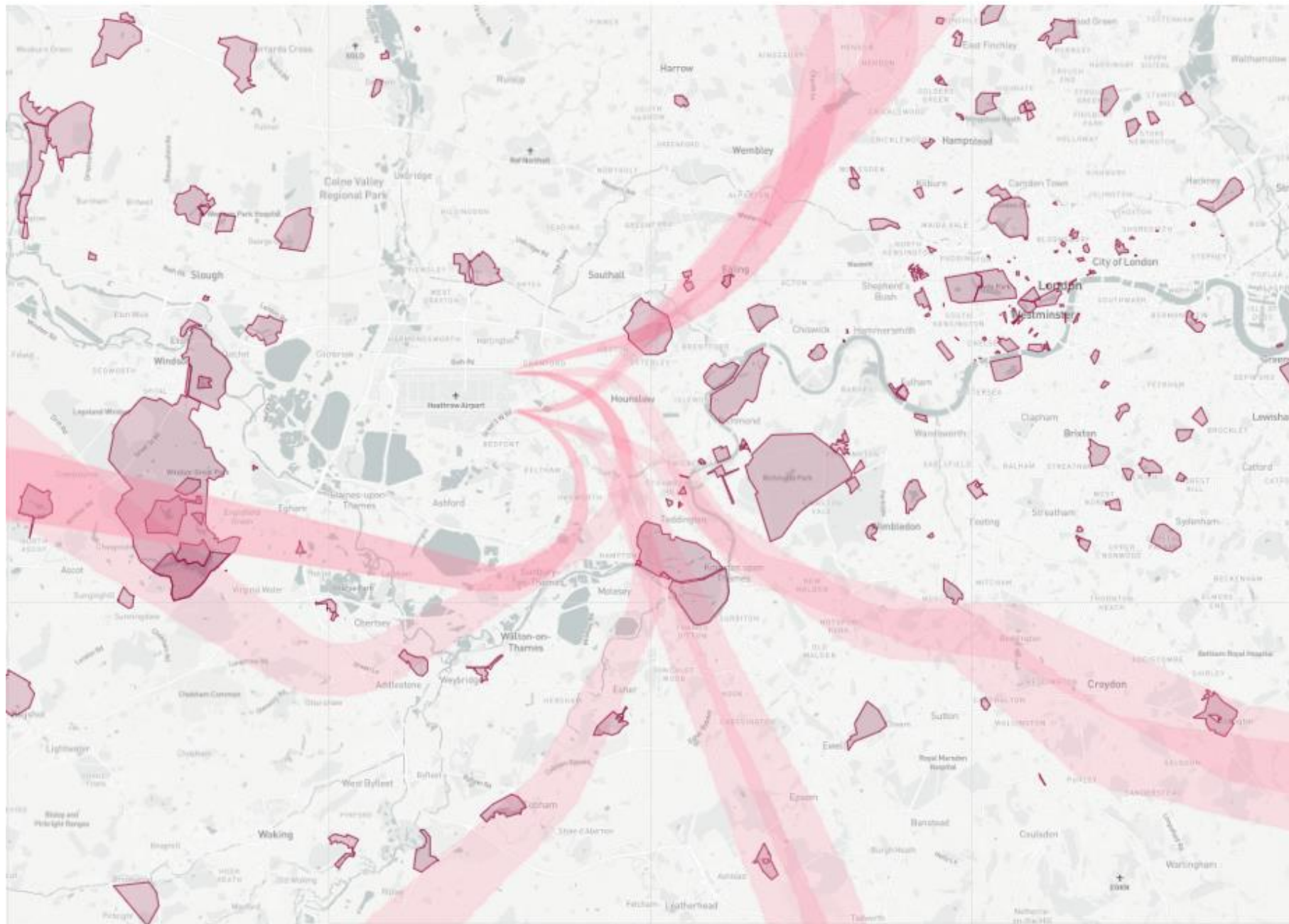
New “Avoid Richmond Park” option for easterly departures from the northern runway (runway 09L)



New “Avoid Richmond Park” option for easterly departures from the southern runway (runway 09R)



New “Avoid Richmond Park” option for easterly departures from both runways



From: [REDACTED]

Sent:

12 April 2023 09:48

To:

DD - Airspace; [REDACTED]

Cc: [REDACTED]

Subject:

Re: FRP-HAL Stakeholder Engagement

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

We will be responding on the SER and other matters shortly.

But in the meantime, thanks again for the FRP-HAL meeting on 16-March.

At the end of that meeting, you suggested that we meet again, while the IOA is still in its formative stage, perhaps in Richmond Park.

We would very much like to meet with you and your team again, with the focus on Richmond Park's treatment in the IOA.

Invitation: could you and your team meet with us, in Richmond Park, on the 11th or 12th May?

Hopefully the weather will be lovely and the Park at its finest.

Best wishes,

[REDACTED]
Friends of Richmond Park

From: DD - Airspace
Sent: 14 April 2023 15:51
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: RE: FRP-HAL Stakeholder Engagement

Dear [REDACTED]

Thanks for your email. The team would enjoy a trip to Richmond Park to meet you (especially if you can promise some good weather!). However, we wonder whether it would be more beneficial to meet you in June, when we should be able to share the elements of the Initial Options Appraisal that we know you are most interested in? Perhaps you could suggest a couple of June dates that would suit you, and I can put it in the relevant Heathrow diaries?

In the meantime, do let us know if you have any further comments or questions to add to the Stakeholder Engagement Record.

Many thanks,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 20 April 2023 09:09
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: FRP-HAL Stakeholder Engagement

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]
thanks very much for your rapid response to our invitation to meet in Richmond Park in May.

We did consider whether a meeting in June would be right, but on balance we're convinced that May would be better. At that meeting we would like to focus on the Options most impacting Richmond Park, and how they are being assessed in the IOA. Particularly:

- PBN 09L/R departure options DVR (and XAM in Option E);
- PBN arrival options especially 27L B & G, and 27R B, I & R; and
- PBN arrivals 04.30 to 06.00

We've secured meeting facilities in Holly Lodge for 11th and 12th May. We would be most grateful if the Heathrow team could come over at whatever time you prefer on either of those days.

We are in action on the Stakeholder Engagement Record, initially bringing it up to date for your M&M2 record note and for the DPE workshop. Rest assured that it's a priority here.

Best regards,

[REDACTED]
Friends of Richmond Park

From: DD - Airspace
Sent: 26 April 2023 09:31
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: FRP-HAL Stakeholder Engagement

Dear [REDACTED]

Thanks for your email and for securing meeting facilities. I've contacted the team with your proposed dates and we are happy to meet with you at Holly Lodge on **Thursday 11th May at 10:00-11:30.**

HAL attendees will be:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

We will still be in the early stages of working through the IOA and its outputs but will be able to discuss our approach in relation to assessing the options you have outlined below.

We look forward to meeting with you on the 11th and receiving the updated Stakeholder Engagement Record when its ready.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 27 April 2023 11:57
To: DD - Airspace
Cc: [REDACTED]
Subject: FRP-HAL meeting: 11th May, Holly Lodge, Richmond Park

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thanks very much for confirming you and [REDACTED] can meet us in Holly Lodge on Thursday 11th May 10:00-11:30.

I will meet you in front of Holly Lodge and show you where to park, and take you to the conference room. I assume you will all be in one vehicle. If you are in several vehicles, please let me know. My mob phone no. is below in case you need to contact me.

We look forward to seeing you then & there.

Best regards,

[REDACTED]
Friends of Richmond Park
[REDACTED]

From: [REDACTED]

Sent:

07 May 2023 07:57

To:

DD - Airspace; [REDACTED]

Cc: [REDACTED]

Subject:

Re: FRP-HAL Stakeholder Engagement Record

Attachments:

HAL-FRP Stakeholder Engagement Record_v5.docx; HAL-FRP Stakeholder Engagement Record_v5 marked-up.docx

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

In your email of 22Mar23, you said :

We have updated the Stakeholder Engagement Record (SER) to provide responses to all of the issues set out in version 3. Please review this latest version [version 4] and use this record to capture any additional issues you would like us to respond on. We are hopeful that some of these issues might now be marked as “resolved” but will leave it for you to decide!

As per your request, we have reviewed your version 4 and revised it to reflect:

- a few points we had provisionally located in the HAL column but you replaced with HAL-preferred text;
- the proceedings of the DPE workshop(s) 22-27Mar23; and
- relevant points in our email exchanges since then e.g. the M&M2 workshop record note.

We have also marked several items as ‘resolved’ or resolved insofar as that specific aspect is concerned (green shaded).

Please find attached version 5 (v5):

- A marked-up version, showing in red all changes from v4;
- A clean version.

We would be glad to discuss the SER, if you wish, when we meet on Thursday to focus on the Options most impacting Richmond Park, and how they are being assessed in the IOA.

Best wishes,

[REDACTED]
Friends of Richmond Park

From: [REDACTED]
Sent: 10 May 2023 15:05
To: DD - Airspace
Cc: [REDACTED]
Subject: FRP-HAL meeting tomorrow - AGENDA

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]
we're looking forward to seeing you and [REDACTED] in Richmond Park tomorrow: the Park's looking wonderful and the weather's looking pretty good too.
We hope you can all make the most of this opportunity away from Compass House.

Re **the agenda**, as per our earlier email we certainly want to focus on on the Options most impacting Richmond Park, and how they are being assessed in the IOA.
But there are a few other things we would like to touch on too, if time permits. I doubt they will challenge you much:

1. Options most impacting Richmond Park;
2. Stage 2 conclusion in July;
3. Stage 3 outlook;
4. AOB:
 1. M&M2 record note - your email of 4May;
 2. The SER

Best regards,

[REDACTED]
Friends of Richmond Park

From: DD - Airspace
Sent: 10 May 2023 16:31
To: [REDACTED] DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: FRP-HAL Stakeholder Engagement Record

Importance: High

Dear [REDACTED]

I hope you are well. **I'm very sorry to let you know that we are unable to attend the meeting we have scheduled with you at Richmond Park tomorrow morning.** Please accept our sincere apologies for the cancellation, and for the very short notice.

We received your updated Stakeholder Engagement Record on our return from the long weekend and have spent considerable time yesterday and today reviewing your latest comments and issues. However, given many of your comments relate to our interpretation of policy and CAP1616, we need more time to consider these new issues before we will be in a position to respond. We also have two team members who have come down with Covid, impacting our ability to prepare for and attend the meeting.

We look forward to discussing these issues with you in detail once we have had sufficient time to prepare, and we will be in contact with you over the next couple of weeks to reschedule a meeting with you. We will also be able to discuss the treatment of Richmond Park in the IOA when we meet.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 11 May 2023 11:06
To: DD - Airspace
Cc: [REDACTED]

Subject: Re: FRP-HAL Stakeholder Engagement Record

Importance: High

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

We are sorry you were not able to make a meeting today.

Let's discuss when and where we re-schedule.

[REDACTED]

Friends of Richmond Park

From: [REDACTED]
Sent: 12 May 2023 09:21
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: Re: FRP-HAL engagement - next steps

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Dear [REDACTED]
Would **1st or 2nd June (Th/Fri)** work for you?
If not, then Tue 30-May?

And, yes, we'd love to welcome you and your team to Richmond Park again.

Best wishes,
[REDACTED]
Friends of Richmond Park

From: DD - Airspace
Sent: 15 May 2023 12:15
To: [REDACTED] DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: FRP-HAL engagement - next steps

Dear [REDACTED]

Thank you for offering further dates for a meeting.

Many members of the technical team are on leave for half term over this period, however [REDACTED] and I are available to meet with you on **Tuesday 30th May at 14:00**. Does this work for you?

We are happy to meet with you in Richmond Park if you able to secure meeting facilities for us?

Kind regards,
[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 15 May 2023 19:15
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: FRP-HAL engagement - next steps

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]
that's great.
See you all then - same agenda, same place (Holly Lodge).
Best regards,
[REDACTED]
FRP

Meeting with Friends of Richmond Park

Tuesday 30 May 2023, 14:00 – 15:30, Holly Lodge Centre, Richmond Park

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park
[REDACTED]	Friends of Richmond Park

30 May 2023

Airspace Modernisation: Meeting with Friends of Richmond Park



Heathrow

FRP Query re current use of holding stacks

FRP asked for clarity on what proportion of arrivals currently arrive at Heathrow via the Bovingdon stack (which is to the north-west). You were particularly interested in whether US arrivals primarily come from this direction.

We have analysed some arrivals data (for the period 1 February – 30 April 2023) and have found the following split for all arrivals:

Bovingdon (NW): 26%
Lambourne (NE): 35%
Ockham (SW): 22%
Biggin (SE): 17%

We then filtered the data **for US arrivals** only and the split by holding stack was:

Bovingdon (NW): 51%
Lambourne (NE): 0%
Ockham (SW): 48%
Biggin (SE): 1%

In summary, 50% of US arrivals come from the north today, and 50% come from the south.

FRP Query re how Richmond Park will be considered within the Initial Options Appraisal (IOA)

CAP1616 Appendix E (Table E2) sets out the impacts that CAA expect to see in the IOA results. These include impacts to:

- **Communities (noise impact, air quality)**
- **Wider society (greenhouse gas impact, resilience)**
- **General aviation (access)**
- **Commercial aviation (fuel burn, training costs)**
- **Airport (infrastructure costs, operational costs, deployment costs)**
- **Air Navigation Service Provider/NATS (infrastructure costs, operational costs, deployment costs)**

These are generally considered to be the “**primary metrics**” and our IOA will assess each of these impacts for each option. We will also assess other “**secondary metrics**”: these are intended to help stakeholders to better understand the potential impacts of the options.

Options will be assessed in the three sets in the IOA

All options will be assessed per single runway operation, not as a complete system of westerly and easterly departures and arrivals to/from both runways. This allows us to consider many more options for a final solution. **There are 181 options in total.**

PBN Departures

PBN departure options will be assessed as a collective group of six SIDs per Option, which need to be sufficiently separated from each other.



PBN Departure Option A for Runway 27L

PBN Arrivals

PBN arrival options will be assessed as individual route options including operations between 04:30 – 06:00.

This enables us to consider whether it would be technically feasible and beneficial to use any one or more routes for arrivals during less busy times.



PBN Arrival Option A for Runway 27L

Vectored Arrivals

Vectored arrival options will be assessed in distance bands (nautical miles) from the runway. The options assume a similar dispersion pattern to today, but with different Instrument Landing System (ILS) joining points.

This will help us determine whether it would be beneficial and/or feasible to use different vectoring areas during different periods to provide respite or relief from noise.



Vectored Arrival Option A for Runway 27L

Our approach to assessment of Richmond Park in the IOA is consistent with our assessment of AONBs

Our “Tranquility” metrics in the IOA will include:

- Total area of AONBs and National Parks overflown (km², 0-7000ft) at rate of 1 per day
- Total area of AONBs and National Parks overflown (km², 0-7000ft) at rate of 20 per day
- Total area of AONBs and National Parks overflown (km², 0-7000ft) at rate of 20 N65 events per day
- Total area of Richmond Park overflown (km², 0-7000ft) at rate of 1 per day
- Total area of Richmond Park overflown (km², 0-7000ft) at rate of 20 per day
- Total area of Richmond Park overflown (km², 0-7000ft) at rate of 20 N65 events per day
- Total area of Richmond Park overflown (km², 0-7000ft) at rate of 1 N65 event per day

Richmond Park is also considered in our “Biodiversity” metrics

Our IOA metrics will include:

- Number and Area (km²) of sites overflown which experience ***an increase/decrease in area overflown*** compared to the baseline (RAMSAR, SAC, SPA, SSSI)
- Number and Area (km²) of sites overflown which experience ***a potential change in the location*** overflown compared to the baseline (RAMSAR, SAC, SPA, SSSI)

These metrics will consider different height of aircraft (e.g. 0-1640ft, 1640-2000ft, 2000-3000ft)

From: DD - Airspace
Sent: 17 July 2023 10:52
To: [REDACTED] DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: FRP-HAL Stakeholder Engagement Record
Attachments: 2307 HAL-FRP Stakeholder Engagement Record_v6.docx; 2307 HAL-FRP Stakeholder Engagement Record_v6.pdf

Dear [REDACTED],

We have reviewed and updated the latest Stakeholder Engagement Record. Our changes are shown in red and we have named this version 6.

We have also added our last meeting (at Holly Lodge) to the record.

Sorry for the delay in getting this to you – there was a lot for us to review and respond on this time.

As always, please feel free to use the SER to add any new issues or expand/respond on any existing issues.

Many thanks,
[REDACTED]

Stakeholder: Friends of Richmond Park (FRP)

Engagement record

Ref	Date	Location	Present
	12-Nov-21	Email	HAL: Invite to Stage 1 Design Principles Engagement Workshop(s)
	02-Feb-22	Email	HAL: Email response following FRP's call to Community Relations Team
	15-Feb-22	Email	HAL: Email with Stage 1 engagement and submission materials
A	20-Jun-22	Online Teams	FRP: [REDACTED], [REDACTED] HAL: [REDACTED]
B	5-Jul-22	Compass Centre	Methods & Metrics (M&M1) Workshop attended by FRP
D	12-Sep-22	FRP submission	FRP: Preliminary Environmental Assessment (pEA)
	23-Sep-22	Email	HAL: Response to Richmond Park pEA
C	1-Nov-22 9-Nov-22	Holiday Inn	Stage 2A Engagement Workshops attended by FRP
E	23-Nov-22	Compass Centre	FRP: [REDACTED] (in person), [REDACTED] [REDACTED] (via TEAMS) HAL: [REDACTED]
	25-Nov-22	Email	HAL: email with Stakeholder Engagement Record (v1)
F	9-Dec-22	Email and Feedback Form	FRP submission: Stage 2A Engagement Feedback Form
	21-Dec-22	Email	FRP: First review of Stakeholder Engagement Record (v2)
G	25-Jan-23	Holiday Inn	Methods & Metrics (M&M2) Workshop attended by FRP
	26-Jan-23	Email	FRP: Email following M&M2 with DPE methodology paper attached
	31-Jan-23	Email	FRP: Further email following M&M2, with issues relating to DPE process and Stage 2B environmental assessment.
	13-Feb-23	Email	FRP: email with Updated Stakeholder Engagement Record (v3)
H	16-Mar-23	Compass Centre	FRP: [REDACTED] HAL: [REDACTED] (in person), [REDACTED] (via TEAMS)
	22-Mar-23	Email	HAL: email with Updated Stakeholder Engagement Record (v4)
I	22,23,27-Mar-23	Teams	Stage 2A Engagement Feedback & Design Principles Evaluation Workshop attended by FRP
J	27-Apr-23	Email	FRP: Comments following Stage 2A Engagement Feedback & DPE Workshop
K	28-Apr-23	Email	FRP: Comments on HAL's record note of M&M2 workshop
L	4-May-23	Email	HAL: Response to (K)
	7-May-23	Email	FRP: email with Updated Stakeholder Engagement Record (v5)
M	30-May-23	Holly Lodge, Richmond Park	FRP: [REDACTED] HAL: [REDACTED]
		Email	HAL: email with Updated Stakeholder Engagement Record (v6)

Richmond Park: Statement from FRP

Richmond Park is one of the most important parks in the UK. It is London's largest Royal Park and the largest enclosed urban park in Europe, covering 955 hectares. It is a Special Area of Conservation, a Site of Special Scientific Interest and a National Nature Reserve - and is probably the most heavily protected park in the country. It is one of only two areas in the Heathrow wider area with this triple designation (the other being the much smaller Burnham Beeches). It is of both national and international importance for wildlife conservation – especially veteran trees, invertebrates, acid grasslands, bats, and birds.

Richmond Park is also the quietest place (with background noise at night of less than 25dB(A), equivalent to a deep rural area), and at night the darkest place, in London. People come to Richmond Park from all over London and wider afield to enjoy its peace and tranquillity, as a respite from the bustle and noise of the city.

It is a Grade 1 Registered Historic Park and Garden of ‘high historical significance’: established in its present form by King Charles I in 1637 and preserved carefully ever since.

Richmond Park is world famous. It is visited by over 5.5 million people per year (similar in popularity to the British Museum at 5.8 million, and matching the number of visitors to all 163 NNRs managed directly by Natural England combined), with a rapidly increasing number of overseas visitors, drawn by social media.

It is a haven for wildlife, a home to thousands of species of birds, bats, butterflies, beetles, bees and wasps, other invertebrates and fungi (many of them rare and protected) and 630 red and fallow deer. It has over 1,200 veteran trees, some over 600 years old, and is the largest area of lowland acid grassland in London, with its accompanying grasses and wildflowers.

It's a magical space, loved by hundreds of thousands of Londoners.

Engagement context: Statement from FRP

FRP engaged extensively with Heathrow Airport Ltd. (HAL) through the Expansion project until that engagement was suspended in early-2020 due to Covid. Of special note during that engagement, and of relevance to this engagement, was FRP's formal response to the Preliminary Environmental Information Report (PEIR) consultation (12-Sep-2019)

FRP has also responded to various CAA consultations.

This Record covers FRP's engagement with HAL during its 2021+ ACP process.

Note that:

- Like other organisations involved in large open spaces, FRP was not invited to the Stage 1 (Design Principles) stakeholder engagement until late in that Stage;

[HAL comment: FRP was invited to attend Phase 2 of our stakeholder workshops. At these workshops we presented an initial proposed list of Design Principles, and invited questions, comments and suggestions. Chapter 4.7 in our Design Principles Submission sets out the changes that were made to the DPs as a result of stakeholder feedback at Phase 2.]

Airspace Modernisation – Heathrow ACP – Stakeholder Engagement Record - FRP

- The ‘Stakeholder Comments’ in the tables below are, for ease of communication, summaries of the various issues. They should not be read without reference to the full issue descriptions in:
 - FRP’s 12-Sep-22 email and paper “Heathrow ACP – Richmond Park preliminary environmental assessment (D)
 - FRP’s 9-Dec-22 submission “Stage 2A Heathrow Feedback” (as referenced in the Mtg. column e.g. “F6.1”) which also contains context and source references (F);
 - FRP’s 31-Jan-23 email “M&M2 Workshop” and attachment

Revision history

Version	Date	Author	History
1	23-Nov-22	HAL	1 st DRAFT for FRP review
2	20-Dec-22	FRP	FRP response inc. FRP issues to date
3	13-Feb-23	FRP	Update post M&M2 Workshop
4	22-Mar-23	HAL	Update post meeting on 16 March
5	7-May-23	FRP	Update post March DPE workshop + FRP response to SER v4
6		HAL	Update post meeting on 30 May

FRP Issues

Stage	Mtg.	Issue	Stakeholder Comments:	Heathrow Comments:
		1. Interpretation of Design Principles	The sponsor is using inappropriate metrics for the DPs and illegitimately re-writing DPs developed at Stage 1	
2A 2B	B, C, E, F6.1, G, H, I J	1.1 Local areas similar to AONBs/NPs and Quiet Areas – Richmond Park equivalence	<p>(1) The DP2 metrics used in Stage 2A are in breach of CAP1616 which requires the same approach as that for AONBs to be used for other areas identified through community feedback on specific areas that should be avoided, and any local area with similar characteristics to a Quiet Area that has been identified via community engagement. Richmond Park is at least equivalent to an AONB or NP for this purpose. FRP have repeatedly notified the sponsor that Richmond Park is such a specific area but this has not been reflected in the CLOO DP2 metrics</p> <p>(2) FRP welcomed HAL’s agreement, confirmed at M&M2 (G), to “assess Richmond Park in the same way as an AONB”</p> <p>(3) At mtg. (H) HAL appeared to backtrack on the above undertaking. FRP reiterated that for the purposes of CAP1616 B76 Richmond Park fell into the category of other areas for consideration identified through community engagement and therefore benefitted from the considerations in the process that flowed from that. After some debate, HAL and FRP agreed to differ on whether this amounted to any such areas being “AONB-equivalent”, with HAL agreeing to reflect this and include the B76 text in the SER and accept that RP was such an “other area” whilst not using the AONB-equivalent terminology.</p>	<p>(1) Richmond Park has been identified as an area for specific consideration, via engagement with Friends of Richmond Park. However, neither CAP1616 nor the government’s ANG require areas identified through community engagement to “be avoided”. The altitude-based priority at 3.2(e) ANG is: “where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid [AONB] and National Parks”. Even if Richmond Park was to be treated in the same way as AONBs and National Parks, this is not a requirement to avoid Richmond Park. Rather, <u>where practicable</u> the design should seek to avoid such areas, but both the ANG (3.32) and CAP1616 (B78) clearly recognise that it will not always be practical to completely avoid overflying these areas and there is no legal requirement to do so.</p> <p>(3) B76 of CAP1616 states “For the purposes of airspace change proposals, the impact upon tranquillity need only be considered with specific reference to Areas of Outstanding Natural Beauty (AONB) and</p>

			<p>(4) FRP welcome HAL’s creation of the additional easterly departure option and additional DP2 evaluation criterion.</p> <p>ISSUE RESOLVED SO FAR AS DPE DP2 METRICS ARE CONCERNED (BUT NOT INSOFAR AS THE DPs WERE USED TO CREATE THE CLOO (see 2.1 below) NOR INSOFAR AS A SIMILAR ISSUE APPLIES TO THE IOA (see 4.6 below)</p>	<p><i>National Parks unless other areas for consideration are identified through community engagement.” Consistent with this guidance, Heathrow will consider Richmond Park within tranquility assessments to be undertaken as part of this airspace change proposal. Heathrow’s assessment of Richmond Park at Stage 2 (DPE and IOA) will adopt the same metrics as those being used to assess AONBs at this stage.</i></p> <p>Heathrow has:</p> <ol style="list-style-type: none"> 1. Created an additional option (for easterly departures) that avoids Richmond Park, and 2. Added a specific evaluation of overflight of Richmond Park in the Design Principle Evaluation. <p>Overflight and noise event analysis of Richmond Park will also be a consideration in our Initial Options Appraisal under the Parks and Gardens and Sites of Special Scientific Interest categories.</p> <p>We have options for both a) overflying the park to avoid noise for local residents and b) avoiding the park as an area identified through community engagement. We will be able to assess and consider the relative benefits and impacts of the different options as we progress through the ACP process.</p>
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Airspace Modernisation – Heathrow ACP – Stakeholder Engagement Record - FRP

2A 2B	E, F6.2, I	1.2 Local areas similar to AONBs and Quiet Areas – metric.	<p>(1) The measure of significance being used by the sponsor for AONBs and other areas identified for the same special consideration under B76 (km2) is inappropriate. As per ANG, the government’s policy is to focus on limiting and, where possible, reducing the number of people in the UK adversely affected by aircraft noise and the impacts on health and quality of life associated with it. Therefore, the metrics should look to visitor numbers, location and accessibility (not land area).</p> <p>(2) In the context of the new separate evaluation criterion for Richmond Park, FRP welcomes its use of the number of overflights below 7000ft per day metric.</p> <p>ISSUE RESOLVED SO FAR AS DPE DP2 METRICS ARE CONCERNED</p>	<p>(1) At this stage of the process, the use of km2 will provide an indication of an increase or decrease in the amount of an AONB that is overflown – this can be related to adverse effects and impacts on health as a reduction in overflight would be of benefit to those that are visiting open spaces. An increase potentially has the opposite effect and will be a consideration as we refine and mature the options at Stage 3.</p> <p>For Richmond Park, Heathrow is considering km2 overflown below 7000ft per day.</p>
2A	B, C, E, F6.3, G, H, I	1.3 People rather than (resident) population DP10	<p>(1) The metrics for DP10 in Stage 2A are flawed. Population metrics are being used to measure an impact on ‘people’, which distorts the meaning of the design principle. To respond to the stakeholder concerns that led to DP10, ‘people’ should include people enjoying the physical and mental health benefits of being out in green spaces away from their homes. Those benefits could be measured by metrics concerning visitor numbers and demographics and concerning the accessibility (in both logistical and financial terms) of the spaces.</p> <p>(2) HAL’s references opposite to M&M2 and IOA indicate a misunderstanding of this point which is solely concerned with the DPE and does not affect the IOA. As such, this item is not about any “appraisal” (Initial, Full or Final). It is about the DPs, and their genesis, being specifically about DP10 and its</p>	<p>(1) At M&M2 we proposed noise metrics that were based on resident population data, not visitor numbers or transient people data.</p> <p>The use of population data is more practical and more reliable since it is difficult to accurately forecast the movement of ‘people’ between places of work, home and leisure. Heathrow discussed this with the CAA, who confirmed that:</p> <p>a) This had not previously been raised by airport sponsors; and</p> <p>b) They would expect appraisals to be based on resident population data.</p> <p>The use of population counts is referred to in CAP1616 B54.</p>

Airspace Modernisation – Heathrow ACP – Stakeholder Engagement Record - FRP

			<p>deliberate use of the term “people” – not population – wording intended to capture the impact on people’s use of green space as much as on resident populations, as evidenced by HAL’s own record of the evolution of DP10 at the Stage 1 stakeholder engagement. As such, the CAA has no legal standing to re-word/re-interpret DP10. Accordingly, HAL’s response on 1.3 completely misses the point. See para 6.3 of FRP’s formal feedback on the Stage 2A Engagement (F).</p> <p>At the 1 to 1 meeting on 16 Mar 23 (H), HAL agreed to re-consider their SER response (Action: HAL: OUTSTANDING)</p>	<p>For the Initial Options Appraisal (IOA) we will focus on the population exposed to aircraft noise. However, at Stage 3, when a Full Options Appraisal (FOA) is required and the number of options has reduced, we will undertake a full environmental appraisal of each option’s environmental impacts. Should these options result in changes over Richmond Park, or other sites of its kind, we will consider whether this would have any effect on its ecology or tranquillity, or on the recreational and amenity benefits it provides in accordance with Policy requirements. <i>We will discuss with FRP the treatment of Richmond Park in the FOA at an appropriate point in Stage 3, with the aim of ensuring our assessment considers the varied use and characteristics of the park.</i></p> <p><i>(2) The evolution of DP10 related to some stakeholders expressing concern about us using “number of people” instead of the “adverse effects on people” measure set out in ANG17. Heathrow opted to consider the total number of people (or population), rather than being restricted to ‘adverse effects’, since ‘adverse effects’ refer within policy to the health and quality of life impacts within the LOAEL only.</i></p>
2A	B, E, F6.4, G,	1.4 People rather than (resident) population DP9	(1) The metrics for DP9 in Stage 2A are flawed, failing to respect the choice of the word ‘people’ in the DP, developed with stakeholders at Stage 1.	See response to 1.3 above

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	H, I		<p>(2) This item is not about any “appraisal” (Initial, Full or Final). It is about the DPE, being specifically about DP9 and its deliberate use of the term “people”. As such, the CAA has no legal standing to re-word/re-interpret DP9. Accordingly, HAL’s response on 1.4 completely misses the point. See para 6.4 of FRP’s formal feedback on the Stage 2A Engagement (F).</p> <p>At the 1 to 1 meeting on 16 Mar 23 (H), HAL agreed to re-consider their SER response (Action:—HAL: OUTSTANDING)</p>	
2A	B, F6.5, I	1.5 Stakeholder feedback on DPE metrics.	<p>FRP made all the above comments to the sponsor at the M&M1 workshop (B). Despite promises to do so, the sponsor has not taken account of those comments, in breach of its CAP1616 obligation, and the CAA core principle, to engage in “a two-way conversation”. Submission of FRP’s comments to the CAA does not constitute a two-way conversation with FRP.</p> <p>FRP has never received a personal response to the carefully considered written note on methodology submitted to HAL in July 2022 (following the invitation to a so-called DPE Methods & Metrics workshop at which only metrics were on the table). No evidence has been made available to us for HAL’s assertion that our submission was carefully considered.</p> <p>See also HAL’s failure to honour commitment made at M&M1 – see 1.7 below.</p> <p>The offer opposite of so-called “secondary metrics” that merely highlight impacts but do not affect decision-making is of no value and do not constitute genuine engagement. Engagement is not about</p>	<p>Heathrow has undertaken “two-way engagement” with FRP since initial contact from ██████████ in January 2022. FRP have been invited to attend our additional, technical, ‘Methods & Metrics’ workshops and all suggestions and comments provided by FRP have been considered in our developing ACP. All feedback from FRP will be included in the evidence we submit to the CAA, in accordance with CAP1616 C9/10.</p> <p>Examples of FRP feedback influencing our ACP to date include our creation of a new departure option to avoid RP and our careful consideration of the weighted methodology approach for the DPE proposed by FRP. We have now provided a written response to FRP on the methodology they suggested we used for the DPE.</p> <p>We have also included secondary biodiversity and tranquillity metrics in the IOA to indicate how RP might be affected</p>

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			<p>“telling” someone what you will do or have done; it is about listening and being open to persuasion to change behaviour in a way that potentially affects the outcome. See 4.10 below.</p>	<p>by the options. Secondary metrics will be used in the shortlisting of options at Stage 2 if they indicate that an option would have unacceptable impacts.</p>
2A 2B	B, F6.6	<p>1.6 Stakeholder feedback on metrics DP2 – SSSIs etc. in Stage 2A</p>	<p>(1) In the M&M1 workshop (B) the sponsor “noted that they are required to account for AONBs and SSSIs under DP2”. But SSSIs are not accounted for in the DP2 metrics in Stage 2A. Also, ahead of those workshops, the sponsor was promising to generate metrics relating to biodiversity and tranquillity, to develop and assess options in line with policy, and to identify any overflowed SSSIs, SPAs, SACs, Ramsar sites and AONBs, whereas now the sponsor is only using an AONB metric for DP2.</p> <p>(2) Following the Stage 2A Feedback and DPE Evaluation Workshop (I), we welcome HAL’s creation of the additional easterly departure option and additional DP2 Tranquillity: Richmond Park and Biodiversity: SPA/SAC/SSSI overflight evaluation criteria.</p> <p>ISSUE RESOLVED SO FAR AS DPE DP2 METRICS ON SSSIs ARE CONCERNED. See 1.7 and 1.11 re DPE tranquillity and biodiversity DPE metrics.</p>	<p>Heathrow is aware of Richmond Park’s status as a SSSI and SAC. Therefore, specific attention has been given to Richmond Park in the development of the CLOO, as well as in the DPE and IOA.</p> <p>In terms of our CLOO, based on the FRP feedback to our Stage 2A engagement we developed a new PBN departure option from our easterly runways that specifically avoids overflight of Richmond Park.</p> <p>In terms of our DPE, as part of our DP2 assessment we have included a specific assessment of overflight of Richmond Park under the qualitative “Tranquillity” assessment. Richmond Park is also considered within the DP2 assessment of overflight of SSSIs, SPAs and SACs under our quantitative “Ecology and Biodiversity” assessment.</p> <p>When we undertake our IOA we will again consider Richmond Park in the Tranquillity and Biodiversity assessments.</p> <p>Further assessment of tranquillity impacts will be undertaken at Stage 3, when we have system options (arrivals + departures, easterly routes + westerly routes). At this stage the impact of our airspace proposal on tranquillity will be assessed using TAG, in accordance with current Government</p>

				<p>Policy. We will also review whether supplementary metrics might be used to support the assessment. If a negative impact is identified, there is an opportunity to adapt the options to mitigate the impact.</p> <p>We are therefore treating Richmond Park as an area prized for tranquillity and biodiversity, as highlighted to us via community engagement.</p>
2A	B, F6.7	1.7 Stakeholder feedback on metrics DP10 - tranquillity	<p>(1) In the M&M1 workshop (B), against DP10, the sponsor “committed to identifying any options impacting areas of tranquillity and taking these additional factors into consideration” and “noted that they were able to look at certain datasets to see where people spend their time, which would allow for the impact on Richmond Park (for example) to be explored”. However, the metrics for DP10 do not fulfil those commitments.</p> <p>(2) See response to 1.3 and 1.4 above.</p> <p>(3) DP10 is one of the 5 DPs used to create the CLOO as well as being a separate DP (independent of DP2) used in the DPE. Accordingly, resolution of one of our related issues on DP2 does not address our concerns regarding the interpretation and application of DP10, flaws in which have distorted the CLOO composition and DPE.</p> <p>(4) This is an example of HAL’s failure to engage in a genuine “two-way conversation” as required by CAP1616 (see 1.5 above). HAL’s earlier promise in a stakeholder forum (recorded in HAL’s own record of the workshop) has been discarded on the basis of an</p>	<p>(1) See response to 1.6 above. Heathrow has committed to consider impacts on areas of tranquillity, including Richmond Park. We have discussed the consideration of where people spend their time with the CAA (see 1.3 above).</p> <p>Assessment of the impacts of the ACP on Richmond Park will be undertaken at Stage 3, when we have a better understanding of which areas (if any) of the park are most likely to be affected. Refinement of the current options will be required as we develop them into system options and at this stage we will seek to minimise overflight of AONBs, National Parks and Richmond Park where possible.</p> <p>We have not discontinued any options based on the DPE assessment of DP10.</p> <p>(4) We took account of your comments re people vs. population and raised this as an issue for discussion in a meeting with CAA.</p>

			irrelevant observation from the CAA (presumably in response to a misleading query from HAL).	CAA confirmed that they would expect appraisals to be based on resident population data. CAP1616 Appendix B (Environmental Metrics and Assessment Requirements) also refers to the use of “population count data”.
2A 2B	F6.8	1.8 Other flaws in the metrics DP2 - total adverse effects on people	(1) The metrics being used by the sponsor for DP2 fail to reflect ANG 3.3a,b and 3.5. The sponsor is wrongly measuring the absolute headcount in any noise contour, which ANG 3.5 expressly says is not the right approach – rather, the Government says the objective must be to limit the total adverse effects on people as a result of aviation noise, adverse effects being those related to health and quality of life. (2) Noted	Total population data was used as a guide to help us develop the CLOO and to evaluate options against DPs in the DPE. The use of this data does not replace the need for assessment of adverse effects and our airspace change proposal will need to meet the requirements of ANG. Total adverse effects can only be assessed at Stage 3, since we need to have full system options (arrivals + departures etc) to understand the overall effects that our options might have on health and quality of life. The IOA (Stage 2B) will provide a first indication of potential adverse effects in accordance with ANG, CAP1616 and DfT’s TAG.
2A	F6.9	1.9 Other flaws in the metrics DP4 – CO2	(1) The sole metric proposed by the sponsor for DP4 (reduce CO2 and other greenhouse gas emissions) is to minimise track mileage flown. There is no evidence that it takes account of the additional fuel burn involved in manoeuvring into tight convergence points. (2) Noted	Track mileage was the metric used as an indicator of potential carbon impact to generate options for Design Principle 4. The IOA will start to assess the overall carbon impact of each route option, compared to the base case. The method for calculating the Carbon impact at this stage is: <ul style="list-style-type: none"> • All options are connected to set points in the network to calculate track miles

				<ul style="list-style-type: none"> • Data from AEDT will be used to determine fuel burn for each movement on each route, using the Boeing Fuel Flow Model for operations up to 10,000ft • Beyond 10,000ft, BADA* is used to calculate fuel burn to/from set points in the network • Fuel burn estimates are converted into CO2 estimates for each option and the base case • Outputs are fed into TAG to calculate monetised carbon outcomes. <p>At Stage 3, the Full Options Appraisal (FOA) will take further account of the procedures that are to be applied to the airspace designs, since these will impact fuel burn.</p>
2A	F6.10	1.10 Other flaws in the metrics DP9 - greater impact at lower levels	<p>(1) The DP9 metrics used wrongly treat the impact of noise as equal from planes at anything up to 7,000ft, regardless of the altitude, whereas there is clearly a much greater impact at lower levels of overflying (the greatest below 2,000ft). The CLOO options should be overlaid with altitude data and aligned/evaluated against DP9, so as to clearly identify people newly overflown at less than 2,000ft.</p> <p>(2) This fails to address the core focus of DP9, which is an “increase in noise” (i.e. compared with today) experienced by people on the ground. One aspect is a comparison of low overflight options compared with the current flight paths (not compared with other options). A single threshold of 7000ft is too high and too blunt a tool to capture material increases or differences in increases as between options.</p>	<p>(1) The CLOO options assume the same flight profiles (climb/descent gradients) for all options. This will change as our options mature at Stage 3. At the Stage 3 Public Consultation we will need to share detailed information on altitudes for different aircraft types, and the corresponding forecast noise impacts. At this stage we will have system options (arrivals and departures, for easterly and westerly operations) and we will be able to clearly identify communities who would be newly overflown (below 2000ft and at higher altitudes), as well as communities who are currently overflown but would experience an increase in noise.</p>

				(2) Options are compared with current flight paths (“the baseline”) in the IOA, not with each other.
2	B, I	1.11 Biodiversity DPE metrics	<p>(1) At the M&M1 workshop (B), in July 2022, FRP proposed several biodiversity metrics, and reiterated these in writing afterwards.</p> <p>(2) FRP proposed biodiversity metrics for the DPs in response to HAL’s express invitation to do so, in line with the purpose of that M&M1 workshop. BNG is not relevant.</p> <p>(3) At the DPE workshops (I) HAL notified FRP that the sole biodiversity metric for Stage 2A was “<i>The area (km2) of SPA, SACs and/or SSSIs overflown below 3000ft.</i>” I.e. still ignoring FRP’s July 2022 proposals regarding rare, endangered or protected habitats and species and those most sensitive to noise or nitrogen.</p>	<p>(1) The ACP process requires some assessment of biodiversity impacts but not to the same degree as the Biodiversity Net Gain (BNG) assessment required for Expansion. Understanding, and where possible avoiding, any new adverse effects to RP as a result of this Airspace Change will be a consideration of the work undertaken. This Airspace Change could potentially lead to a reduction in current overflight of RP, noting that the biodiversity consideration will need to be balanced against other objectives of this airspace change including the design principles related to reducing noise impacts.</p> <p>(2) and (3) An FRP email to Heathrow on 10 July 2022 (following the M&M1 workshop) included some suggested biodiversity metrics, including BNG and the use of condition surveys. The email also suggested “<i>simple metrics for comparative biodiversity in areas affected by HAL aircraft operations could be:</i></p> <ul style="list-style-type: none"> • <i>Number and range of designations - SSSI, SAC, NNR, Historic Landscape;</i> • <i>Number and variety of habitats, and connectivity; and</i> • <i>Number of species - especially rare, endangered and protected species and</i>

				<p><i>of those most sensitive to noise and nitrogen - and the population of each.”</i></p> <p>At Stage 2 Heathrow has assessed the number and area (km²) of sites affected by an option (SSSI, SAC, RAMSAR, SPA) and whether the location overflowed within that site might change as a result of the option. The large number of options, and the level of fidelity in those options, meant it was not practical or useful for us to undertake specific habitat or species assessments at this stage. The approach taken is considered proportionate to the high-level nature of the proposals at this stage.</p> <p>At Stage 3 we will undertake more detailed biodiversity assessments, and this will help to inform a further narrowing of the options. At that stage we will consider how important habitats or species within statutory protected sites might be affected and will either discontinue an option or seek to avoid or reduce the effects.</p> <p>We plan to undertake “HRA screening” at Stage 3. This process determines whether a full HRA is necessary based on Heathrow’s noise, air quality and overflight assessments. Government guidance requires an HRA for SACs, SPAs and Ramsar sites, and SSSIs will also be included to meet CAP1616 requirements. Guidance recognises that proposals may affect protected sites some distance away</p>
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				<p><i>“for example by causing air, water or noise pollution or affecting a feeding area used by one of the site’s designated species”¹. As such, any redistribution of aircraft noise over such sites may require Heathrow to undertake an HRA.</i></p>
2A 2B	B, D, G, I	1.12 Air quality DPE metrics	<p>(1) At the M&M1 workshop (B) FRP suggested several air quality metrics, and reiterated these in writing afterwards. At the M&M2 workshop (G) FRP reiterated the above points, referred to the estimated 44te NOx pa from new arrivals over Richmond Park, and asked <i>“Will HAL take account of our evidence on Richmond Park in the IOA’s air quality element?”</i></p> <p>HAL responded to this in their 'Further Stakeholder Feedback' paper to the M&M1 workshop (item FRP14), referring to <i>“... a national objective to protect vegetation and ecosystems from nitrogen oxides (NOx)”</i> and cited criteria ruling out NOx as being monitored, including within 20km of an area with a population over 250,000. This appeared to rule out NOx as a parameter anywhere near any city. What is the 'national objective'? Does it over-rule ANG and CAP1616?</p> <p>(2) The ANG17 and CAP1616a guidance is not absolute and does not set pre-conditions without which an air quality assessment is prohibited – it merely states that the impact on air quality is only mandatory where the two conditions are met (allowing for the possibility of exceptions) and, in any case, the second condition is satisfied in respect of Richmond Park which is in an AQMA (G). Also HAL’s DP2 metric restricts this to flight</p>	<p>(1) CAP1616 states that <i>“A full local air quality assessment is required if there are any changes to traffic dispersion or total aircraft emissions below 1,000 feet”</i> (Appendix B). This is because ANG states that <i>“Due to the effects of mixing and dispersion, emissions from aircraft above 1,000 feet are unlikely to have a significant impact on local air quality”</i> (3.28).</p> <p><i>At Stage 2 we assessed the options using a simple quantitative model, which concluded that the impacts on air quality are effectively identical for all options. More precisely, the differences between airspace options are too small to affect the risk of breaches of legal limits or other unacceptable air quality impacts on human health.</i></p> <p><i>The objective for annual mean NOx, including where it applies, is set out in English legislation, the Air Quality Standards Regulations 2010 (SI 2010/1001). It is referred to as a ‘national objective’ because it is set at a national</i></p>

¹ [Habitats regulations assessments: protecting a European site](#)

			<p>elevations below 1,000ft and legal limits so not taking account of long-term deposition of NOx on veteran trees, protected acid grasslands etc.</p> <p>(3) At the DPE workshops (I) HAL notified FRP that the air quality metric for DPE/Stage 2A was worsening of air quality relative to local authorities’ limits, and if an option has no change to flight paths below 1,000ft it will be evaluated as ‘Met’. This is contrary to HAL’s 3,000ft and sensitive habitats undertaking (opposite).</p>	<p>level, not because it applies at every location within the territory.</p> <p>(2) CAP1616a (1.97) sets two conditions for producing information on local air quality impacts and this is where there is a change below 1000ft and “the location of the emissions is within or adjacent to an identified AQMA”. It also uses a staged approach, with earlier stages carrying out proportionate assessments to determine which options should be brought forward for further assessment in later stages. As the options reduce in quantity the level of assessment can increase. At Stage 3 we intend to prepare AQ assessments which provide an understanding of impact (on human health and nature) rather than relative performance.</p> <p>(3) Typically, an airport-related air quality assessment considers emissions from aircraft engines in the landing and take-off (LTO) flight phases on the ground and up to 3,000 feet (~1000 metres) above the ground. However, an air quality assessment is only required under CAP1616 where there is likely to be a change in the airspace below 1000ft. Where sensitive habitats are located in areas where the NOx Objective applies or where the habitats may be sensitive to changes in level of nutrient or acid deposition, they will be considered in the assessment at Stage 3.</p>
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Stge	Mtg.		<i>Stakeholder Comments:</i>	<i>Heathrow Comments:</i>
		2. Development of the CLOO	The CLOO is not comprehensive	
2A 2B	B, C, F8.1	2.1 Narrow set of metrics.	<p>(1) HAL have used an arbitrary set of five metrics as a way of filtering out some of the original 650,000 notional tracks, with the result that the proposed CLOO is not “comprehensive”. These are an unduly narrow measure of alignment with the DPs as a whole, with the consequence that the proposed CLOO omits some “possible” options, in breach of CAP1616 E18.</p> <p>(2) CAP1616 does not determine a methodology for arriving at the CLOO. However, what CAP1616 does do is to define what constitutes a valid CLOO. Therefore, HAL’s methodology, that produces a list of options that does not match that definition, is not permissible and the outcome does not constitute a valid CLOO.</p> <p>(3) The use of the design principles to create the CLOO is, not, in itself, a poor starting point given that the CLOO (according to CAP1616) is supposed to be a comprehensive list of options that meet the SoN and are aligned with the DPs. However, we take issue with the precise way in which this was done by HAL:</p> <p>(a) most of the PBN options are flight paths that were identified to specifically meet a specific DP; only a few were designed to meet a blend of several DPs; the result is that the “CLOO” is skewed in favour of options that are an excellent fit with a single DP but potentially a poor fit with all or most of the others, ignoring other viable paths that would have been a reasonable fit with all or most of the DPs but not an outstandingly good fit with any one DP. The outcome is a CLOO that both includes options that should not be being considered in</p>	<p>(1) CAP1616 does not define a methodology for creating options or choosing between them; that is left to the sponsor to decide. Heathrow used professional judgement and technical expertise to create options based on our design principles, not solely the data from the notional tracks. Options will continue to be adjusted throughout the process as our understanding of their impact becomes more detailed and mitigations are applied. Notional tracks are not options.</p> <p>(2) We are unclear what “definition” you are referring to here.</p> <p>(3) Our design principles were used to guide the development of the CLOO, and then <i>each</i> option was assessed against <i>each</i> design principle in the DPE. The ‘blended’ options we created ensure that we also have options that might be “a reasonable fit with all or most of the DPs but not an outstandingly good fit with any one DP”.</p>

			<p>the DPE/IOA and omits options that should have been considered. We would add that the mass of amber ratings in the DPE does not disprove our point, because of the dynamic rating method used by HAL. Achieving a green or even an amber rating does not mean that, in absolute terms, the option performs well against the DP – merely that it performs better than many of the others – a kind of “best of a bad lot” rating.</p> <p>(b) Our comments on the DP interpretation/metrics (particularly 1.1 - no mention of Richmond Park alongside AONBs - and 1.3 – population metrics used for DP10) apply equally to the additional use of some DPs to create the CLOO.</p>	
2A 2B	E, F8.2, G, H, I, J, K	2.2 No ‘do nothing’ / ‘do minimum’ option.	<p>(1) The “do nothing/do minimum” option has not been included in the proposed CLOO. This is in breach of the CAP1616 E12 requirement that the CLOO “must” include the ‘do nothing / minimum’ option. The inclusion of such option(s) in the CLOO is distinct from the use of the ‘do nothing / minimum’ as a baseline for analysis of impacts.</p> <p>(2) FRP response to HAL (1): the DP9a options do not satisfy the CAP1616 E12 requirement for a ‘do nothing/do minimum’ option.</p> <p>(3) At mtg. (H), FRP noted the DP9a options are departures only, not arrivals, so do not satisfy the CAP1616 E12 requirement for a ‘do nothing/do minimum’ option.</p> <p>(4) At mtg. (I), HAL added ‘do nothing’ options for departures, PBN arrivals (04:30-06:00) and vectored arrivals.</p>	<p>(1) A ‘Do nothing’ option will be included as an option in its own right in the DPE and IOA. If it is discounted at this either stage, it will still be modelled in subsequent stages of the ACP as a comparator.</p> <p>(5) We do not consider that a ‘Do Minimum’ option is feasible or appropriate to define at this stage and a ‘Do Nothing’ scenario provides for a suitable, existing baseline against which to compare design options. A Do Minimum option is described as: ‘the minimum changes necessary to address another requirement e.g. a legal obligation’² and in the case of Airspace Modernisation, the obligation is not just to ‘implement PBN’ but is also to undertake a:</p> <ul style="list-style-type: none"> - Complete redesign of the route network to take account of advances in

² CAP2492

			<p>(5) However, HAL were quick to note (both at our November 2022 1to1 meeting (E) and the March 2023 DPE Workshop (I)) that “do nothing” (unsurprisingly to HAL) scores badly against DP2 because it cannot deliver modernisation (and so can be expected to be discounted soon). That being so, in the circumstances, the correct approach under CAP1616 would have been a “do minimum” option. CAP1616 at E21 says that in certain cases, doing nothing is not a feasible option in reality and, in such cases, in addition to its “do nothing” baseline the change sponsor must set out the minimum changes required to address the issues identified. And in the CAP2492 Clarification by the CAA of CAP1616 requirements (App C, page 6), mandatory deployment of PBN is specifically identified as a situation where “do minimum” is the correct approach. Here, that would likely be existing routes using PBN (and maybe without stacks) but these are not included in the CLOO nor identified as the secondary baseline, as required by CAP1616.</p>	<p>technology and to realise the potential for system design optimisation</p> <ul style="list-style-type: none"> - Re-design of arrival and departure routes to allow flights to climb and descend continuously, improving CO2 performance and better management of aircraft noise - Seek to ensure a minimum amount of controlled airspace is required - Develop airspace structures and technologies for greater integration of piloted and remotely piloted operations <p>As part of the FOA in Stage 3, it may be possible to articulate which of the system options represents the minimum level of change to the baseline.</p>
2A 2B	E, F8.3, I, J	2.3 Few arrival options in northern quadrants, in particular the north west.	<p>(1) HAL’s CLOO contains few PBN arrival options in northern quadrants compared with the proportion of aircraft arriving from the north. The imbalance shows that HAL’s CLOO is not comprehensive and does not satisfy the CAP1616 definition of a valid CLOO. The omission also potentially prevents HAL from complying with the ANG 3.3b altitude-based priority to choose existing routes in certain circumstances.</p> <p>(2) At the DPE workshops (I) FRP noted again that there are very few arrival flight paths from the north-west (Bovingdon stack) despite 70% of flights from North America arriving from that direction, and only 30% from the west (Ockham stack). The result for most</p>	<p>(1) The location of Northolt and London City airports reduces our flexibility in route positioning to/from the northeast. There is also very dense population in this region which meant that our design principle-led development of options directed us to generate less options in those areas. In developing the CLOO we generated 650,000 notional tracks to ensure we investigated as many route positionings as possible. We used the notional tracks to collect data on the areas that would be overflowed by them, and used this data to inform option creation</p>

			<p>flight path options is long routing of N. American arrivals around the west and south of the airport, even for the 27R arrivals, leading to many newly overflowed communities. HAL’s response concerning the north-east quadrant does not address our challenge regarding northwest arrivals and the radical change away from the current flight paths (that are in use now notwithstanding the existence of Northolt and City airports).</p>	<p>in line with the Design Principles. This data indicated that adverse effects from overflight would be greater if we overfly the more densely populated areas around the airport.</p> <p>Our options designed to meet DP9 ensure that we have options that more closely reflect today’s existing routes.</p> <p>(2) At the DPE workshops (I) FRP speculated that most flights from North America arrive via the Bovingdon stack today, and queried whether our options indicate that US arrivals will be required to route via the south in future. We checked the data and confirmed to FRP at a later meeting (M) that 50% of US arrivals come via Bovingdon today, and 50% come via the Ockham stack.</p>
2A 2B	E, F8.4, I	2.4 No range of convergence points.	<p>(1) In the CLOO, PBN arrivals into 27R and 27L are based on only two convergence points (3nm and approximately 7nm), not a range as promised - and a disproportionate bias towards 3nm. To be “comprehensive”, the CLOO should include convergence points in the current 8-19nm range.</p> <p>(2) The CLOO includes a range of convergence points for vectored arrivals, but PBN arrivals are predominantly using the minimum convergence point – an unnecessarily narrow set of options.</p>	<p>(1) When creating the CLOO arrivals options, we considered joining points for vectored arrivals that were no closer than 8 nautical miles (nm) from Heathrow (as per ILS requirements) out to as far as 22nm from Heathrow. For PBN arrivals we considered tracks that joined final approach between 3-18nm.</p> <p>(2) The data we collected from our notional tracks indicated that our PBN arrivals should join the final approach as close to Heathrow as possible (to keep them away from the densely populated areas of London, in line with policy). Our PBN arrival options therefore generally join final approach between 3-8nm from the airport.</p>

				Conversely, vectored arrivals need to join the final approach no closer than 8 miles from Heathrow for safety and capacity reasons.
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Stge	Mtg.		Stakeholder Comments:	Heathrow Comments:
		3. CAP1616 requirements for Stage 2A	The sponsor has failed to meet the procedural requirements of CAP1616 for Stage 2A	
2A	G, H, I, J, K	3.1 DPE process	<p>(1) HAL handling of the DPE process has not properly understood the function of the DPE process. CAP1616 (at paragraph 125) is very clear that all the design options in the Comprehensive List of Options (CLOO) (which pass through to the Initial Option Appraisal at Stage 2B) must be “aligned with the design principles” and the function of the DPE is to demonstrate that that is the case (G)</p> <p>(2) HAL’s response (opposite) mis-states our point. We quote directly from CAP1616 and have never claimed that all options must be fully aligned with all DPs.</p> <p>(3) HAL’s response (opposite) continues to demonstrate a misunderstanding of the CLOO/DPE process laid down by CAP1616. It is clear that any option that is not [broadly] “aligned with the DPs” should be dropped and not go through to Stage 2B. Otherwise, the CLOO wrongly includes options that are not aligned with the DPs. CAP2492 clarifies the point by stating that “at the end of [Step 2A], any option subsequently found not to meet the SoN and/or the DPs can be discounted and all other options are taken forward to IOA.” (App C, page 4)</p> <p>(4) The DPE only shows a RAG rating for each option against each separate DP, without any summary rating for each option.</p>	<p>(1) Paragraphs 125-129 of CAP1616 set out the requirements for Stage 2A. Paragraph 128 describes the CAA’s gateway assessment at the end of Stage 2 and that the CAA will assess whether we have:</p> <ul style="list-style-type: none"> • identified all the possible options • evaluated the design options against the design principles in a fair and consistent manner • ensured, as far as possible, that stakeholders are satisfied that the design options are aligned with the design principles and sponsors to set out how decisions they have taken relate to stakeholder feedback • evaluated that the design options are compliant with the required technical criteria.” <p>CAP1616 does not require that all the options in the CLOO which pass through to Stage 2B must be aligned with all the design principles. CAP1616 recognises that design principles can contradict each other (D6 and Para 115) and therefore it is highly unlikely that any one option in the CLOO will fully</p>

			<p>(5) At the M&M2 workshop (G) HAL said if 2 or 3 surviving options coming out of the IOA process are finely balanced as against policies, HAL may look back to DPs to choose the preferred option</p> <p>(6) HAL’s overall approach to the DPE (no weighting or scoring, no aggregate RAG rating for each option, no changes to the original draft CLOO in response to the DPE) means that the whole DP/DPE process (and associated stakeholder input) has been virtually pointless. Standing back, the combination of a very large CLOO (181 options of which 40 consist of groups of 6 routes each, i.e. 381 flight paths altogether) and no discounting, means that HAL has failed to utilise the DPs for the purpose laid down by CAP1616, namely as “a framework or reference point that it will use when drawing up, and later considering and comparing, all the options open to it” (paragraph 119).</p>	<p>meet all the DPs. The function of the DPE is to set out how design options have responded to the design principles. Although some sponsors have decided to discontinue options after their DPE, there is no CAP1616 requirement to do so.</p> <p>(6) The design principles have been used as “a framework or reference point (that it will use) when drawing up, and later considering and comparing, all the options open to it” (CAP1616, para 119)</p>
2A	E, F10.1, H, I	3.2 No clear list of options.	<p>(1) The Stage 2A engagement materials provided by the sponsor fail to meet the “clear and accessible” standard set by CAP1616 p175.</p> <p>(2) FRP response to HAL (1): it should not have been necessary to ask the question and the engagement with stakeholders as a whole (who may not all have benefited from a similar clarification) falls short of CAP1616 standards</p> <p>(3) At the 1to1 meeting in March 23 (H) HAL explained to FRP for the first time the concept of groups of 6 departure routes. We were not aware that this feature had ever been disclosed to other stakeholders.</p> <p>(4) At the DPE workshops (I) HAL corrected itself and said that there were now 181 options in total: 40 groups of PBN departures, which are six routes per</p>	<p>(1) Heathrow confirmed to FRP in meeting (E) that all the 300+ PBN swathes together with the vectors options in the appendix to the CLOO engagement material constitute the CLOO.</p> <p>(4) Please note correction above, with our apologies for any confusion</p>

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			group, 93 arrival options and 48 vectored arrival options.	
2A	F10.2, I	3.3 Maps have unclear flight path options and lack performance data.	<p>(1) The maps provided to stakeholders in Stage 2A engagement do not provide sufficiently “clear” flight path options, nor any supporting data to demonstrate alignment of the CLOO with the DPs. So it is not possible to determine whether the sponsor has properly understood and accounted for stakeholder concerns as reflected in the DPs – and so the engagement materials fail to meet the test of effective engagement in CAP1616 App C</p> <p>(2) The maps provided to stakeholders after the DPE workshops (I) were small scale and opaque, and still do not provide sufficiently “clear” flight path options – and still fail to meet the test of effective engagement in CAP1616 App C.</p> <p>(3) It is not possible for stakeholders to be sure what the description of the process means in practice (and therefore whether they are “satisfied” as per CAP1616 paragraph 125) without being able to accurately identify at least a sample of the options and test their evaluation under the DPE.</p>	<p>(1) The CLOO engagement material set out the step-by-step process we followed in developing options based on the DPs. The process was explained for PBN departures, PBN arrivals and Vectored arrivals. We also explained the concepts we had developed to address design principles that could not necessarily be met through the design of a flight path (e.g. using noise efficient operational practices or providing respite from noise).</p> <p>(2) We provided all stakeholders with an appendix showing maps of all options. Each option was shown on an individual page/slide. The scale and accuracy of the maps was suitable for this early stage of the process, where fidelity of the options is still relatively low.</p>
2A	B, F10.3	3.4 Unclear scoring and weighting of CLOO metrics.	<p>(1) It is not clear how the proposed metrics are being scored and weighted in an objective manner to assemble the CLOO - as required by CAP1616 128. It is not possible for stakeholders to be satisfied with the weighting without knowing how this has been done.</p> <p>(2) Noted</p>	The DPs were not prioritised in the creation of design options for the CLOO. However, a simulation of all possible weightings of DPs was applied to the notional tracks and repeated tens of thousands of times to identify the options which performed best under the most possible scenarios: this was included as the “blended” option.
2A	E, F10.4	3.5 No forward-looking stakeholder input allowed	(1) The sponsor requires that stakeholder input at Stage 2A is solely backward-looking (and not also forward-looking to the DPE) and does not accept that	(1) We shared our DPE approach and results at engagement workshops in late March, providing an opportunity for a wider group

			<p>CAP1616 requires the sponsor to share with stakeholders its current intention as to the detailed methods and metrics it will use for the DPE. This is in breach of CAP1616 C27. Stakeholders should be given a chance to clarify the correct interpretation of the DPs, which interpretation will then govern the sponsor’s work on the DPE.</p> <p>(2) We reiterate that the mandatory stakeholder engagement at Step 2A is not met by a retrospective report from HAL as to what it has done. HAL’s quote from C27 needs to be read in context. C27 in its entirety reads: “As the change sponsor is required to design options that meet the design principles developed during Stage 1b, they must seek feedback from key stakeholders to test their hypotheses. The design principles evaluation should be signposted for stakeholders as this sets out how the design options have responded to the design principles. Bilateral meetings and smaller challenge groups are likely to be sufficient to ensure that stakeholder concerns have been properly understood and accounted for in designing options.” C28. Goes to say; In judging the efficacy of engagement, the CAA will not look for discussion on the pluses and minuses of each option – that should come during consultation – but will seek evidence stakeholders are content that their views have been captured and taken into account by the change sponsor. The size and nature of meetings should dictate whether formal record-keeping and minutes are necessary.....but at a minimum sponsors must set out how decisions they have taken relate to stakeholder feedback.” In other words, the development of the CLOO/alignment with DPs /</p>	<p>of stakeholder representatives to see “how the design options have responded to the design principles” and provide feedback.</p> <p><i>(2) CAP1616 para C27 states “As the change sponsor is required to design options that meet the design principles developed during Stage 1b, they must seek feedback from key stakeholders to test their hypotheses. The design principle evaluation should be signposted for stakeholders as this sets out how the design options have responded to the design principles. Bilateral meetings and smaller challenge groups are likely to be sufficient to ensure that stakeholder concerns have been properly understood and accounted for in designing options”.</i></p> <p>We held a “Methods & Metrics” session where we shared our proposed approach to the DPE and invited feedback on it, engaging in two-way conversation with stakeholders. A note from the session was shared with all attendees. We also held workshops where we shared the results of the DPE with a wide range of stakeholders and invited questions and feedback.</p>
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			confirmatory DPE is an iterative / circular / collaborative engagement process – see the to and from arrows in the Stage 2 flowchart at CAP1616, page 45. CAA guidance at Paragraph 125 says the same in slightly different words. Again, CAP2492, in describing Step 2A, says: “In the DPE, options are tested against the DPs from Step 1B. This happens through a process of engagement with stakeholders.” Note that CAP1616 does not envisage that, at the formal Stage 2A engagement, the change sponsor should only disclose some shorthand metrics for a few of the DPs (that have been used to create a “first cut” CLOO), and then carry out the DPE unilaterally, only informing stakeholders afterwards about what it has already done, which is what HAL’s comment (opposite) implies to be the process and what HAL has done.	
2A	B, E, F10.5, G, I, K	3.6 Unclear scoring and weighting of DPs for DPE.	(1) The materials do not set out how the proposed metrics will be scored and weighted in an objective manner to evaluate the options under the DPE as required by CAP1616 128. FRP put forward a draft scoring and weighting methodology for discussion on 10 July 2022 but have not received a substantive reply. (2) at the DPE workshops (I) HAL presented the DPE scoring rationale, and reported that no options would be assigned a total RAG/score, also (despite having flagged the possibility of shortlisting options, based on the DPE, in the Stage 2A formal stakeholder engagement - E at page 59) no options would be discarded at the DPE Stage 2A point – thus weightings of DPs cease to be relevant. RESOLVED	(1) CAP1616 does not require DPs to be prioritised or weighted and recognises that DPs can contradict one another. Heathrow considered FRP’s suggested methodology for the DPE but decided not to prioritise/weight DPs. Each option is assessed against each DP in the DPE in a consistent way. Further information on our approach to the DPE will be shared at our stakeholder workshops in late March.

Stge	Mtg.	Stakeholder Comments:	Heathrow Comments:
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		4. IOA: Scale of change and environmental impact		
2B	B, D, E, F3	4.1 Scale of change and environmental impact.	CAP1616 B8 is directly relevant to Richmond Park: the “scale of the change options” for Richmond Park is enormous; the “nature of the potential environmental impacts” on Richmond Park is severe. Richmond Park will suffer severe impact on four out of the five elements in B12. It is of international and national environmental importance. Richmond Park scores highly against all four DfT landscape indicators.	Noted.
2B	B, D, E, F4, G, H	4.2 Substantive EA required – CAP1616 compliance	<p>(1) It follows from 4.1 above, that the sponsor should carry out a substantive EA at Stage 2B for Richmond Park, covering all 5 elements listed in CAP1616 B12, quantitative as well as qualitative, along the lines of FRP’s pEA (D). It is not compliant with CAP1616 to delay that level of assessment to Stage 3.</p> <p>(2) However, HAL are not planning on carrying out a proper EA for open spaces and particularly Richmond Park in Stage 2B in respect of tranquillity, air quality, and biodiversity (G)</p> <p>(3) At mtg. (H), HAL asserted that, in respect of the Environmental Assessment, they have reviewed FRP’s Preliminary Environmental Assessment and concluded that they are doing more in the IOA than is required for Stage 2. FRP, accepting that a full EA was not appropriate at Stage 2B, but arguing that a substantive EA was required by CAP1616 B8 in Richmond Park’s case, noted that this was a crucial judgement. Given that B8 read: <i>“The change sponsor will undertake environmental assessments (quantitative and/or qualitative, according to the scale of the change options and the nature of the potential environmental impacts) as part of this stage. ...”</i>, it was self-evident</p>	<p>(1) An initial environmental appraisal of our airspace change proposals is required at Stage 2B, once we have designed and shared a comprehensive list of flight path options. We are aware of the statutory protection afforded to Richmond Park and other sites of its kind, which will inform our optioneering process so that consideration is paid to whether particular options generate more or less impacts than occur currently. We will have regard for your report as we prepare our methodology for the assessment of these sites, particularly at Stage 3.</p> <p>Once we have narrowed options we are then required to undertake a full environmental appraisal of each option’s environmental impacts. Should these options result in changes over Richmond Park, and in particular if an option would result in more overflight of the Park (or component parts of the Park), we will need to assess whether this would have any</p>

			that, given Richmond Park’s extraordinary status, and taking it as a test case, if this para B8 did not apply to Richmond Park it would not apply to anywhere in the UK. Indeed, B8 could have been written with Richmond Park expressly in mind.	effect on its ecology or tranquillity, or on the recreational and amenity benefits it provides. The outcome of that assessment will be considered alongside other environmental and operational factors when identifying our preferred options. (3) The environmental assessments undertaken at Step 2B are proportionate to the number of options we have and the fidelity of those options. More detailed assessment of environmental impacts will be undertaken at Stage 3 once we have system options.
2B	D, E, F5	4.3 Substantive EA required – Stage 2B precedents	The Luton and Glasgow Stage 2 environmental analyses are not suitable templates or precedents for Heathrow in relation to Richmond Park where multiple new overflights at lower than 2,000ft are being considered. A much more substantive in-depth EA than those environmental analyses must be produced by Heathrow for Richmond Park at Stage 2B.	There will be partial environmental assessments of departure routes and arrival routes in their own right at Stage 2B but not to the same scale and detail as what we will perform during Stage 3, once we have system options (arrivals + departures, westerly + easterly operations). The Stage 2 environmental assessments indicate potential impacts to Richmond Park and help us identify which components to include in Stage 3 system options to help mitigate and avoid any adverse impacts.
2B	G, K	4.4 IOA Air Quality Assessment³	(1) The ANG17 and CAP1616a guidance is not absolute and does not set pre-conditions without which an air quality assessment is prohibited – it merely states that the impact on air quality is only mandatory where the two conditions are met (allowing for the possibility of	See response to 1.12

³ Text duplicated from 1.12 insofar as it relates to the IOA in addition to/rather than the DPE

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			<p>exceptions) and, in any case, the second condition is satisfied in respect of Richmond Park which is in an AQMA (G).</p> <p>(2) HAL’s proposed IOA approach restricts this to flight elevations below 1,000ft and legal limits so not taking account of long-term deposition of NOx on veteran trees, protected acid grasslands etc.</p> <p>(3) At the M&M2 workshops (I) HAL notified FRP that the air quality metric for IOA/Stage 2B was potential risk to be identified by a change to flight paths below 1,000ft and closeness to legal limits. This does not honour the promise from HAL of a 3,000ft threshold and sensitive habitats assessment (see 1.12 above).</p>	
2B	D, E, F6, G, K	4.5 IOA - Areas identified by community engagement – Richmond Park specifically (not all “parks and gardens”) to be avoided	<p>(1) CAP1616 requires the tranquillity assessment in the 2B EAs to apply the same approach as that for AONBs to any local area with similar characteristics to a Quiet Area that has been identified via community engagement. That instruction falls from legally binding Government guidance on environmental objectives. As such, Richmond Park is a specific area that should be avoided where possible.</p> <p>(2) It is a breach of CAP1616 B76 to undermine the special protection for local areas identified via community engagement as deserving to be assessed in the same way as an AONB by diluting the test with a metric that looks at all parks and gardens whether or not they have been specifically so identified</p> <p>(3) In accordance with CAP1616 B76, Richmond Park must be selected for special status in the IOA tranquillity assessment, alongside any AONBs, National Parks and any other specific areas identified through community engagement (which we understand from HAL to include only Bushy Park in addition to Richmond</p>	<p>(1) We proposed an IOA metric relating to all “parks and gardens” overflowed and that Richmond Park should be included in that category.</p> <p>(2) and (3) We accepted that FRP would like Richmond Park to be assessed in the IOA separately to “parks and gardens” and have instead included specific metrics for assessing overflight of Richmond Park. This is in response to stakeholder feedback from this group that identifies the park as a “local circumstance”. These metrics are the same as those used to assess the potential impact on AONBs and National Parks at Stage 2B.</p>

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			<p>Park). The proposed dilutive “parks and gardens” metric (effectively putting hundreds of un-nominated green spaces on par with AONBs and specifically nominated areas like Richmond Park, in clear contravention of CAP1616) must be deleted.</p> <p>(4) HAL’s second comment opposite does not apply because the DPE metrics are irrelevant for the IOA.</p>	
2B	D, F7, G, K	4.6 AONB/NP equivalence for IOA purposes	<p>(1) Richmond Park is at least equivalent to an AONB or NP because of its significance for biodiversity (being designated as an SAC, SSSI and National Nature Reserve) and tranquillity (one of the reasons for its NNR designation being the fact that it is a “<i>recreational resource for the London area</i>”).</p> <p>(2) FRP welcomed HAL’s agreement, confirmed at M&M2 (G), to treat Richmond Park as a specific area identified through community engagement, to be assessed in the same way as an AONB or National Park.</p> <p>(3) At mtg. (H) HAL appeared to backtrack on the above undertaking. FRP reiterated that for the purposes of CAP1616 B76 Richmond Park fell into the category of other areas for consideration identified through community engagement and therefore benefitted from the considerations in the process that flowed from that. After some debate, HAL and FRP agreed to differ on whether this amounted to any such areas being “AONB-equivalent”, with HAL agreeing to reflect this and include the B76 text in the SER and accept that RP was such an “other area” whilst not using the AONB-equivalent terminology.</p> <p>(4) FRP have not yet seen any evidence of a consequential update to the proposed primary metrics for Tranquillity in the IOA (i.e. an update from the Jan 23 M&M2 presentation (G))</p>	See responses to 1.1 and 4.5 above

2B	D, G	4.7 Tranquillity metrics for IOA	<p>The proposed metrics are inadequate:</p> <ul style="list-style-type: none"> (a) They only refer to overflown AONBs and NPs – Richmond Park should be added – see 4.6. (b) The overflown Parks & Gardens metric should be deleted – see 4.5. (c) FRP’s pEA (D) sets out some additional ways to assess tranquillity impacts and provides assessments using the Bentley Method and WebTAG, both of which show Richmond Park has a high rating for tranquillity and a significant impact on it from overflying aircraft. 	<p>(a) A Richmond Park metric was added to the IOA</p> <p>(b) The “parks and gardens” metric was deleted</p> <p>(c) The additional methods for assessing tranquillity suggested by FRP are typically adopted within detailed tranquillity assessments. At Step 2B our assessments sought to identify which options are most likely to impact Richmond Park. At Stage 3 our options will be narrowed down and assembled into systems and at that stage a detailed tranquillity assessment will be required as part of the Full Options Appraisal. The information provided by FRP in its pEA is helpful and use of both the Bentley method and TAG will be considered as part of the FOA at Stage 3.</p>
2B	G, K	4.8 Biodiversity metrics for IOA	<p>National Nature Reserves should be added to the list of RAMSAR sites, SSSIs and SACs</p> <p>FRP’s pEA (D) sets out some additional ways to assess biodiversity impacts, including the direct impact on specific species such as bats and birds, especially owls and skylarks, the use of WebTAG and the use of UNECE work on the critical load level of nitrogen for acid grassland. An adequate environmental assessment at the IOA stage should include use of these (or equivalent) metrics.</p>	<p>The approach for ecological assessment is usually to defer to the designation that offers the greatest level of biodiversity protection. In the case of Richmond Park, the NNR boundary is the same as the SAC boundary and the biodiversity of the park will therefore be assessed within our assessment of SACs.</p>
2B	D, F:Box 10:8 and 9,	4.9 Avoid Richmond Park to meet ANG17 priority to minimise the number of people significantly affected by adverse	<p>(1) To satisfy ANG 3.32 priorities, Richmond Park must be protected from overflying to an even greater extent than many AONBs or NPs</p> <p>We repeat our detailed comments in F, Box 10, paras 8 and 9. The underlying assumption of ANG3.32 is that an</p>	<p>ANG 3.32 states: <i>“Given the finite amount of airspace available, it will not always be possible to avoid overflying National Parks or AONB, and there are no legislative requirements to do so as this would be</i></p>

	K	<p>impacts of aircraft noise [Note to HAL: we have blended what were previously points 4.9 and 4.10 but are really a single point]</p>	<p>AONB is likely to be relatively empty of people. Therefore, it says that it is “likely” (NB not inevitable) that the government priority of reducing the number of people adversely affected by aircraft noise and the impacts on health and quality of life is served by avoiding more densely populated areas than AONBs. Our point is that Richmond Park is an exception to the usual case because at any time of day there are a remarkable number of people in the Park.</p> <p>Richmond Park is unusually heavily visited compared with any AONB or NP, being a green space surrounded by dense residential development, including social housing, which is free to enter and close to public transport links. One of the reasons for its NNR designation is the fact that it is a “recreational resource for the London area”. The government’s priority policy goal, of minimising the number of people significantly affected by adverse impacts of aircraft noise, is best served by avoiding overflight of Richmond Park, even though it is not a residential area.</p> <p>(2) For AONB-equivalence, see 4.6 above.</p> <p>(3) HAL’s comments about the DPE do not apply because this issue concerns the Stage 2B IOA.</p> <p>(4) HAL’s assurance is welcome but nowhere reflected in HAL’s presentation on the proposed IOA noise metrics for the M&M2 workshop.</p>	<p><i>impractical. The government’s policy continues to focus on limiting and, where possible, reducing the number of people in the UK adversely affected by aircraft noise and the impacts on health and quality of life associated with it. As a consequence, this is likely to mean that one of the key principles involved in airspace design will require avoiding over-flight of more densely populated areas below 7,000 feet. However, when airspace changes are being considered, it is important that local circumstances, including community views on specific areas that should be avoided, are taken into account where possible.”</i></p> <p>Our Stage 2 assessments will take into account public open spaces and it will make particular reference to Richmond Park in the tranquillity and Biodiversity/Ecology assessments. However, Richmond Park is not an AONB and therefore cannot be included in our assessment of overflight of AONBs (and National Parks) unless it is afforded AONB status.</p> <p>Heathrow is specifically analysing the potential change in frequency of overflight for the park for each of the options. Our options analysis will help to assess the balance between impacts of overflight of the park compared with impacts of overflying populated areas outside the park.</p>
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2B	G H	<p>4.10 Misleading inoperative “secondary” IOA metrics</p>	<p>(1) At the M&M2 workshop, HAL introduced the concept of “secondary metrics” for the IOA, but did not fully disclose when they will be used for the environmental factors. According to HAL, the distinction is that primary metrics are linked to policy and secondary metrics are intended to help stakeholders to understand the potential impacts of the options. Of particular concern is HAL’s response to 1.5 above, promising secondary IOA metrics for biodiversity and tranquillity.</p> <p>(2) All FRP’s requests for metrics should be read as requests for primary metrics i.e. metrics that collect information that is used to make decisions and choices between options. FRP’s requests derive from policy, and not wishful thinking, and merit appropriate treatment.</p> <p>(3) Capturing data via so-called secondary metrics, merely so that stakeholders can better appreciate the adverse impacts is inadequate. It is misleading to offer additional/amended “metrics” to stakeholders in response to their concerns when they will have no effect on HAL’s ACP.</p>	<p>(1) The data in our IOA is made up of Primary metrics and Supplementary metrics. Primary metrics are those set out in CAP1616 Appendix E, Table E2. These are the metrics that the CAA would expect to see. Supplementary metrics are those that have either been requested by stakeholders or identified by the team as metrics that would help stakeholders to understand the potential impacts of the options.</p> <p>(3) Our approach to shortlisting options based on the IOA results uses the altitude-based priorities set out in the government’s ANG. We would discontinue an option based on either a primary or supplementary metric if the data indicated that the impacts of the option would be unacceptable.</p>
2B	F10, I, J, K	<p>4.11 Forecasts for at least 30 years.</p>	<p>(1) CAP1616 B31 requires traffic forecasts for a period of at least 10 years from implementation. This ACP is a once-in-a-lifetime and total reconfiguration of airspace design. A mere 10-year time horizon would fail to include the intended full PBN implementation or its cumulative impact over time.</p> <p>(2) HAL appear confused as to their legal obligations/intentions, with some suggestion that forecast future end-state PBN air traffic might not be taken into account at all for IOA purposes</p>	<p>(1) CAP1616 requires a 10-year forecast</p> <p>(2) Some of the arrival routes require a high-end PBN specification that not all operators will have. We will need to make informed assumptions about future fleet forecasts when modelling and assessing such flight paths in Stage 3.</p> <p>(3) Our forecast will need to take account of any anticipated changes in ATMs, airline operators, their fleets and technology, and population forecasts, including new housing</p>

			<p>(3) In the DPE workshops (I) FRP asked how long it would take for the long-term transition to PBN to reach steady-state. HAL replied that this was unknown, and (for example) vector arrival options may be formalised into two PBN routes in 20 years' time. i.e. the 10-year forecast may well not reflect the end-state of the transition to PBN. Accordingly, setting a limited time horizon of only 10 years would mean deliberately appraising options against a set of factual assumptions that are expected (indeed almost known) to become out of date for, say, 20-40 years of the 30-50 year life of the new airspace design.</p> <p>(4) HAL are wrong to imply that CAP1616's forecast requirement is precisely 10 years. CAP1616 requires traffic forecasts for a period of <i>at least</i> 10 years from the intended year of implementation. There is no fixed period or maximum.</p> <p>(5) HAL puts forward inconsistent explanations as to what factor(s) will determine the rate of conversion to PBN arrivals. HAL sometimes refers to aircraft capabilities. At other times, HAL has asserted that it is landing volume that is determinative. On-board crew training has also been mentioned.</p> <p>(6) Given the scale of the ACP, it is incumbent on HAL to produce a traffic forecast that is commensurate with the expected life of the new airspace design.</p>	<p>developments. It also needs to predict how the airspace is intended to operate as "A key part of the CAA's post-implementation review will be to analyse the 'before and after' dispersal of aircraft to understand whether the new airspace design is being operated as anticipated" (CAP1616, Table H1). Looking further ahead than the CAA's post-implementation review and the 10-year forecast, Heathrow is already transparent about airspace use and aircraft movements with extensive public reporting on our website and online tools. Heathrow's reporting will be developed in line with the new airspace to support monitoring against the forecasts. Should technological advancements enable changes to the use of PBN over and above those forecast in our ACP and subsequently limited by the CAA, we expect this to trigger a requirement for a Planned and Permanent Redistribution (PPR) of traffic ACP. This process is set out in CAP1616 Appendix I.</p> <p>(4) and (6) We agree that CAP1616 does not set a maximum period for traffic forecasts, although there are a number of references to "10 years" within CAP1616, including B31, B40, B41, E4, E38 and page 223. Obviously, the fidelity of forecasting reduces the further we look into the future, however if CAA determines an assessment over a longer time period is required (as referenced in E38), we will endeavour to</p>
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				<p>provide a longer forecast with as much accuracy as possible.</p> <p>(5) There are a number of different considerations for the use of PBN for arrivals.</p> <p>The PBN Approach options we have developed include flight paths that would:</p> <p>a) require transition from PBN to the ILS and</p> <p>b) require PBN all the way to the runway.</p> <p>For (a) the PBN element needs to end far enough away from the runway for the aircraft to transition onto the ILS (>8nm). We expect all aircraft will be able to fly these approaches though, as we have explained, we expect vectoring to be required to provide accurate final approach spacing.</p> <p>For (b) we know that full PBN flight paths from the stacks could not be used all or even the majority of the time. Not all aircraft will be able to fly some of these approaches and there would also be meteorological limitations on when they could be flown. However, there could be some parts of the PBN paths that are used more frequently than others or they may be used during certain periods. We will need to understand more about the use of these routes to clearly set out assumptions in our consultation material, Full and Final Options Appraisals and ultimate ACP submission.</p>
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Stge	Mtg.	Stakeholder Comments:	Heathrow Comments:
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		5. CAP1616 requirements of Stage 2B	The sponsor has failed to meet the procedural requirements of CAP1616 for Stage 2B	
2B	G, I, K	5.1 Unclear scoring and weighting of IOA.	<p>(1) The materials for the M&M2 workshop (G) did not set out how the IOA parameters will be scored and weighted in an objective manner to evaluate the options under the IOA as required by CAP1616. I.e. whether any of the 15 IOA criteria are split for appraisal, if so how are they recombined, and then how are the criteria each scored for an option, whether weighting is used to come up with a total result for each option. I.e. exactly what it takes for an option to be ranked Met, Partially Met, or Not Met in the IOA.)</p> <p>(2) In M&M2 (G): HAL said that it would not determine/disclose [unclear which] its methodology until after it had amassed all the data.</p> <p>(3) In the DPE workshops (I) HAL said that, however complex it was, in the end the IOA had to reflect the intuitive outcome.</p>	<p>(1) and (2) We hosted stakeholder sessions at the end of June/early July where we talked through our approach to the IOA and to the shortlisting of options based on the results. We did not yet have a final methodology to share at M&M2 but we took account of all stakeholder feedback received during that workshop.</p> <p>(3) We do not recall any reference to an “intuitive outcome” at the DPE workshops.</p>
2B	G, I, K	5.2 Altitude-based priorities	<p>(1) How will HAL respect legally binding altitude-based priorities, up to 4,000ft and between 4,000ft and 7,000ft?</p> <p>(2) In M&M2 (G): HAL cited ANG17’s qualification to the priority of noise over carbon where the increase in CO2 is “disproportionate” to the noise impacts, and noted uncertainty as to what would be “proportional”</p> <p>(3) HAL response (2) failed to recognise that the balancing of noise vs. carbon is only the case for airspace above 4,000ft and that below 4,000ft noise takes unqualified priority</p> <p>(4) At the DPE workshops (I), HAL made the points opposite.</p> <p>ISSUE RESOLVED</p>	<p>ANG 3.3a states that: “in the airspace from the ground to below 4,000 feet the government’s environmental priority is to limit and, where possible, reduce the total adverse effects on people”. Our assessment of the options will take account of this.</p> <p>Policy does not define what is “disproportionate” (re the trade-off between noise and carbon between 4,000 and 7,000ft). We will view the data output from the IOA before considering the proportionality between carbon and noise and an explanation of any thresholds set for analysing trade-offs will be shared with stakeholders.</p>

Airspace Modernisation – Heathrow ACP – Stakeholder Engagement Record - FRP

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From: [REDACTED]

Sent: 08 February 2022 21:46

To: [REDACTED]

Cc: [REDACTED]

Subject: Heathrow Airspace Modernisation Proposal

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Please find attached letter with questions about the Heathrow Airspace Modernisation Proposal.

We look forward to your reply on these issues.

With kind regards,

[REDACTED]

[REDACTED] / Environment Secretary
Westbourne Park Road East Resident's Association

via e-mail & post

8 February 2022

██████████
Director of Operations
Heathrow Limited
The Compass Centre
Nelson Road
Hounslow TW6 2GW
████████████████████

Dear ██████████

Re: Your Heathrow Airspace Modernisation Proposal

Thank you for your comprehensive letter dated 24 January 2022, which we appreciate.

As per below, we have listed a couple of follow up questions:

Impact on Airspace Modernisation programme on Bayswater/ Westminster

You kindly explained that you expect your Flightpath consultation to take place in 2025, with a forecasted implementation in 2028.

What was less clear from your response were the actual details relating to the Airspace Modernisation programme, which is ongoing, having just been confirmed by the CAA. We are concerned that the AMS is likely to result in equally significant and therefore major changes to our community if Heathrow is intending to introduce 'optimised' flight routes over central London and potentially over our area. We would therefore like to understand the following:

- (1) Are you intending to introduce 'optimised' flight routes over London as part of the present Airspace Modernisation programme?
- (2) If so, what is an 'optimised' flight route? Is it a change that allows aircraft arriving into Heathrow to take a shorter approach, potentially flying over areas not previously overflowed, before joining the final approach into Heathrow?
- (3) Do 'optimised' flight routes also involve new procedures such as flights taking off or landing at new gradients and / or making turns over new areas?
- (4) How do you intend to inform communities of the impact of any proposals of yours as part of the present Airspace Modernisation programme?
- (5) What are the timescales for the implementation of the Airspace Modernisation programme?

We believe that any change in flight routes that leads to some planes flying over new areas or introducing new procedures that increase noise over a community, will have the same adverse and significant impact on the communities underneath, as would complete change of flight paths.

- (6) We would therefore again highlight the need for a live trial of this in advance of the actual consultation. There is a precedent for live trials conducted by you, in 2014, and we would formally like to request that they are repeated.

Re: Community engagement/ focus groups

Thanks for informing us that you have already run focus groups. We looked at the website provided and could not find any information on them.

- (7) Can you therefore please let us know who we can contact to obtain details on the objectives of and brief for the focus groups, and importantly a breakdown by post code of members of the focus groups?

We are disappointed that we were not invited to the focus groups as we have over the past three years expressed concerns about your expansion and airspace change plans directly via individual resident approaches, via our resident associations, via our local ward Councillors and our MP. We have also registered to be invited to focus groups via your previous consultations.

- (8) Can you please advise us of how we can ensure that our community is represented in future focus groups/ meetings?

Timescales for the consultation on Heathrow's Airspace Modernisation programme

We know that Heathrow is keen to properly engage communities and other stakeholders, so it is important that the consultation does not take place e.g. at the time of, or directly after the local elections, nor during holiday periods.

- (9) Could you please provide a rough timescale for your Airspace Modernisation programme, in particular when you are assuming that the consultation will take place on any new occasional or permanent flight paths/ optimized flight routes for the community underneath?

Thanks again for your direct engagement.

We look forward to your response on these final questions.

Yours sincerely,

[Redacted signature]

[Redacted name]

Environment Secretary

Westbourne Park Road East Resident's Association

On behalf of:

Westbourne Park Road East Resident's Association

Sunderland Terrace Resident's Association

cc: (via e-mail)

[Redacted] / MP Westminster North

[Redacted] / Cabinet Member Communities and Regeneration, Westminster City Council

[Redacted] / Bayswater Councillor, Westminster City Council

RE: Heathrow Airspace Modernisation Proposal

DD - Airspace <airspace@heathrow.com>

Mon 14/02/2022 17:42

To: DD - Airspace <airspace@heathrow.com>; [REDACTED]

📎 1 attachments (414 KB)

220208 Westbourne Park Rd Residents Assoc.pdf;

Dear [REDACTED]

Thank you for your recent letter – which was passed on to me by [REDACTED]. You are welcome to use this email address (airspace@heathrow.com) for any future queries relating to our airspace change programme.

I have endeavoured to answer each of your questions below.

(1), (2) and (3) Changes to flight paths over London

As you are aware, we are undertaking an Airspace Change Proposal (ACP) at Heathrow to modernise and upgrade our airspace in line with the Government's Airspace Modernisation Strategy (AMS). The airspace change will require us to redesign our flight paths to make greater use of performance-based navigation (PBN). The introduction of PBN is key to achieving airspace modernisation. PBN improves the accuracy of where aircraft fly by using modern satellite navigation and moving away from outdated and conventional navigation techniques using ground-based beacons. This is similar to GPS "sat nav" devices that most people use in their cars today. Our existing departure and arrival routes will need to be redesigned to make greater use of PBN and this may lead to flight paths over areas that are not overflown today. As you suggested in your email, these changes may include shorter routes, new gradients or turns over new areas.

We are currently at Stage 2 of the Civil Aviation Authority (CAA) CAP1616 process for airspace change and we are developing a "comprehensive" list of route options. We will be engaging with stakeholders on this long list of possible route options later this year and we would like to invite Westbourne Park Road Resident's Association to join this engagement. Please could you confirm whether you would be interested in being involved in this and let me know the most appropriate contact details for your resident's group?

(4) and (5) Timeline for engagement and implementation

We are developing an indicative timeline for this airspace change, with a public consultation likely to take place in around 2025 and implementation of the new flight paths from around 2028. We will also be undertaking engagement with known stakeholder groups (e.g. Local Authorities, community groups, airlines, surrounding airports) whilst we develop design options over 2022-2023. You are welcome to join these engagement sessions.

Other airports will have developed their own programmes for implementation of airspace modernisation, and many UK airports are further ahead in the process than we are. Airports are required to upload documentation about their changes and engagement activities at each "gateway" in the CAA's CAP1616 process and you may be interested to see this information on the CAA's portal: [Airspace change portal \(caa.co.uk\)](https://www.caa.co.uk/airspace-change-portal).

(6) Suggestion for live trials of new flight paths

An airspace trial requires CAA approval, and the CAA "will usually only agree to a live trial where it involves innovative airspace design (or operational practices) or new technology" (CAP1616, para 144 316). Airspace trials are not generally used to assess environmental impacts (e.g. noise) of a

potential airspace change. These impacts will be assessed using desk-based modelling and the results will be shared with stakeholders at the public consultation.

Once the new airspace design is live, the CAA will undertake a post-implementation review, usually 12 months after implementation. The review will assess whether the anticipated impacts and benefits in the original proposal are as expected. This review includes the impact on local communities affected by aviation noise or other environmental impacts. Local stakeholders will also be able to provide feedback on the new flight paths to the CAA.

The 2014 PBN trials that you mention were initiated by NATS and were intended to test the technological performance of PBN.

(7) Public focus groups undertaken in 2021

These focus groups were undertaken as part of our engagement on design principles (Stage 1 of the CAP1616 process). We have now submitted our design principles, and all evidence of stakeholder engagement undertaken, to the CAA. The report on the public focus groups is an annex to our submission and will be available on the CAA portal over the next week or so: [Airspace change portal \(caa.co.uk\)](https://www.caa.co.uk). I have also attached the report for you.

(8) Representation in future engagement meetings

As mentioned above, we are happy to add your group to our stakeholder list and to invite you to join future engagement sessions. Please let me know the most appropriate contact details for future invites.

(9) Dates for public consultation on this ACP

We anticipate undertaking public consultation around 2025. We will keep stakeholders informed by updating our website nearer the time and emailing known stakeholders. The standard consultation period is 12 weeks so this allows for holiday periods to be accommodated.

Kind regards,

Re: Heathrow Airspace Modernisation Proposal

[REDACTED]

Tue 15/02/2022 08:57

To: DD - Airspace <airspace@heathrow.com> [REDACTED]

Cc: [REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Hi [REDACTED]

I can't see the report on the public focus groups [REDACTED] said is attached. Could you please send it separately to me if possible?

Thanks

[REDACTED]

RE: Heathrow Airspace Modernisation Proposal

DD - Airspace <airspace@heathrow.com>

Tue 15/02/2022 09:02

To: [REDACTED] DD - Airspace <airspace@heathrow.com>;
[REDACTED]

Cc: [REDACTED]
[REDACTED]

Hi All,

The report on the public focus groups is attached to this email – sorry I think it might not have attached to the previous one.

Kind regards,
[REDACTED]

From: [REDACTED]
Sent: 28 April 2022 09:24
To: [REDACTED]
Subject: Attn [REDACTED] - Your Heathrow Airspace Modernisation Programme

[You don't often get email from [REDACTED]. Learn why this is important at <http://aka.ms/LearnAboutSenderIdentification>.]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Hi [REDACTED]

You kindly provided a response to a letter on 14 February this year on behalf of [REDACTED], and I would therefore appreciate if you could now provide me with the following additional information:

- the number of households that currently fall within the Heathrow 45 db Lden contour
- the number of people who currently fall within the Heathrow 45 dB Lden contour

Many thanks,

[REDACTED]
Environment Secretary

Westbourne Park Road East Resident's Association, London W2
Sunderland Terrace Resident's Association, London W2
Kildare Terrace Residents Association, London W2

RE: Attn [REDACTED] - Your Heathrow Airspace Modernisation Programme

DD - Airspace <airspace@heathrow.com>

Thu 05/05/2022 08:35

To: [REDACTED]

Cc: DD - Airspace <airspace@heathrow.com>

Dear [REDACTED],

Thank you for your email regarding Heathrow's noise contours. Heathrow publishes noise contours annually and the reports are available on our website. Due to covid, the latest available report is for 2019 which was the last year of "normal" operations. We will publish reports for 2020 and 2021 later this year but the noise contours in these reports will be impacted by the significant fall in traffic experienced as a result of the pandemic.

You can access the 2019 report here: https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.heathrow.com%2Fcontent%2Fdam%2Fheathrow%2Fweb%2Fcommon%2Fdocuments%2Fcompany%2Flocal-community%2Fnoise%2Freports-and-statistics%2Freports%2Fnoise-action-plan-contours%2FLHR_2019_contour_report.pdf&data=05%7C01%7Cairspace%40heathrow.com%7C32c29290abfb409989cc08da2e722560%7C2133b7ab6392452caa2034afbe98608e%7C0%7C0%7C637873365039765626%7CUnkown%7CTWFpbGZsb3d8eyJWljoIMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IjEhaWwiLCJXVCi6Mn0%3D%7C3000%7C%7C%7C&sd=0em%2BpKkgkilUxP3oeGvYZ5daZU3JYP%2F40943aFLheuU%3D&reserved=0

If you have any further questions on today's flight paths then it is best to direct them to the Community Relations Helpdesk at: communityrelations@heathrow.com They will be able to answer your query or forward it on to the most relevant person.

You can also use this airspace email address for emails relating to Heathrow's plans to modernise and change our flight paths.

Kind regards,
[REDACTED]

RE: Attn [REDACTED] - Your Heathrow Airspace Modernisation Programme

[REDACTED]
Thu 26/05/2022 21:21

To: DD - Airspace <airspace@heathrow.com>; [REDACTED]

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thanks for your response. We are familiar with the document that you kindly forwarded. What we are after is a report from Heathrow on the number of people currently within the contours set by the WHO 2018 upper limit guidance (see bold text below). Can you please let us know who to contact with this formal request?

Also, we understand that you are currently seeking feedback on technical design principles of your modernisation programme. As agreed previously with you and [REDACTED] our community group would like to be included in all dialogue/ consultation at all stages of the air space modernisation programme. Can you therefore please: a) forward us the current information which you are seeking feedback on , and b) confirm that our community group has been correctly added to the list of community groups/ organisations to be engaged/ consulted at all stages?

- the number of households that currently fall within the Heathrow 45 dB Lden contour
- the number of people who currently fall within the Heathrow 45 dB Lden contour

Many thanks,
[REDACTED]

[REDACTED] / Environment Secretary WPRERA

From: [REDACTED]
Sent: 04 July 2022 08:15
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: Attn [REDACTED] - For action please- your Heathrow Airspace Modernisation Programme

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED],

I understand that you were on leave the week I sent the e-mail below, but I would now greatly appreciate if you could get back to me on my queries as soon as possible, in particular the second request as I want to ensure that we receive the information and can provide our feedback asap.

This is very important to our area, and I would therefore formally like to request again the technical design principles that you are seeking feedback in connection with the airspace modernisation programme. I have cc'd my local Ward Councillor [REDACTED], as at this stage I do not yet want to inconvenience my MP regarding this. We are deeply concerned that you appear to still not involve our North West London area in focus groups/ nor any other pre- consultations of community engagement. This is despite us having approached you multiple times now to request this.

Many thanks,

[REDACTED]

[REDACTED]

Environment Secretary / Westbourne Park Road East Resident's Association

Begin forwarded message:

From: [REDACTED]
Subject: RE: Attn [REDACTED] - Your Heathrow Airspace Modernisation Programme
Date: 26 May 2022 at 21.21.12 GMT+1
To: "DD - Airspace" <airspace@heathrow.com>, [REDACTED]

Dear [REDACTED]

Thanks for your response. We are familiar with the document that you kindly forwarded. What we are after is a report from Heathrow on the number of people currently within the contours set by the WHO 2018 upper limit guidance (see bold text below). Can you please let us know who to contact with this formal request?

Also, we understand that you are currently seeking feedback on technical design principles of your modernisation programme. As agreed previously with you and [REDACTED], our community group

would like to be included in all dialogue/ consultation at all stages of the air space modernisation programme. Can you therefore please: a) forward us the current information which you are seeking feedback on , and b) confirm that our community group has been correctly added to the list of community groups/ organisations to be engaged/ consulted at all stages?

- **the number of households that currently fall within the Heathrow 45 dB Lden contour**
- **the number of people who currently fall within the Heathrow 45 dB Lden contour**

Many thanks,

██████

██████████ / Environment Secretary WPRERA

From: DD - Airspace
Sent: 11 July 2022 09:18
To: [REDACTED] DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: Attn [REDACTED] - For action please- your Heathrow Airspace Modernisation Programme

Dear [REDACTED],

Thank you for your email and I apologise that you haven't heard back from Heathrow regarding the number of people currently within WHO noise contours. I forwarded your request onto the relevant team and I will now chase up with them to get a response for you.

We added Westbourne Park Residents Association to our stakeholder list, following our email correspondence with you earlier this year. As we mentioned in our email to you on 14 February, our next phase of engagement will be later this year when we will engage on the "comprehensive list of options" for the new airspace design. Our current plan is for these engagement workshops to be held in September/October this year. We will send you an invitation to join those workshops nearer the time.

Our design principles for the airspace change were submitted to the CAA at the beginning of this year, and were signed off by the CAA in February. You can see the design principles and follow the progress of our airspace change proposal (ACP) on the CAA's airspace change portal: [Airspace change proposal public view \(caa.co.uk\)](https://www.caa.co.uk/air-space-change-proposal-public-view).

Our stakeholder engagement on the design principles was undertaken in 2021 and involved a wide range of stakeholder groups with different interests and objectives. You can see the full list of engaged stakeholders in the submission document (Appendix B).

I will be in touch once we have identified dates for the Stage 2 engagement sessions, and I will ask my colleagues to respond to you asap on your query re noise contours.

Kind regards,
[REDACTED]

From: DD - Airspace
Sent: 02 August 2022 13:40
To: [REDACTED] DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: Attn [REDACTED] - For action please- your Heathrow Airspace Modernisation Programme

Dear [REDACTED]

I have checked with our Head of Noise and I'm afraid we do not have data showing the number of households/people who live within a 45 dB Lden contour. We publish a wide range of noise contours and supplementary metrics including those required by current legislation and Government Policy. In addition, I am informed that there are known challenges with modelling contours down to the lowest levels detailed in the WHO guidelines, especially over dense urban areas exposed to a range of other environmental noise sources.

All of the noise contours that we publish, including supplementary metrics, are available here: [Noise reports and statistics | Heathrow](#)

We will be providing a wide range of metrics to show the potential impacts of our proposed airspace change for airspace modernisation once we get to public consultation at Stage 3 of the airspace change process. This is currently scheduled to take place around 2024-2025. We will consider whether it is possible for us to include this data at that stage.

Any further requests for information relating to today's operation can be sent to noise@heathrow.com

Kind regards,
[REDACTED]

From: DD - Airspace
Sent: 17 January 2023 16:02
To: [REDACTED]
Cc: [REDACTED]; DD
Subject: RE: Heathrow's ACP Stage 2 Engagement: Methods and Metrics 2 Workshop Invitation

Dear [REDACTED],

Thank you for your email. The session has been organised as additional engagement for our technically minded stakeholders representing their community group or local authority and is not part of the statutory engagement requirement of the CAP1616 process.

Whilst we have had no other requests for an online meeting from invited stakeholders, we do recognise the difficulty in attending the workshop during the working the day. The facilities provided by the venue make it difficult to facilitate the workshop online and we would be concerned any online attendees would struggle to be involved in the conversations happening in the room. We are therefore unable to offer the workshop as a hybrid session.

However, we will be circulating the material to all invited stakeholders and we would be happy to offer a separate one hour online session in the next couple of weeks to stakeholders representing Clean Air Bayswater and Westbourne Park Road East Resident's Association to go through the material and answer any questions you might have.

Please let me know if this is something you want to arrange.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road

Hounslow, Middlesex, TW6 2GW

m: [REDACTED]

w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport

a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 24 January 2023 18:00
To: DD - Airspace
Cc: [REDACTED]
Subject: DD- Airspace

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thanks for your offer of hosting a separate virtual session. Apologies for delay in responding back.

Would it be ok if we review the slides that you will be sending out after tomorrow's session and then let you know if the content is fairly self explanatory or if we would like to proceed with the virtual session.

If we were to have the session would 9 or 10 February be too late for you?

Kind regards,
[REDACTED]

From: DD - Airspace
Sent: 26 January 2023 17:10
To: [REDACTED]
Cc: [REDACTED]; DD - Airspace
Subject: RE: DD- Airspace
Attachments: Methods & Metrics2_workshop slides_vF.pdf

Dear [REDACTED]

Thank you for your email. I have attached the workshop slides used for yesterdays Methods & Metrics 2.

As mentioned previously, the workshop is an additional step in our engagement programme to allow our more technically-minded stakeholders to discuss our approach to assessing our Comprehensive List of Options (CLOO) at a more detailed level. Therefore, these slides are necessarily technical and complex, and will not be suitable or accessible for all stakeholders. The slides share our proposed methodology and metrics for the Initial Options Appraisal that we will undertake at Stage 2B.

I have checked with the technical team and we are happy to accommodate an online session on your proposed date of the 10th February at any time between 9am-1pm.

Please let me know if you would like to arrange a session and who will be attending.

Many thanks,

[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From:

Sent:

To:

Cc:

Subject:

[REDACTED]
31 January 2023 12:27

DD - Airspace

[REDACTED]
Re: DD- Airspace

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for your offer, we would like to accept your offer.

Can we please have the session on Fri 10 Feb 11-12 am?

Many thanks,

[REDACTED]

From: DD - Airspace
Sent: 01 February 2023 14:44
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: DD- Airspace

Dear [REDACTED]

I've arranged a TEAMS meeting for Friday 10th February at 11:00-12:00 for you to discuss and ask any questions you may have on the Methods & Metrics 2 workshop material. Please use the link below to access the meeting on the day.

If you have any questions in the meantime, please don't hesitate to get in touch.

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: [REDACTED]

Passcode: [REDACTED]

[Download Teams](#) | [Join on the web](#)

Or call in (audio only)

[REDACTED] United Kingdom, London
[REDACTED] United Kingdom (Toll-free)

Phone Conference ID: [REDACTED]

[Find a local number](#) | [Reset PIN](#)

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From:

Sent:

To:

Cc:

Subject:

[REDACTED]
03 February 2023 15:25

DD - Airspace

[REDACTED]
Re: DD- Airspace

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for organising this.

[REDACTED] would also like to join the meeting.

[REDACTED]
Kind regards,
[REDACTED]

From: DD - Airspace
Sent: 06 February 2023 14:49
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: Methods and Metrics 2 Workshop Invitation

Dear [REDACTED]

That's no problem, I have cc'd [REDACTED] into this email chain and have copied the same TEAMS link as below for you to use to access the meeting at 11:00 on Friday.

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: [REDACTED]

Passcode: [REDACTED]

[Download Teams](#) | [Join on the web](#)

Or call in (audio only)

[REDACTED] United Kingdom, London

[REDACTED] United Kingdom (Toll-free)

Phone Conference ID: [REDACTED]

[Find a local number](#) | [Reset PIN](#)

We are looking forward to meeting with you all on Friday. Any questions, please get in touch.

Kind regards,

[REDACTED]
Heathrow Airspace Team

From: [REDACTED]
Sent: 09 February 2023 14:54
To: DD - Airspace
Subject: Re: Methods and Metrics 2 Workshop Invitation

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Great. Thank you

M&M2 Workshop Separate Session for Westbourne Park Road East Resident's Association (WPRERA), Clean Air Bayswater, and Paddington Residents Active Concern on Transport (PRACT) Stakeholders

Friday 10 February 2023, 11:00 - 12:00, Online Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Westbourne Park Road East Resident's Association (WPRERA)
[REDACTED]	Westbourne Park Road East Resident's Association (WPRERA)
[REDACTED]	Clean Air Bayswater
[REDACTED]	Paddington Residents Active Concern on Transport (PRACT)

From: [REDACTED]
Sent: 10 February 2023 12:56
To: DD - Airspace
Cc: [REDACTED]
Subject: RE: DD- Airspace

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for setting up the very useful Teams call for us. I missed some of the slides in the beginning and wasn't able to see some of the flight slides so well on my iPad. Would it be possible to send me a hard copy of the slides that were not in the pdf you previously sent out?

We will be in touch in the next week with the additional questions.

With many thanks,

[REDACTED]

From: [REDACTED]
Sent: 13 February 2023 12:32
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: DD- Airspace
Attachments: QUESTIONS TO HEATHROW 13-02-2023FF.docx

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you very much for the online meeting last Friday 10 February.

As promised, please find attached our questions.

We would appreciate your response to our questions in advance of the follow up meeting that you proposed.

Many thanks,
[REDACTED]

QUESTIONS TO HEATHROW from Clean Air Bayswater and Westbourne Park East Residents Association. 13/2/2023

1. How does the measurement approach correctly account for the combined adverse effect of air and noise pollution on health
2. Does the measurement include No₂ and PM particles from landing and take-off, including Ultrafine particles PM_{0.1}.
3. Will Heathrow commit to include measurement of air quality impact above 1,000 ft for both arriving and departing aircraft, which is where the air pollution from aircraft taking-off and landing will impact communities, especially those in central London where pollution is swept into central London due to the prevalent western wind
4. How does the measurement approach take account of the additional noise impact of turning aircraft?
 - a. This is a critically important measurement and it is paramount that this metric and its associated assumptions are consulted on with the communities as part of this engagement activity before the review of the full set of flight path options is carried out, and before the flight options are narrowed down. It is especially important to have a correct measure for the impact of turning aircraft, as Heathrow is proposing options that include very sharply curved arrival flight paths options.
5. Is it correct that with the new technology aircraft will lose height on a steeper downwards trajectory towards landing than hitherto?
6. How does the measurement model consider new aircraft model including sonic aircraft?
7. Will Heathrow await a study on noise impact to replace the out of date SoNA study. Aviation noise cannot be mitigated with the same measures as train and road noise. One cannot add a glass wall to protect people overflown. It is therefore paramount that Heathrow uses up to date and fit for purpose research to identify health and annoyance levels.
8. How does the measurement approach consider the impact of different airline operational procedures to landing and take-off?
9. How does the measurement model and impact assessment ensure that it takes into account the impact on communities adjacent to a concentrated flight path (noise travels more than 1.5km to each side of the flight path and the noise distribution depends on the wind direction). Could the same communities therefore be affected by noise from multiple flight paths on the same day on different days?
10. How can you combine the best options using completely different metrics? - there is difficulty in finding the best option even within one metric.

11. Will the assessment of impacts include the combined flight paths for arrivals and departures for each option and can you please share your current view of the combined set of metrics that you will use to evaluate this combined impact (air and noise pollution impact of both departing and arriving flights over a particular flight path option over a geographic area)
12. Noise: Would a population of a certain size benefiting from favorable changes since 2019 of a certain amount of noise, be given the same weight as a population of the same size suffering an adverse change of the same amount? Given concentration of routes, surely those newly adversely affected by noise from overflying routes should be given greater weight than those benefiting from reductions in noise? How and at what stage would this qualitative judgement be made?
13. Measurement and metrics must include presentation of the impact of increase in aircraft volumes. It is key that in the interest of transparency and completeness Heathrow presents different scenarios for all the proposed the flight path options, and that these scenarios clearly show the impact on London communities under flight path, should Heathrow seek and get approval for the following:
 - a. 25,000 increase in ATM
 - b. 100,000 increase in ATM
 - c. 220,000 increase in ATM

This is the only way that the public will fully understand the impact of Heathrow flightpaths over London. The measurements used to demonstrate to the public the impact of Heathrow's airspace modernization programme cannot and must not be presented without an illustration of what the real impact is of Heathrow expanding its operations.

14. Final approach to the airport:
 - a. For landing, could this merger point be further to the west, after commencing the final approach, if for example an aircraft could make a 'kink' in mid-approach to achieve full alignment with the runway? How will this be reflected in the measurement?
 - b. Does that mean that the final approach to landing will start further west than now? Roughly where? Hammersmith/Barnes, or further to the west?
 - c. Could aircraft merge into their final landing approach just before its start, for instance, could a plane coming from a stack situated north west follow another coming from a stack to the south
15. Can you please confirm when you would expect to share the Air Quality Assessment Report with us? We believe that you will provide these Air Quality Assessment reports if pollution is below 1,000 ft AND if in an Air Quality Management Area.

From: DD - Airspace
Sent: 13 February 2023 15:22
To: [REDACTED]
Cc: [REDACTED] DD - Airspace
Subject: RE: DD- Airspace
Attachments: 230112_Methods & Metrics2_workshop slides_vF.pdf

Dear [REDACTED]

Thank you for attending the additional session on Friday to go through the Methods & Metrics 2 workshop material. We found the session to be very productive and useful. For your reference, please find attached the slides presented on Friday with the addition of the two illustrative map slides.

As we discussed on Friday, we are happy to continue this conversation and arrange another session to discuss/answer the questions we didn't get to during session. Thank you for sending through your questions, I will come back to you with responses in due course.

In terms of meeting dates, would you be available to plan a session in the week commencing 6th March?

Kind regards,

[REDACTED]
[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 16 February 2023 20:09
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: DD- Airspace

Categories:

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Hi [REDACTED]

Thanks for getting back to us, and we shall look forward to your response to our questions.

Re the meeting, I will check availability with the group for w/c 6 March probably the Friday 10 March, and I will revert back to you .

Kind regards,
[REDACTED]

From: [REDACTED]
Sent: 24 February 2023 13:33
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: DD- Airspace

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Hi [REDACTED]

We can do either Friday 10 March or Friday 17 March 11-12pm.

In order to get the most out of the meeting, I would suggest that the meeting should take place after you have had time to send us the answers to our questions.

Can you please let us know if Fri 10 or Fri 17 March works best for you , and that you will be able to send us the answers to the questions before the meeting so that we have time to digest your responses.

Have a nice weekend.

Many thanks,
[REDACTED]

From: DD - Airspace
Sent: 28 February 2023 12:46
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: RE: DD- Airspace

Good morning [REDACTED]

We'd be happy to arrange another session with yourselves on Friday 17th March at 11:00-12:00pm. Please find the TEAMS invite below for the meeting:

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: [REDACTED]

Passcode: [REDACTED]

[Download Teams](#) | [Join on the web](#)

We are in the process of responding to your questions currently and aim to get them sent back to you shortly, allowing you sufficient time to read/review our answers before the session.

Any questions in the meantime, please feel free to get in touch.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

The logo for Heathrow Airport, featuring the word "Heathrow" in a bold, purple, sans-serif font.

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From:

Sent:

To:

Cc:

Subject:

[REDACTED]
28 February 2023 12:52

DD - Airspace

[REDACTED]
Re: DD- Airspace

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Hi [REDACTED]

Thank you.

Kind regards, [REDACTED]

From: [REDACTED]
Sent: 10 March 2023 10:26
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: DD- Airspace

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Hi [REDACTED]

I hope that you are well.

Can you please let us know if we can expect to receive your answers to our questions today, so that we have time to review before the session next Friday?

Kind regards,
[REDACTED]

From: DD - Airspace
Sent: 10 March 2023 18:11
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: RE: DD- Airspace

Hi [REDACTED]

I am well thanks – hope you are too?

Apologies - I was hoping to get this to you today, however due to absence in the team it has been delayed. We are aiming to get it sent to you early next week.

Have a nice weekend,

Kind regards,
[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: heathrow.com/apps

From: DD - Airspace
Sent: 14 March 2023 12:12
To: [REDACTED]
Cc: [REDACTED]; DD - Airspace
Subject: RE: DD- Airspace
Attachments: 230213_CleanAirBayswater_WPRERA_StakeholderEngagementRecord - v1.docx

Hi [REDACTED]

We have added all your questions to the attached Stakeholder Engagement Record and provided responses to each of the issues. The purpose of the live Record is to document all the topics we've discussed in one place. We can then seek to agree an approach to addressing each issue and continue to update the Record as we progress through the CAA's CAP1616 process. We envisage that this will structure our conversations as we continue to work on the ACP and help us identify areas where issues can be resolved.

In the interest of time during our meeting, we suggest we approach the Record in the order that the questions appear and leave 15minutes at the end of the session to discuss any other issues you may have:

1. Air Quality
2. Noise
3. Combined impact assessment
4. Aircraft Technology and Operational Procedures
5. AOB

We look forward to meeting with you on Friday morning. In the meantime, if you have any questions about the Record, please get in touch.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

Westbourne Park Road East Resident's Association (WPRERA), Clean Air Bayswater, and Paddington Residents Active Concern on Transport (PRACT) Stakeholder Meeting

Friday 17 March 2023, 11:00 - 12:00, Online Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Westbourne Park Road East Resident's Association (WPRERA)
[REDACTED]	Westbourne Park Road East Resident's Association (WPRERA)
[REDACTED]	Paddington Residents Active Concern on Transport (PRACT)

From: DD - Airspace
Sent: 17 March 2023 16:10
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: RE: DD- Airspace

Hi [REDACTED]

Thanks for your time in today's meeting to discuss the questions you raised in the Stakeholder Engagement Record.

I just wanted to follow up with a link to the Runway Alternation page on Heathrow's website [Runway alternation | Heathrow](#). Hopefully it answers any questions you still had on this following our conversation earlier, but please let me know if not. We expect alternation patterns will remain a part of Heathrow's operation in this ACP.

Additionally, I couldn't see any of your names on Microsoft Forms responses for our upcoming Update sessions? Please let me know if you did want to attend and I can send across the Teams link for your chosen session times.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: heathrow.com/apps

From: [REDACTED]
Sent: 17 March 2023 17:19
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: DD- Airspace
Attachments: CleanAirBayswater_WPRERA_StakeholderEngagmentRecord-updated by Bayswater 16-03-2023FF.docx

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Hi [REDACTED]

Thanks for your time today and for the link which we will look at.

Please find below the questions/ our position we referred to at the meeting, with the points we ran through on the call highlighted in bold. We have also included our feedback in the attached word document.

A number of your responses refer to information on metrics, impacts becoming available during phase 3 the public consultation phase. We request information the approach to the environmental assessment and the proposed metrics and methods and associated assumptions are shared at stage 2 before you carry out the options review. This is to mitigate for the risk that incorrect, lacking or misleading assumptions / metrics are being used.

		Feedback to Heathrow to its responses to Bayswater’s questions	
	2.2	The Heathrow noise impact assessment must be based on the latest Government noise attitude study that is currently in development (expected in 2024)	
	2.3	<p>Heathrow to confirm who makes the final decision regarding the final flight path options to be presented to the public in the public consultation.</p> <p>We are concerned that the criteria used for making these choices should give as much weight to impact on the ground, and to the effectiveness of respite, as to improvements in operational efficiency. Preferably more weight. Also that a means should be found for public input to the process of making these choices.</p>	
	3.2	The noise impact assessment shared with communities must include the compound noise impact from aircraft on people on particular points on the ground, irrespective of whether the noise impact comes from flight paths directly above and from adjacent flight paths. The change impact must be clearly articulated. It must not be assumed that central London areas are noisy.	

	3.5	Each Flight path option must have minimum two scenarios presented- one with the noise impact of flights based on the current CAP of 480,000 aircraft and one with the proposed Heathrow Aircraft CAP of 760,000	
	3.1	Heathrow must share detailed assessment reports of the combined health impacts of air and noise pollution on all communities potentially impacted.	
	3.3	Heathrow to confirm when it will be in a position to share the metrics and models it proposed to proceed with.	
	1.2	Air Quality Assessments must be carried out for all Air Quality Management Areas (AQMA) <u>both</u> in central London and elsewhere.	
	1.1	We are looking for confirmation that the air quality assessments include emissions from both Heathrow ground operations AND emissions from landing and departing aircraft.	
	2.1	Heathrow must share with the current community groups the assumptions it used for operational procedures such as for turning aircraft, during stage 2 before the flight options are considered.	
	1.3	Heathrow must share the Air Quality Assessments completed with the relevant communities/ councils.	

Important: We would like to formally register our interest in being involved in reviewing proposals for the scope of the public consultation, eg widening its reach and making responses easy for people to cope with.

Kind regards,



From: DD - Airspace
Sent: 14 April 2023 14:25
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: RE: DD- Airspace
Attachments: CleanAirBayswater_WPRERA_StakeholderEngagmentRecord- v3.docx

Dear [REDACTED]

Thank you for updating and returning the Stakeholder Engagement Record (SER) following our meeting in March. We have reviewed and updated it further, and we have included responses to the additional questions from your last email.

Please note that we have copied your latest questions as new rows against the date of 17/03/2023 in the 'Stakeholders comments' column and we have provided a response in the 'Heathrow comments' column. This approach ensures we have all queries and responses related to each item in one place.

You will also see that we have shaded some issues/queries in green. These are issues that we believe are now "resolved/closed" given we haven't had any further questions from you on these topics, however, we can of course "re-open" these issues if further related queries arise.

Please review the latest version of the record attached (version 3) and feel free to add any additional issues (in new rows) if there is anything else you would like us to respond on. If you have any questions in the meantime, please let us know.

Kind regards,

[REDACTED]
[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: DD - Airspace
Sent: 28 June 2023 14:23
To: DD - Airspace; [REDACTED]
Cc: [REDACTED]
Subject: Stakeholder Engagement Record

Dear [REDACTED]

We are preparing Heathrow's Stage 2 Submission documentation for the CAA Stage 2 Gateway which is due at the end of July. As part of this, we need to provide evidence of all of our stakeholder engagement activities and associated correspondence. Our submission will be publicly available on the CAA's Airspace Change Portal later in the summer. We are keen to include the latest version of the Stakeholder Engagement Record (SER) that we set up with you, which is version 3 that we returned by email on 14 April 2023. As with all correspondence evidence, personal details will be redacted but the organisation names will be retained.

If you, or any other stakeholder representatives that have contributed to the SER, have any problems with us uploading the SER v3 as part of our stakeholder engagement evidence, please could you respond to this email **by Friday 14th July?**

Kind regards,

[REDACTED]

Stakeholder: Clean Air Bayswater, Westbourne Park Road East Resident’s Association (WPRERA) and Paddington Residents Active Concern on Transport (PRACT)

Engagement Record

Date	Location	Present
8-Nov-22	Holiday Inn,	Stage 2A Engagement Workshops on Comprehensive List of Options
9-Nov-22	Online Teams Sessions	Attended by [REDACTED]
9-Dec-22	Stakeholder submission	Stage 2A Engagement Feedback Form
10-Feb-23	Online Teams Meeting	Session on “Methods & Metrics” attended by [REDACTED] Heathrow: [REDACTED]
13-Feb-23	Stakeholder Email	Questions to Heathrow
14-Mar-23	Email Reply	Heathrow issued Stakeholder Engagement Record v1 populated with responses to stakeholder questions
17-Mar-23	Online Teams Meeting	[REDACTED] Heathrow – [REDACTED]
17-Mar-23	Stakeholder Email	Stakeholder Engagement Record v2 Included request for information on approach to environmental assessment at Stage 2.
23-Mar-23	Online Teams Sessions	Stage 2A Sessions on Design Principle Evaluation
27-Mar-23	Sessions	Attended by [REDACTED]

Revision history

Version	Date	Author	History
1	14-Feb-23	HAL	1 st Draft
2	17-Mar-23	Clean Air Bayswater	Updated post-meeting with further questions
3	14-Apr-23	HAL	Update and response to further questions
4			

Clean Air Bayswater and WPRERA Questions

No	Date:	Stakeholder Comments:	Heathrow Comments:
1	Air Quality		
1.1	13/02/23	Will air quality measurements include No2 and PM particles from landing and take-off, including Ultrafine particles PM0.1?	The air quality assessments required under CAP1616 require the airspace change sponsor to consider NO ₂ , PM10 and PM2.5.
	17/03/23	We are looking for confirmation that the air quality assessments include emissions from both Heathrow ground operations AND emissions from landing and departing aircraft	The air quality assessment will demonstrate the impacts the proposed change will have on air quality. The level of detail in the assessment will be proportionate to the impacts. If impacts are potentially significant, a full air quality assessment may be required which will need to take account of all potential sources of air pollution whether related to aviation and the airport or not. This would include ground operations, aircraft landing and departing, and non-airport sources such as traffic on local roads.
1.2	13/02/23	Will Heathrow commit to include measurement of air quality impact above 1,000 ft for both arriving and departing aircraft, which is where the air pollution from aircraft taking-off and landing will impact communities, especially those in central London where pollution is swept due to the prevalent westerly wind?	For the purpose of airspace change, sponsors are required to perform an Air Quality assessment only where “ <i>there is likely to be a change in aviation emissions (by volume or location) below 1,000 feet and the location of the emissions is within or adjacent to an identified AQMA</i> ” (CAP1616a 1.97)). Heathrow will identify which of the airspace design options brings a risk that one of the conditions above is met during the IOA, and a full local air quality assessment would then be required at Stage 3, after options have been assembled into a system of arrivals and departures. Any Air Quality assessment will assess the impact of the potential route option compared with today’s airspace design, up to 1,000ft. This is in accordance with policy. Due to the 1,000ft threshold, this air quality assessment will cover an area local to the airport, not central London.
	17/03/23	Suggestion that Air Quality Assessments must be carried out for all Air Quality Management Areas (AQMA) both in central London and elsewhere.	Please see above response to 1.2. Air quality assessments will only be undertaken where we meet the conditions set out in CAP1616a 1.97 .
1.3	13/02/23	Can you please confirm when you would expect to share the Air Quality Assessment Report with us? We believe that you will provide these Air Quality Assessment reports if pollution is below 1,000 ft AND if in an Air Quality Management Area.	Any Air Quality Assessments undertaken will be submitted to the CAA and published on the CAA’s Airspace Change Portal during Stage 3. Heathrow is surrounded by AQMAs so we expect that any change to air quality below 1,000ft will require an Air Quality Assessment.
	17/03/23	Heathrow must share the Air Quality Assessments completed with the relevant communities/ councils.	Air Quality Assessments will be included in the suite of information we share at Public Consultation during Stage 3, and all potentially affected communities and councils will be invited to view and comment on the findings.
No	Date:	Stakeholder Comments:	Heathrow Comments:
2	Noise		

2.1	13/02/23	<p>How does the measurement approach for operational procedures take account of the additional noise impact of turning aircraft? This is a critically important measurement and it is paramount that this metric and its associated assumptions are consulted on with the communities as part of this engagement activity before the review of the full set of flight path options is carried out, and before the flight options are narrowed down. It is especially important to have a correct measure for the impact of turning aircraft, as Heathrow is proposing options that include very sharply curved arrival flight paths options.</p>	<p>We are modelling all options, including those which include tight approach turns. At Stage 3 of the ACP we will undertake a full public consultation with widespread advertising to ensure that potentially affected communities are aware of our final proposals. The consultation material will include results from Full Options Appraisal, including noise modelling of any turns in the proposed routes. A Final Options Appraisal will then take place at Stage 4 following feedback from the consultation responses.</p>
	17/03/23	<p>Heathrow must share with the current community groups the assumptions it used for operational procedures, such as for turning aircraft, during stage 2 before the flight options are considered.</p>	<p>In the Stage 2A engagement material (and in the engagement sessions) we shared an overview of the operational assumptions we made when developing the comprehensive list of options. These included climb gradients and continuous climb/descent operations. Further detail on the assumptions used for developing options and assessing options will be set out in our Initial Options Appraisal brief later this year and our Stage 2 submission to the CAA, which will be available on the CAA’s Airspace Change Portal once we have submitted it to the CAA this summer.</p>
2.2	13/02/23	<p>Will Heathrow await a study on noise impact to replace the out of date SoNA study. Aviation noise cannot be mitigated with the same measures as train and road noise. One cannot add a glass wall to protect people overflown. It is therefore paramount that Heathrow uses up to date and fit for purpose research to identify health and annoyance levels.</p>	<p>Airspace Modernisation is Government policy and relies on all UK airports progressing with their ACPs: we cannot wait for new research and studies. All relevant and latest policy and guidance will be applied to our ACP as it becomes available. We engage frequently with CAA, DfT and ACOG to keep abreast of potential policy changes and emerging best practice. A recent peer review of SONA may be of interest.</p>
	17/03/23	<p>The Heathrow noise impact assessment must be based on the latest Government noise attitude study that is currently in development (expected in 2024).</p>	<p>We are aware of the DfT’s new Aviation Noise Attitudes Study (ANAS) and will consider findings as they become available.</p>
2.3	13/02/23	<p>Would a population of a certain size benefiting from favorable changes since 2019 of a certain amount of noise, be given the same weight as a population of the same size suffering an adverse change of the same amount? Given concentration of routes, surely those newly adversely affected by noise from overflying routes should be given greater weight than those benefiting from reductions in noise? How and at what</p>	<p>The Initial Options Appraisal (IOA) will provide information on the likely impacts of the options, compared to Heathrow’s 2019 operation. This will include an indication of changes to noise levels with figures being used to illustrate where adverse and beneficial changes can be expected from each option compared to 2019. This data will inform any qualitative decisions that Heathrow makes between different options and we will be transparent about any trade-offs or prioritisation applied. <u>These judgements will not be made until Stage 3 when we will have compiled system options (departures + arrivals).</u></p>

		stage would this qualitative judgement be made?	
	17/03/23	<p>Heathrow to confirm who makes the final decision regarding the final flight path options to be presented to the public in the public consultation.</p> <p>We are concerned that the criteria used for making these choices should give as much weight to impact on the ground, and to the effectiveness of respite, as to improvements in operational efficiency. Preferably more weight. Also that a means should be found for public input to the process of making these choices.</p>	<p>The qualitative assessment to appraise the options is completed by the ACP Team, which is comprised of technical experts, analysts and air traffic controllers. The Team liaises with NATS on air navigation matters and, if necessary, with airlines on additional costs and crew training. The Full Options Appraisal at Stage 3 requires sponsors to quantify the metrics as much as possible but qualitative assessments will also inform the ACP Team’s recommendations. This will pass through Heathrow’s internal governance, reaching at least Director level for final sign-off on any decisions.</p>
No	Date:	Stakeholder Comments:	Heathrow Comments:
3	Combined Impact Assessment		
3.1	13/02/23	How does the measurement approach correctly account for the combined adverse effect of air and noise pollution on health?	Heathrow notes the request for a full health impact assessment and will consider options for this. There is no requirement under CAP1616 for Heathrow or any other sponsor to do so, and if a health impact assessment is to be undertaken then it would be most appropriate at Stage 3.
	17/03/23	Heathrow must share detailed assessment reports of the combined health impacts of air and noise pollution on all communities potentially impacted.	Please see above response for 3.1.
3.2	13/02/23	How does the measurement model and impact assessment ensure that it takes into account the impact on communities adjacent to a concentrated flight path (noise travels more than 1.5km to each side of the flight path and the noise distribution depends on the wind direction). Could the same communities therefore be affected by noise from multiple flight paths on the same day on different days?	The calculation methodologies used in calculating aircraft noise metrics require an elevation angle to be calculated. This elevation angle provides consideration of whether a community or location is directly below or adjacent to flight paths, with adjustments in the calculations made accordingly. A good example of such a metric is overflight. Overflight provides an indication of <u>where</u> there may be a perception of aircraft, however it is not a measurement of noise. The IOA will consider other metrics rather than rely only on overflight to assess the impacts of noise from our flight path options.
	17/03/23	The noise impact assessment shared with communities must include the compound noise impact from aircraft on people on particular points on the ground, irrespective of whether the noise impact comes from flight paths directly above or from adjacent flight paths. The change impact must be clearly articulated. It must not be assumed that central London areas are noisy.	<p>The DPE and IOA consider noise exposure levels both laterally and directly underneath the flight paths. The IOA will use TAG to examine noise impact across a range of noise exposure bands and additional metrics such as N60 and N65. This will provide more detailed analysis including an indication of changes in noise levels. In addition to noise metrics, the overflight metric is a way of describing whether there is a perception of aircraft, helping to visualise the geographical concentration of aircraft activity. The IOA output will provide data to allow us to contextualise the noise impact in any given area, including areas of London.</p> <p>At Stage 3, once system options have been developed, we will have a clearer understanding of the noise</p>

			impact of arrivals + departures, and easterly + westerly operations. These will be assessed against long-term noise exposure metrics to give greater detail to the analysis.
3.3	13/02/23	How can you combine the best options using completely different metrics? - there is difficulty in finding the best option even within one metric.	All options are assessed against all metrics in a consistent manner. We do not use some metrics for one option and a different set of metrics to assess another option. The number of options will be shortlisted as we gain more detailed analysis, using government policy to identify relevant metrics and inform decision making at each stage.
	17/03/23	Heathrow to confirm when it will be in a position to share the metrics and models it proposed to proceed with.	We will provide all stakeholders with an update on the outputs of our Initial Options Appraisal prior to our Stage 2 submission this summer.
3.4	13/02/23	Will the assessment of impacts include the combined flight paths for arrivals and departures for each option and can you please share your current view of the combined set of metrics that you will use to evaluate this combined impact (air and noise pollution impact of both departing and arriving flights over a particular flight path option over a geographic area).	Assembling systems options will take place at Stage 3. System options will combine arrivals and departures, for easterly and westerly operations and will also consider potential flight paths to/from surrounding airports. At this stage we will also be able to overlay appropriate approaches to respite, night flights and noise efficient operational practices, based on conceptual work undertaken at Stage 2. Impacts of these combined flights paths will be shared at Public Consultation. ACOG is co-ordinating the overall London TMA design, including an assessment of the cumulative impact of multi-airport designs. Note there is no “combined set of metrics”: all options are assessed against all metrics in consistent manner. A complete system design will enable us to consider the frequency of use of each route within that system as part of the impact assessment.
3.5	13/02/23	Measurement and metrics <u>must</u> include presentation of the impact of increase in aircraft volumes. It is key that in the interest of transparency and completeness Heathrow presents different scenarios for all the proposed the flight path options, and that these scenarios clearly show the impact on London communities under flight path, should Heathrow seek and get approval for the following: <ul style="list-style-type: none"> a. 25,000 increase in ATM b. 100,000 increase in ATM c. 220,000 increase in ATM This is the only way that the public will fully understand the impact of Heathrow flightpaths over London. The measurements used to demonstrate to the public the impact of Heathrow’s airspace modernization programme cannot and must not be presented without an illustration of what the real impact is of Heathrow expanding its operations.	Heathrow currently has a ‘cap’ set by the Government on arrivals and departures of 480,000 movements (Air Traffic Movements or ATMs) per year. To increase this number, Heathrow would need to make a separate planning application. This ACP involves development of a new airspace design to accommodate the current cap.

	17/03/23	Each flight path option presented must have minimum two scenarios presented- one with the noise impact of flights based on the current CAP of 480,000 aircraft and one with the proposed Heathrow Aircraft CAP of 760,000	An ATM cap of 760,000 is not within the scope of this ACP. Heathrow’s previous Expansion project (now paused) proposed an increase to 760,000 ATMs, but it would not be possible to accommodate this number of movements on Heathrow’s existing two runways.
No	Date:	Stakeholder Comments:	Heathrow Comments:
4	Aircraft technology and operational procedures		
4.1	09/11/23	Asked whether Heathrow will work with operators to develop “flying taxi” routes.	The conceptual development of new aircraft technologies such as Advanced Air Mobility (AAM) and Urban Air Mobility (UAM) are being closely monitored by Heathrow. The airport is actively engaged with a number of industry partners and projects to ensure any development of conceptual ideas into reality is compatible with Heathrow’s future operation and airspace design, and that a robust process can be put in place to allow stakeholders to understand and input into the future introduction of such technology. The Airspace Modernisation Strategy (AMS) is critical to ensuring that UK airspace is fit for future purpose including the increased access to airspace anticipated for drone and spacecraft operators.
4.2	13/02/23	Is it correct that with the new technology aircraft will lose height on a steeper downwards trajectory towards landing than hitherto?	Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) are considered to be noise efficient operational practices. CCO and CDO will form the basis of all design options. Heathrow already has a slightly steeper approach than standard, used by a small proportion of its arrivals. This project will investigate the feasibility of more Heathrow arrivals flying a slightly steeper approach.
4.3	13/02/23	How does the measurement model consider new aircraft model including sonic aircraft?	The IOA will use a 2019 schedule and fleet mix with a sensitivity test against a future forecast schedule and fleet mix for the proposed year of implementation (currently expected to be 2027 or 2028). We are working with both our internal forecasting team and airlines to understand and account for changes in fleet including ‘sonic’ or other future aircraft.
4.4	13/02/23	How does the measurement approach consider the impact of different airline operational procedures to landing and take-off?	We are working with airlines to understand operational procedures and how these may be incorporated/adapted to optimise a future airspace design. The CAA is leading research into Noise Abatement Departure Procedures (NADP) and the output of this work will be considered in our ACP.
4.5	13/02/23	Final approach to the airport: a. For landing, could this merger point be further to the west, after commencing the final approach, if for example an aircraft could make a ‘kink’ in mid-approach to achieve full alignment with the runway? How will this be reflected in the measurement?	We are investigating as part of this project the technical feasibility, benefits and impacts of aircraft joining final approach at all distances from 3nm to 22nm from Heathrow’s runways. Detailed options for our arrival flight paths will be shared at Public Consultation at Stage 3.

		<p>b. Does that mean that the final approach to landing will start further west than now? Roughly where? Hammersmith/Barnes, or further to the west?</p> <p>Could aircraft merge into their final landing approach just before its start, for instance, could a plane coming from a stack situated north west follow another coming from a stack to the south</p>	<p>At Stage 3 we will also have more detail on the new arrivals mechanism being designed by NATS.</p>
No	Date:	Stakeholder Comments:	Heathrow Comments:
5	Future Public Consultation		
5.1	17/03/23	<p>The group formally registered interest in being involved in reviewing proposals for the scope of the public consultation, e.g. widening its reach and ensuring accessibility for people.</p>	<p>This is noted - thank you.</p>

From: [REDACTED]
Sent: Monday, February 27, 2023 5:56 pm
To: [REDACTED]
Cc: DD - Airspace <airspace@heathrow.com>; [REDACTED]
Subject: TAG & MRA Meeting

Hi [REDACTED]

I hope you're well?

As you'll know, Teddington Action Group are highly engaged with us as we move through the Airspace Change Proposal and as a result of receiving several emails/questions from them, we thought it might be useful to invite [REDACTED] and [REDACTED] (TAG) and [REDACTED] (MRA) to a face to face meeting with us to give them the opportunity to ask and clarify any questions they may have.

We are going to provide them with the following date and time options:

- Thursday 16th March 09:00-10:30
- Thursday 16th March 15:00-16:30
- Friday 17th March 13:30-15:00

I wanted to let you know about this as a courtesy from an NACF perspective, but also provide you with the option of coming along if you'd like to?

Kind regards,

[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

Re: TAG & MRA Meeting

[REDACTED]
Mon 27/02/2023 18:17

To: [REDACTED]

Cc: DD - Airspace <airspace@heathrow.com>; [REDACTED]

Hi [REDACTED],

Thank you for your email.

I spoke with [REDACTED] this morning about arranging just such a meeting, so this is very welcome.

I would like to attend and my best date for this would be the Friday 17th Marc.

Regards,

[REDACTED]

From: [REDACTED]
Sent: 28 February 2023 12:49
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: RE: TAG & MRA Meeting

Thanks [REDACTED]

We will let you know once we have confirmed with TAG and MRA.

Kind regards,
[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: DD - Airspace
Sent: 28 February 2023 14:58
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: Heathrow ACP - TAG Meeting

Dear [REDACTED]

Thank you for your recent engagement and emails containing your feedback relevant to Heathrow's airspace change process.

We are reviewing your concerns and feedback on our Comprehensive List of Options and are working with the Technical Team to draft our response. We feel it is an appropriate time in the process to meet with you to discuss and resolve any issues prior to the next set of engagement workshops at the end of March.

To aid our discussion we would like to set up a Stakeholder Engagement Record with you. This is a live document containing a record of correspondence (emails, meetings, workshops) between Heathrow and TAG and any issues that arise. By populating this with a summary of Heathrow and stakeholder comments, we envisage that this will structure our conversations as we progress throughout the ACP and help us identify areas where issues can be resolved.

It will not be possible to cover every topic in a 1.5hr session and we suggest prioritising the concerns that you have raised that are related to activities that have already been completed in Stage 2. There will be further opportunity to discuss ongoing and future Stage 3 work in our upcoming engagement sessions.

Please could you let us know your availability on 16 and 17 March 2023 to meet us at Compass Centre? We think it would be useful to involve [REDACTED] (cc'd) in the session due to [REDACTED] role as Chair of the NACF and awareness of our ACP.

If you let me know times that might work for you then I can confirm a slot with the Team. Our availability currently looks good for:

- Thursday 16th March 09:00-10:30
- Thursday 16th March 15:00-16:30
- Friday 17th March 13:30-15:00 (Andreas' preference)

We will then send you an email to confirm the meeting arrangements and circulate an agenda to guide the discussion.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 03 March 2023 12:00
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: Re: Heathrow ACP - TAG Meeting

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for your email dated 28 February and the offer of a meeting with Heathrow's Technical Team to discuss the TAG's presentations and submissions with a view to setting up a Stakeholder Engagement Record. It is agreed the meeting will only cover activities that have already been completed so far in the AM programme.

I have spoken to [REDACTED] and CNG colleagues regarding the suggested meeting and we will be happy to attend on 17 March at 1.30pm. We would request that [REDACTED] and [REDACTED] are also be present as observers.

We are happy for [REDACTED] to attend. It would be helpful if you could advise who will be present from the Heathrow Team.

In order to make best use of time at the meeting and to ensure the main points are covered we are happy to pull together a list of key correspondence and a suggested agenda from material that has already been submitted to Heathrow in relation to its AM process to date.

Kind regards

[REDACTED]

From: DD - Airspace
Sent: 07 March 2023 10:00
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Heathrow ACP - TAG Meeting

Dear [REDACTED]

Thank you for your email. Apologies but the previously suggested time on Friday 17 March no longer works for two of the key Heathrow attendees. The following team is available on **Thursday 16 March at 14:00-15:30:**

- [REDACTED] – Airspace Change Project Lead
- [REDACTED] – Noise and Environmental Assessment Lead
- [REDACTED] – Airspace Change Process Lead
- [REDACTED] – Stakeholder Engagement Lead
- [REDACTED] – Stakeholder Engagement Support
- [REDACTED] – Stakeholder Engagement Support

Are you able to join us at Compass Centre for a meeting at this time? As agreed, we will use the meeting to discuss Stage 2 related concerns and recent correspondence from Teddington Action Group and will seek to set up a Stakeholder Engagement Record with you.

If this time works for you, we are happy for you to extend the invitation to the CNG colleagues you list below to observe the meeting:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Please let us know whether this time suits, and any specific issues you would like us to add to the agenda, and we will then send you a confirmation.

Kind regards,
[REDACTED]

From: [REDACTED]
Sent: 07 March 2023 14:37
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Heathrow ACP - TAG Meeting

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Thank you for your email [REDACTED]

It is helpful to know the Heathrow AM team and the invitation extension to CNG colleagues as observers is most appreciated.

Unfortunately I have a longstanding commitment on Thursday 16th. Would it be possible to do look at alternatives shortly after. I am free on 20, 21, 22, 23, the following week and failing that 27, 28, 29 and 30 the week after? If you could find two or three possible alternative dates I can check with [REDACTED] and CNG colleagues their availability (I knew they were all free on 17th; [REDACTED] is out of the country this week).

Regarding production of an agenda [REDACTED] and I will go through our previous correspondence and submissions so that we can prioritise the key items with a view to covering these and making best use of time in a one and half hour meeting. We will aim to get this to you two to three days in advance so we can hit the ground running.

Kind regards

From: DD - Airspace
Sent: 08 March 2023 12:02
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Heathrow ACP - TAG Meeting

Dear [REDACTED]

Our next set of engagement sessions are taking place w/c 20th March and w/c 27th March which limits our availability. However, we propose extending our meeting with you to 2.5hrs so that we have time to set up the engagement record based on your previous correspondence with us and also take you through the engagement session material in detail summarising the Stage 2A Feedback and Design Principle Evaluation. We have confirmed the Team's availability for:

- Friday 17th March 13:30 – 16:00 (full team apart from [REDACTED])
- Tuesday 21st March 13:00 – 15:30 (full team apart from [REDACTED])

Please could you let us know whether either of these times work for you?

Kind regards,

[REDACTED]

From: [REDACTED]
Sent: 08 March 2023 12:36
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Heathrow ACP - TAG Meeting

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Many thanks [REDACTED]

I will check with [REDACTED] and CNG colleagues and get back to you on the two alternative dates as soon as possible.

Thank you for extending the meeting.

Kind regards

[REDACTED]

From: [REDACTED]
Sent: 09 March 2023 18:52
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Heathrow ACP - TAG Meeting

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Thank you for your message [REDACTED]

I have been in touch with community group attendees and our preference is for the Tuesday meeting on the basis that [REDACTED] who has a key role can attend then. Unfortunately [REDACTED] won't be able to make the 21st due to a prior commitment. I will send you in advance a note referencing our submissions and NACF presentations, together with a suggested agenda which will hopefully help to focus our discussion. I assume the meeting will be held at the Compass Centre.

Kind regards

[REDACTED]

From: [REDACTED]
Sent: 15 March 2023 11:28
To: DD - Airspace
Cc: [REDACTED]
Subject: Fw: HR AM TAG Stakeholder Engagement Record - agenda, core documents and most relevant enclosures
Attachments: Heathrow Airspace Modernisation - Stakeholder Engagement - Agenda.docx; Heathrow Airspace Modernisation Stakeholder Engagement Record Core Documents.docx; Airspace Navigation Guidance 2017 - key extracts and questions for Heathrow.pdf; Heathrow Airspace Modernisation IOA - Community concerns and observations (24.01.23).pdf; CLOO pro forma response final 08 12 22.pdf; ANCF presentation 07 02 23 - AM DPs and CLOOs Final (PDF).pdf; HR AM email to [REDACTED] dated 16 02 23.pdf; Government Aviation Policy and issues with SoNA 2014 - Heathrow NACF 20230208 v1.pdf

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Further to my email of 9 March and the meeting next Tuesday (21 March 1.00pm) I attach,

- Proposed agenda
- List of documents, relevant to TAG engagement to date (Core Documents in chronological order)

In addition to the above and in order to focus our meeting next week as well as for ease of reference, I attach key documents that we would like HR AM to review and respond to on a formal basis following the discussion.

- Submission on key extracts from ANG 17 with TAG comments and questions for Heathrow (CD 5b)
- TAG health and quality of life considerations, including Heathrow context (CD 5a)
- TAG CLOO pro-forma response, including TAG Statement and outstanding issues from Methods and Metrics workshop 1 (CD 4). This encapsulates the most substantive points made in earlier TAG AM submissions
- Presentation made to the NACF 08 02 23 regarding CLOOs, DPE and IOA (CD 7b)
- TAG follow up email of 16 02 23 to [REDACTED], NACF Chair, which led up to this Stakeholder Engagement Record meeting (CD 8)

For sake of completeness and context I also append [REDACTED] community presentation to the NACF on 08 02 23 regarding SoNA 14, on which DfT aviation noise policies are based (CD 7a). It is recognised this goes beyond HR's AM Stage 1 and 2 process, but it does form relevant background and we understand may form the basis of a deep dive at a future NACF.

We look forward to meeting the team next Tuesday, although we are sorry that you are not available for the discussion.

With kind regards

[REDACTED]

and

[REDACTED]

Appendix

Air Navigation Guidance 2017

Key extracts, comments and questions

Key comments and questions are included in the text, in italic and underlined

Introduction

Section 70(2) of the Transport Act 2000 requires the Civil Aviation Authority (CAA) to take account of any guidance on environmental objectives given to it by the Secretary of State (SofS) when carrying out its air navigation functions.

A number of operational trials across the UK and changes to procedures used by air traffic controllers, led to various calls for a significant reappraisal of the government's airspace and noise policies.

The Air Navigation Guidance 2017 is the result of this review of the government's airspace and noise policy. In addition to being statutory guidance to the CAA on environmental objectives in respect of its air navigation functions, the revised guidance also includes details on the SofS's role in the airspace change process.

Objectives of the Guidance

provide guidance to the CAA under section 70(2) of the Transport Act 2000 and which the aviation industry should take account of;

strengthen the UK's airspace change process and its transparency, particularly with respect to how local communities are involved within it

emphasise that the environmental impact of aviation must be mitigated as much as is practicable and realistic to do so

we are confident that by following this revised guidance the aviation industry and the CAA will ensure an appropriate balance is achieved as the UK embarks on a major programme of airspace modernisation.

Purpose and applicability of the Guidance

This document, excluding section 6, is **statutory guidance to the CAA** on environmental objectives relating to CAA's air navigation functions in accordance with section 70(2) of the Transport Act 2000 and the Air Navigation Directions issued under sections 66(1) and 68 of that Act. This information should also be noted and **taken into consideration by the aviation industry.**

ANG sets out legal requirements and priorities which apply to the CAA and airspace change sponsors, such as Heathrow.

The government's key environmental objectives

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

ANG sets out mandatory considerations in paras 3.2, 3.3 and 3.5 (see below). How has Heathrow reflected these in its DPs and the metrics used in arriving at its CLOOs? How will these be addressed in its Initial Options Appraisal (IOA)?

1.3 Options, and appraisal of the pros and cons, may include concentrating traffic on single routes, which normally reduce the number of people overflowed, versus the use of multiple routes which can potentially provide relief or respite from noise if routes can be sufficiently separated

Detailed guidance on assessing the potential environmental impacts of airspace change options

3.1 When the CAA exercises its air navigation functions, it is required to apply consideration to the various factors listed within section 70(2) of the Transport Act 2000, with safety being the priority. If there is a conflict in the application of the provisions listed in section 70(2), the CAA must, according to section 70(3), apply them in a manner it thinks is reasonable having regard to those factors as a whole. **To help ensure this is done correctly, sponsors should be required to demonstrate how they have assessed the different impacts and taken on board the views of different parties when developing options for airspace changes.**

How will Heathrow as AC sponsor demonstrate it has satisfied this requirement? How have representations from communities been addressed substantively by Heathrow in relation to its DPs and CLOOs? How will the general public be engaged going forwards? What representations have been made by parties other than communities?

Altitude Based Priorities

3.2 To assist the CAA and sponsors, the government laid out the altitude-based priorities which should be taken into account when considering the potential environmental impact of airspace changes.

ANG states the altitude priorities (up to 7000 ft) and environmental considerations are mandatory. Does Heathrow consider these requirements were fully applied in arriving at the CLOOs? Can Heathrow confirm these will be reflected in undertaking its IOA?

3.3 Noise from aircraft flying at or above 4,000 feet is less likely to affect the key noise metrics used for determining adverse effects and as aircraft continue to climb above this altitude their noise impact reduces. Set against this, there is also a need to secure an efficient use of airspace and to ensure that aircraft operations emissions are minimised. So when considering requests to change the airspace design, the CAA should apply the following altitude-based priorities of the government:

- a. In the airspace from the ground to below 4,000 feet the government's environmental priority is to limit and, where possible, reduce the total adverse effects on people;

What does Heathrow understand by limiting/reducing total adverse effects on people? How far have these been assessed in the CLOOs and how will the reduction of total adverse effects be addressed in the IOA?

- b. Where options for route design from the ground to below 4,000 feet are similar in terms of the number of people affected by total adverse noise effects, preference should be given to that option which is most consistent with existing published airspace arrangements;

How does Heathrow interpret this and how will the preference for existing airspace arrangements be applied in the IOA?

- c. 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;

How has the requirement to demonstrate CO₂ emissions are disproportionately increased in the CLOOs and how will it be applied in the IOA? What metrics and values have/will be applied in devising the CLOOs and developing the IOA?

- d. in the airspace at or above 7,000 feet, the CAA should prioritise the reduction of aircraft CO₂ emissions and the minimising of noise is no longer the priority;

- e. where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over Areas of Outstanding Natural Beauty (AONB) and National Parks; and
- f. all changes below 7,000 feet should take into account local circumstances in the development of the airspace design, including the actual height of the ground level being overflown, and should not be agreed to by the CAA before appropriate community engagement has been conducted by the sponsor.

How will Heathrow take into account local circumstances and conduct community engagement in relation to the CLOOs and IOA?

Assessing the noise implications of proposed airspace changes

3.5 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.

Does Heathrow accept it should not rely on a simplistic analysis of numbers within noise contours in its IOA? Critically, how will 'total adverse effects' be assessed in a local context in the IOA (see para 3.6 below)?

Does Heathrow accept ICAO recognition, international research and local evidence (based on its 2014 PBN trials) that change itself will cause major significant adverse effects?

Does Heathrow believe that there is equivalence between numbers of people experiencing increased aviation noise from change compared to the benefit to those who receive a reduction in noise?

3.5 (contd.) Adverse effects are considered to be those related to health and quality of life.

Does Heathrow agree that for the purposes of its IOA adverse effects must relate to health and quality of life?

CAP 2091 sets out the minimum standards for reporting noise impacts but crucially does not preclude more detailed consideration. Given Heathrow's unique location and enormous noise impact, does it consider it should address these considerations by undertaking a local health and quality of life/annoyance study?

Given the radical nature and scale of the changes scoped within Heathrow's CLOOs does it disagree, as sponsor, that it is essential that these considerations must be fully understood and reflected in the IOA and subsequent stages? Communities have made numerous submissions to the HCNF on the impact of PBN (internationally) and the change effect which international research indicates can add 6-9 dB Leq in terms of adverse impact.

3.5 (contd.) As noise exposure increases above this level, so will the likelihood of experiencing an adverse effect. In line with this increase in risk, the proportion of the population likely to be significantly affected can be expected to grow as the noise level increases over the LOAEL.

Does Heathrow accept this premise? If so how will this be addressed within the IOA?

3.6 The Department for Transport's WebTAG includes a module for valuing the impacts of noise, including those from changes in aircraft noise, on health and quality of life.

3.6 (contd.) The CAA must ensure that adverse effects of airspace change proposals are estimated in accordance with this methodology. Additional noise metrics should be considered, as appropriate, as specified elsewhere in this guidance, advised by the CAA, or following engagement by the sponsor.

How will Heathrow reflect engagement to date?

What additional metrics and investigations does Heathrow consider are required in the context of the airport's location in the middle of densely populated areas, the experience of its 2014 PBN trials, evidence of the impact of PBN abroad (particularly the US) and the change effect, particularly having regard to the evidence presented to the HCNF/NACF by community groups and the reports by Taylor Airey and Andersen Acoustics which relate to these matters?

3.7 Below 4,000 feet, there is a strong likelihood that aircraft could create levels of noise exposure above the LOAELs identified above, which is reflected in the Altitude Based Priorities.

3.8 There may however be options which perform comparatively better in terms of minimising more serious impacts as opposed to annoyance, or certain options may be better for day noise than night noise, or vice versa. In these instances, the CAA should verify that sponsors have considered the relative trade-offs and taken into account any community views on what the objectives in terms of noise should be.

How does Heathrow propose to take into account community views and what weight will be placed on these? The CLOOs presented so far appear to bear little resemblance to the requirements of ANG. What evidence relating to community views has Heathrow used in arriving at these and how does it propose to comply with this requirement in the IOA and later stages?

3.9 At and above 4,000 feet, aircraft are unlikely to result in noise exposure above 51dB LAeq16hr for day time noise and 45dB LAeq8hr for night time noise, but where such exposure does occur the CAA should ensure that the focus remains on minimising these impacts. Generally however, at and above 4,000 feet to below 7,000 feet, the government expects the CAA to follow the altitude based priorities (as set out in section 3.2 to 3.3 above).

3.10 As well as overall impacts, the CAA should also verify that sponsors have adequately explained how communities will be affected as a result of the proposal, such as the expected change in noise exposure communities will experience.

How and when does Heathrow consider it should engage with the public, in the context of its CLOOs and IOA. At what stage does Heathrow consider it should engage, particularly in relation to the radical options in the CLOOs (which raise matters of public interest)?

3.11 For communities further away from airports that will not be affected by noise above the LOAELs identified above, it is important that other aspects of noise are also taken into account where the total adverse effects of noise on people between different options are similar. Metrics that must be considered for these purposes include the overall number of overflights¹⁰ and number above metrics: N65 for daytime noise and N60 for night time noise.¹¹ The CAA's overflights metric is a means of portraying those locations where residents will experience being overflowed. These supplementary metrics must also be used to inform communities about the likely impact of proposed changes.

It is apparent from this para that overflight metrics are less applicable to areas impacted by low altitude flight paths (as they do not reflect noise on the ground). How have overflight metrics been applied in devising the CLOOs and what weighting has been applied? What suite of metrics (intelligible to the general public) does Heathrow propose to use in the IOA? Will these include N>, single mode, time of day/night contours, respite periods (including operational mode) and impact of multiple routes?

3.12 The CAA should also verify that sponsors have used any other noise metrics that may be appropriate for allowing communities to understand the noise impacts that could result from the proposed change. This could include the use of 100% mode contours for average noise or frequency-based metrics, or consideration of the interaction with other sources of aircraft noise, such as those from other local airports.

Introduction of Performance Based Navigation

3.13 Perhaps the most significant change to airspace arrangements in the past 50 years has been the onset of the implementation of performance-based navigation (PBN), a process which is likely to take many years to complete.

Can Heathrow advise when it is expected the aviation fleet will be fully equipped with PBN technology and how the transition period will be addressed (particularly in the context of radical CLOOs) in the IOA? How will the safety and potential additional noise implications of sharp PBN enabled turns be addressed?

3.14 When considering the introduction of new PBN-based procedures intended to replicate existing conventional procedures, the CAA should ensure that the airspace change proposal contains options and uses options appraisal which will help the sponsor to determine whether a replication of existing procedures is the optimum approach for meeting both the government's environmental objectives and the sponsor's own objectives for the airspace change in question.

3.15 If, following the options appraisal, the sponsor considers that the best approach to be taken is to replicate the current conventional flightpath with the use of the new procedures, the implementation of **this replication should seek to preserve the existing route alignments as far as possible**. In such circumstances, the CAA should make the sponsor aware that experience has shown that modern aircraft and their on-board flight systems cannot always accommodate an exact replication.

3.17 In cases where airports wish to enhance the standard used on PBN flightpaths, for example from “RNAV1” to “RNP1”, the government recognises that such changes are less likely to cause a significant redistribution of air traffic. In such cases, the government still expects the sponsor to consider using options appraisal, but the CAA is able to determine the precise approval process which sponsors need to follow, **providing that any noise impacts have been assessed and there is full transparency with communities that may be affected**.

This emphasises the importance of full transparency with the public. How will this be achieved? It needs to be remembered that over many years a huge number of people have established their lives based on the current flight path pattern; those that have found the current situation unacceptable will have made conscious decisions to move away because of Heathrow’s noise impact. The social impact of Heathrow’s more radical CLOOs (if implemented) will be enormous, potential extremely damaging and giving rise to blighted communities. How will Heathrow reflect legacy arrangements in its IOA (and subsequent stages) and what weighting will be applied to these?

Single and multiple routes

3.18 Single and multiple routes both have costs and benefits associated with them. In terms of noise, a single route will, generally, tend to affect fewer people overall compared to multiple routes. **It may mean however that more people are exposed to higher levels of noise where there is a greater risk of adverse effects**, than if noise was more dispersed

3.19 As stated in section 1.3 above, decisions on how aircraft noise **is best shared** should be informed by local circumstances and consideration of the different options that are deemed to be practicable. This consideration should include the pros and cons of concentrating traffic on single routes which normally reduce the number of people overflown, versus the use of multiple routes which can potentially provide relief or respite from noise but increase the number of people overflown overall.

3.20 **This means there will be situations when multiple routes, that expose more people overall to noise but to a lesser extent, may be better from a noise perspective**. Taking account of consultation and the objectives of the airspace change proposal, with regard to assessing and comparing environmental impacts of a proposed change, preferred options should normally be based on those which result in fewer total adverse effects on people.

Does Heathrow accept that this section reinforces the importance of understanding significant adverse impacts, rather than a simplistic approach based on noise contours that do not necessarily reflect ‘the lived experience’ of communities near Heathrow?

Heathrow will recall the CAA reported to the HCNF the impact of splitting a single PBN route, which monetised the benefit to be £640 million over a ten year period. Does Heathrow agree that noise sharing will reduce significant adverse effects rather than concentrating significantly greater noise over fewer people? If it disagrees what evidence base is being relied on and what data and research will be used to validate its approach in the IOA and subsequent stages?

3.21 For airspace changes where noise levels are expected to lead to fewer measurable impacts on health and the quality of life, greater consideration should be given to how the number of overflights is distributed, and consideration of how the current situation for those overflown will differ for any future options. However, it is important that all decisions are made in line with the altitude-based priorities and that impacts on wider airspace use are also considered.

3.22 Proposals by sponsors, and ultimately the CAA's decision, concerning single and multiple routes should be explained clearly and transparently.

Heathrow (HR) Airspace Modernisation (AM)

Meeting between HR AM Team and Teddington Action Group (TAG) - 21 March 2023

Stakeholder Engagement Record - Core Documents

TAG submissions in relation to AM Workshops and Engagement

1. HR Design Principles (DP) Workshop 27 09 21 – TAG submission 06 11 21
2. HR DP Workshop 27 09 21 – TAG completed proforma matrix submitted 11 11 21
3. HR Methods and Metrics Workshop 05 07 22 – TAG submission 12 07 22
4. HR CLOO Stage 2A Engagement Presentation 09 11 22 – TAG Feedback Form returned 08 12 22 – included in the proforma response submission was TAG's Statement 02 12 22 and TAG's updated schedule of unresolved points in HR's response to TAG's M&M Workshop submission, which had been sent to HR on 05 11 22
5. HR Methods and Metrics Workshop 2 Initial Options Appraisal 25 January 2023 – TAG submissions presented in advance on 24 01 23 covering (a) community concerns and (b) ANG 17 - key extracts and questions for HR

NACF Presentations

6. CNG presentation for NACF 23 11 22
7. CNG presentations for NACF 08 02 23 (a) Issues surrounding SoNA 2014 and (b) AM – CLOOs, DP Evaluation and Initial Options Appraisal (IOA)

NACF correspondence leading to Stakeholder Engagement Record Meeting

8. TAG follow up email to NACF Chair regarding clarifications with HR AM team, dated 16 02 23

Heathrow Airspace Modernisation – ANG and the Initial Options Appraisal

Health and Quality of Life considerations

Introduction

In approaching the Airspace Modernisation process, Heathrow should consider that the vast majority of people within its current noise catchment have taken decisions on where to live having regard to historic noise conditions. In many cases this has determined how they have made some of the most significant decisions in their lives, including house purchase, choices of schools, networks of friends and family, etc. Resulting from this very important family and community links have been established. For many relocation due to significantly changing Heathrow flight path patterns is not an option. Any radical changes in flight path routes or usage which cause significant adverse changes to living conditions in neighbourhoods around Heathrow will have severe consequences for long standing and extremely well-established communities and should be ruled out at this stage.

Context

Air Navigation Guidance 2017 (ANG) is legally binding on both the CAA and Airspace Modernisation (AM) sponsors.

Communities have raised concerns that both Heathrow's Design Principles (DP) and Comprehensive List of Options (CLOOs) do not reflect ANG requirements in relation to noise.

In the case of the DPs there are conflicting principles and in a number of cases they are indicative of a simplistic 'numbers within contour-based approach' rather than consideration of causation or assessment of significant adverse impacts to health and quality of life.

A number of the CLOOs are based on inappropriate metrics and analytical approach. The methodologies in arriving at the CLOOs are not transparent and Heathrow's initial analysis has resulted in a list mainly consisting of radical flight path options.

Crucially, Heathrow has not addressed key criteria mandated in ANG, and even ignored some of its own DPs (which are critical to reaching an acceptable final outcome) in producing the CLOOs. As a result, the airport is following an approach based on inappropriate evidence and potentially resulting in options that will cause a disastrous outcome.

The CAA is presently consulting on changes to CAP 1616 in its CAP 2492 consultation document. In particular it is proposed to **remove the requirement** to develop a comprehensive list of design options which includes **radical options**.

CAP 1616 has also been supplemented by CAP 2091, and this sets out **minimum requirements** for noise modelling. Given Heathrow's unique location, ATM numbers and the huge number of people potentially significantly adversely affected by new flight paths, the airport should go beyond the minimum requirements, and take great care in establishing an evidence base that identifies and minimises the potential impact of its decisions in relation to AM.

The appended document highlights the key sections of ANG and poses a number of questions and suggestions in relation to the CLOOs and Heathrow's IOA.

Heathrow Airspace Modernisation

Meeting between HR AM Team and TAG - 21 March 2023

Stakeholder Engagement Record

Proposed Agenda

1. Heathrow's context – see Core Document (CD) 7 (b)
2. Air Navigation Guidance 2017 – see CD 5 (b)
 - Status – binding on CAA and HR
 - What does ANG say?
3. Heathrow's Design Principles
 - Non-conformity with ANG 17 – see CD 4
 - Conflicts between DPs
 - Lack of local evidence base to apply ANG 17 – Issues with SoNA, LOAEL, appropriate metrics, change effect, ICAO advice on average metrics and non-acoustic factors, etc
4. Heathrow's application of its own DPs into its CLOOs – see CDs 4 and 7 (b)
 - Flawed interpretation of ANG in DP2 (and other DPs)
 - Flawed methodologies including conflation of factors – noise, carbon and AONBs in DP2
 - Failure to identify the impacts and interdependency of flight paths, i.e. no consideration of systems or route usage
 - Omission of consideration of key environmental DPs, including multiple routes (DP7), respite (DP6), communities experiencing more noise (DP9), night flights (DP8), etc
 - Application of qualitative evidence in IOA
5. Status or Radical CLOOs and Vectored Arrivals – see CD 7(b) and email to AL CD 8
6. Engagement and public consultation
 - CLOO public engagement plan
 - Consultation Plan
7. Next steps

Dear [REDACTED]

email dated 16 02 23

Further to last week's NACF meeting (after my presentation on Airspace Modernisation) it was most helpful of you to offer to arrange a meeting between yourself, community representatives and Heathrow's AM team so that key unresolved points can be discussed and clarified. We would welcome such a discussion.

Whilst the NACF is still fresh in mind I thought it would be helpful to provide a summary of points for such a meeting.

- It is understood that some at least of the most radical (and concerning) CLOOs cannot be flown by all of Heathrow's fleet and that in any event these routes would result in capacity limitations. At the recent methods and metrics workshop it was suggested by the AM team that they could be considered for respite options, but this would lead to communities facing the prospect of 18 hours overflight during the day, late night departures and early morning arrivals within a 24 period. The status and standing of these flight paths need to be confirmed, particularly as the AM team said at the NACF they intend to take all the CLOOs forwards into the Initial Option Appraisal.
- Linked to the above the future of and implications for vectored arrivals and the associated stacks must be clarified. The AM team have said they intend to keep and use these. These offer the prospect of maintaining flight path separation between arrivals and departure routes (so avoiding communities being continuously overflown whatever the wind direction) so the extent and scope of their proposed future use is of critical significance to future airspace strategy. Once again, the status and standing of vectored arrival paths need to be confirmed.
- Heathrow has said in its presentation material that qualitative evaluation (against the DPs) will only take place against the long list of options (i.e. the CLOOs) on a single flight/route basis (ie they will not be considered as 'flight path systems'). After this only quantitative assessments will be undertaken 'to ensure the appraisal is robust, consistent and evidence-based'. At the same time the AM team have stated that they will not be looking at combinations of flight paths, departures and arrivals or route usage until Stage 3, so the environmental consequences for communities of whatever decisions are taken at Sage 2 will be completely unknown. It is believed this does not follow CAP1616 since it does not give a true study of what might happen. At the very least Heathrow needs to confirm its position and explain its thinking on how the 'Design Principle Evaluation' is to be carried out. The present process could result in good options being thrown out that actually give the best system compromise.
- Communities are very concerned that there are a number of DPs that are not being addressed at all before key future airspace decisions will be taken. These include DPs 6 (Respite), 7 (Multiple Routes) and 8 (Night Period), and most critical of all the overarching

DP2 which refers specifically to Air Navigation Guidance. My NACF presentation (and previous submission to the AM team, cc'd to you) highlighted the apparent deficiencies in Heathrow's approach to environmental noise, notwithstanding that ANG is legally binding on the CAA and Heathrow itself. DP2 is a 'must' DP and Heathrow needs to explain specifically how it is complying with ANG requirements (particularly with respect to health and quality of life) before proceeding further with its AM programme.

- Associated with the above points Heathrow should also explain how it will engage with the general public, local authorities and MPs in progressing its AM programme. In the view of communities, it is essential that such engagement begins in advance of formal consultation, by which time key decisions are likely to have been made.

Given where Heathrow is currently in the AM process, it is now urgent that the above issues are discussed and clarified at the earliest opportunity. It would be much appreciated if you could facilitate the meeting discussed at the NACF as soon as possible.

Kind regards



Heathrow Airspace Modernisation

Comprehensive List of Options (CLOOS), Design Principle Evaluation and Initial Option Appraisal (IOA)

CNG presentation to NACF

8 February 2023

What Heathrow said in 2016 about PBN

- The social impact of PBN trials in the UK has been enormous
- No environmental assessment of noise impacts has been undertaken

Nothing has changed since and no impact assessment has been undertaken

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 jeopardise these projects. In addition, as subsequent comments highlight, we have the following concerns:

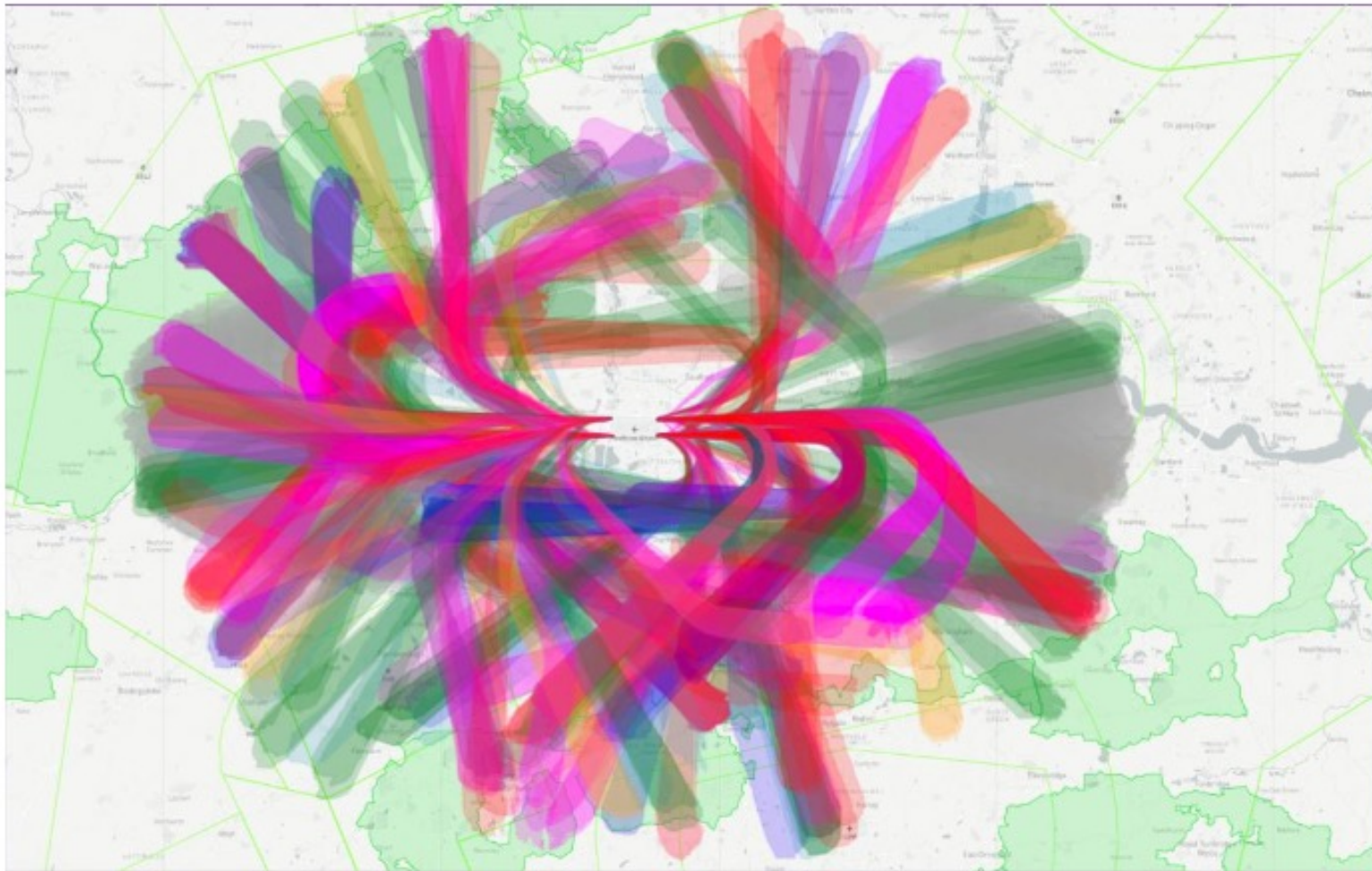
- The Social Impact of PBN trials in the UK has been enormous, therefore this should be considered and not dismissed in one sentence.
- There does not appear to be an environmental assessment of this proposed change in terms of noise.
- The Benefit section takes no account of the cost of airspace consultation 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.

Noted.

easa.europa.eu/sites/default/files/dfu/CRD%202015-01_0.pdf

All Arrival and Departure Options



The context for Airspace Modernisation around Heathrow

The vast majority of the millions of people around Heathrow have chosen where they live on an expectation there will not be significant changes in historic flight path patterns and noise conditions.

This is often a fundamental consideration, which in turn has many consequential effects, including house purchase (the most significant lifetime investment for most families), selection of schools, building of friends and family networks, provision of support for elderly relatives, etc.

These factors go to the heart of building sustainable communities. Relocation due to significantly changing Heathrow flight path patterns is not a practical option for most people.

The radical changes in flight path routes under consideration in the CLOOs represent a major threat. The 2014 PBN trials and international experience provide ample evidence that there could be very severe and extreme consequences for long standing and extremely well-established residential communities.

In addition to not properly reflecting Air Navigation Guidance (in any normal use of language), when looked at in combination the CLOOs will not conform with key Heathrow DPs.

The introduction of PBN around Heathrow is playing with fire. Radical CLOO flight path proposals should be ruled out at the Design Principle Evaluation stage.

What does Air Navigation Guidance say? ANG is binding on the CAA and AC sponsors

The government's environmental objective is to limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise

ANG relates total adverse effects directly to health and quality of life outcomes and specifically not to number of people within any particular noise contour. ANG notes the proportion of the population likely to be significantly affected can be expected to grow as the noise level increases over the LOAEL

With respect to airspace modernisation, the government expects the CAA to follow the altitude-based priorities;

- below 4000 ft to limit/reduce the total adverse noise effects on people; and preference to be given to options which are **most consistent with existing published airspace arrangements**
- between 4000 and 7000 ft the environmental priority should continue to be minimising the impact of aviation noise unless the CAA is satisfied the sponsor demonstrates this would **disproportionately** increase CO2 emissions

In relation to single or multiple routes ANG notes single routes may lead to more people being exposed to higher levels of noise where there is a greater risk of adverse effects. This means there will be situations when multiple routes, that expose more people overall to noise but to a lesser extent, may be better from a noise perspective

The CAA should also verify that sponsors have adequately explained how communities will be affected as a result of the proposal, such as the expected change in noise exposure communities will experience

Why Heathrow's CLOOs do not reflect the environmental requirements of ANG

The CLOOs relating to minimisation of noise do not address factors related to significant adverse health and quality of life impacts on people (which must be avoided or minimised).

In DP2 they conflate ANG directions in respect of environmental noise with CO2 and AONB considerations. In addition, they do not explain how the noise altitude priority to 7000 ft would **disproportionally affect CO2**.

The noise assessments are not based on recognised primary or secondary noise metrics or thresholds (instead 70 dB SEL contours and noise cones are arbitrarily used as proxies).

Counter to ANG instruction many CLOOs are based on a simplistic calculation of numbers of people within contours, against inappropriate noise metrics.

The CLOOs **do not consider route usage** and whole fleet mix (the most intensively used routes and heaviest planes will cause the most significant impacts). At this stage, it is understood the most radical of the CLOOs are not capable of being flown by the whole fleet.

They do not consider the **implications of combinations of flight paths** and critically **the impact of both arrivals and departures**.

Runway 09L Design Principle 2

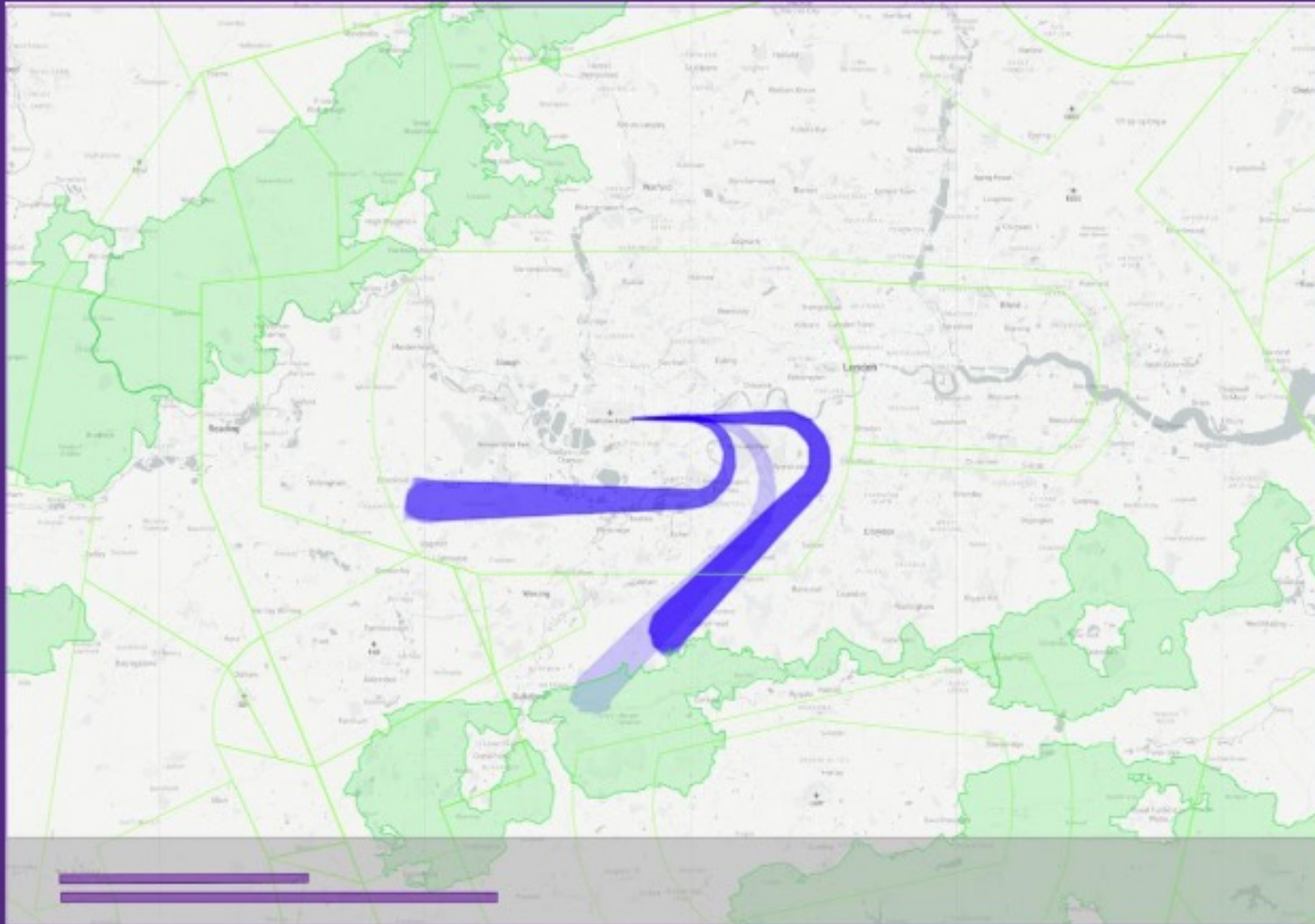


These options were designed to minimise the number of people exposed to noise up to 7,000ft whilst also considering CO₂ and AONBs

All options in this document are subject to change throughout the airspace change process as options are matured in detail and refined in accordance with safety requirements, our Design Principles, our appraisals and stakeholder engagement and consultation.

Heathrow

Runway 27L Design Principle 2

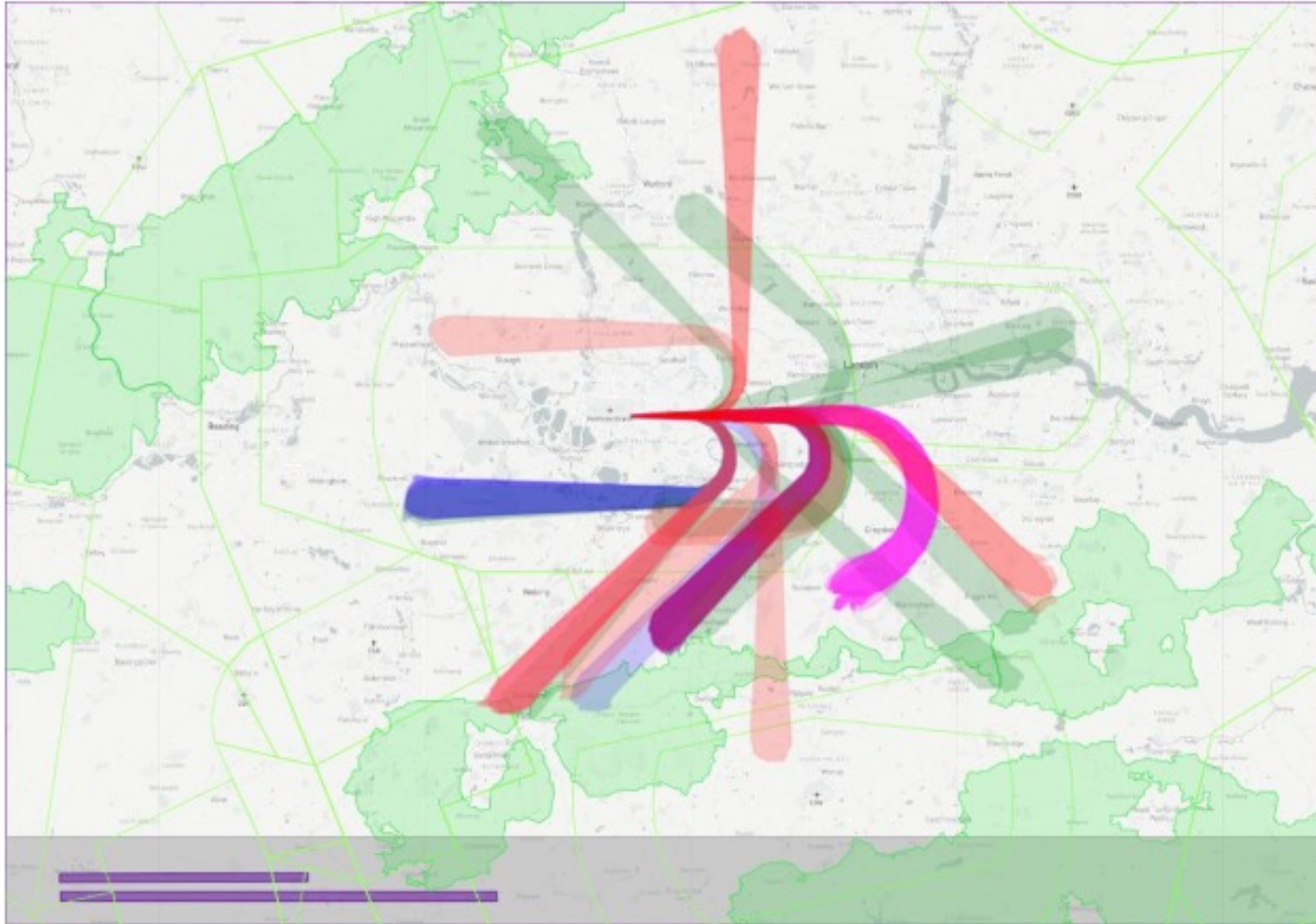


These options were designed to minimise the number of people exposed to noise up to 7,000ft whilst also considering CO₂ and AONBs

All options in this document are subject to change throughout the airspace change process as options are matured in detail and refined in accordance with safety requirements, our Design Principles, our appraisals and stakeholder engagement and consultation.



Runway 27L All PBN Arrival Options



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Heathrow's CLOOs do not reflect its DPs and do not form an acceptable basis for IOA

The analysis in Heathrow's CLOO pack and presentations ignore key Design Principles that go to the heart of minimising significant adverse impacts.

The DPs which are most obviously not addressed include;

- DP2 – compliance with ANG and minimising significant adverse impacts by reference to health, quality of life, higher levels of noise, etc.
- DP 6 Respite – in particular the combination of arrivals and departures over communities.
- DP 7 Multiple Routes – once again the combination of arrivals and departures over communities.

Consideration of these DPs alone should lead to ruling out the majority of CLOOs under consideration.

The following DPs are also not properly addressed:

- DP8 – the CLOOs propose arrival and departure combinations which will potentially expose communities to a 4.5-hour night period
- DP 9 – the implications of route usage and combined routes are not considered
- DP10 – how adverse impacts will increase as noise levels increase above WHO/LOAEL thresholds
- DP12 – there is uncertainty regarding the PBN flyability (of the fleet) and capacity implications of a number of the radical sharply curved arrival flight path options

What should happen next?

It is understood all the CLOOs are being evaluated against the DPs – Stage 2A - **and that Heathrow does not propose a qualitative assessment during subsequent stages.**

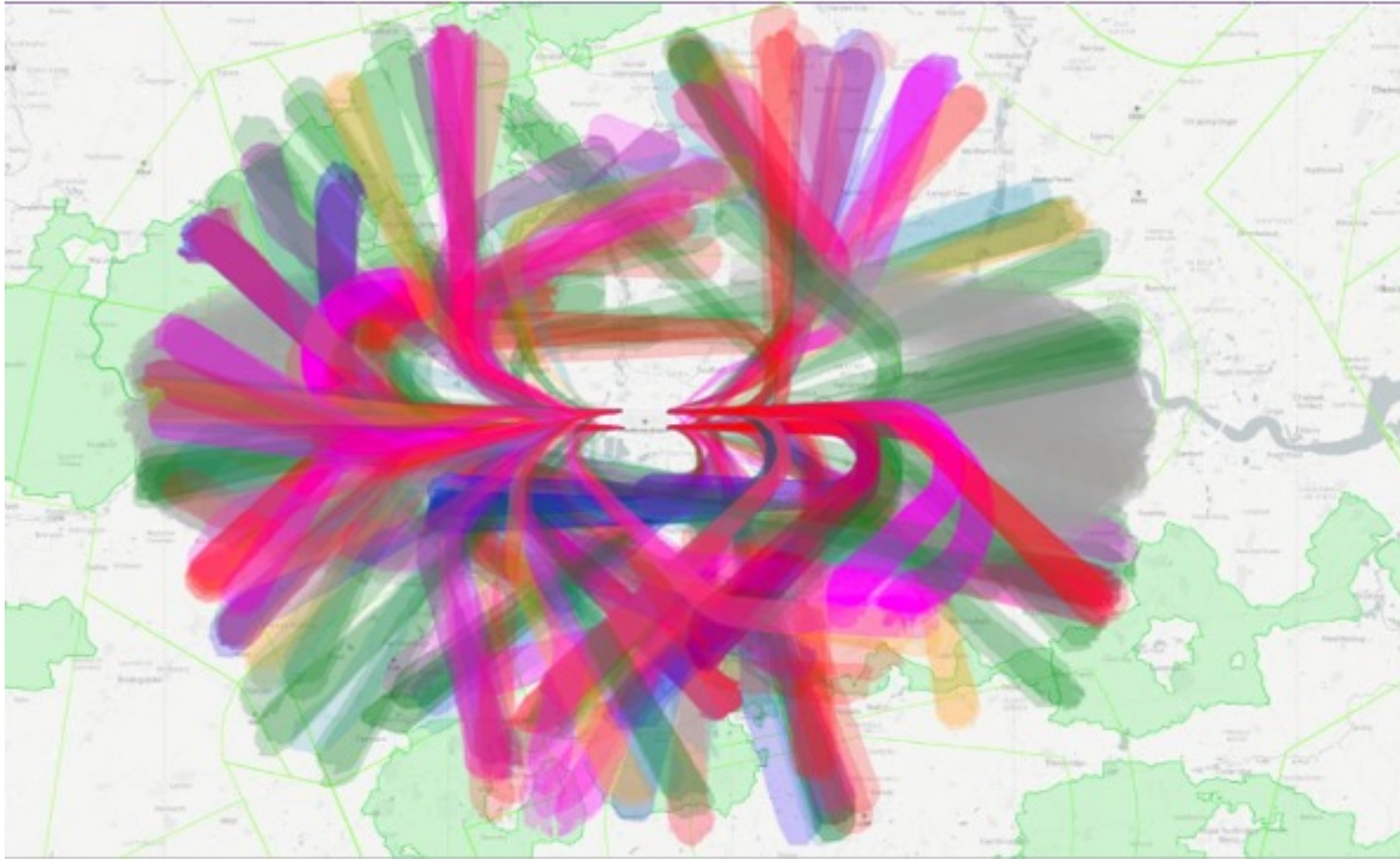
It is essential that the qualitative assessment to be undertaken now rules out flight path options that when considered in combination (especially arrivals and departures) or in use (numbers of ATMs, time of day/night, projected fleet mix) will not meet ANG requirements or Heathrow's adopted DPs, especially those with significant health and quality of life implications.

As part of this process Heathrow must clarify the position in relation to vectored arrivals, the assumptions regarding how/when stacks will be replaced and whether there is any future for steeply curved radical arrival options. Conflicting messages have been given during workshops and presentations concerning the flyability and capacity implications of these routes. If these routes remain under any consideration for the short or long-term Heathrow must now explain the implications for all communities - particularly having regard to ANG health and quality of life requirements, how DPs 6 and 7 will be addressed and how encroachment into the night period for communities under new arrival and departures paths will be avoided.

These factors must be concluded on a satisfactory and transparent basis and put into the public domain before the Initial Appraisal of Options starts.

Whilst it is understood formal consultation will be undertaken during Stage 3 of the ACP, before the IOA commences there should be an engagement campaign regarding the options under consideration, putting these clearly into the public and political domain, so that people will be aware of what may be happening in the skies above their communities in the future.

Questions and comments



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Reserve slides

Our Design Principles for Airspace Modernisation			Our Consideration during options development
1	Our new airspace design must	Be safe	Initial consideration applied to all options: further assessment required at Step 2B
2		Remain in accordance with the CAA's published Airspace Modernisation Strategy and any current or future plans associated with it and all other relevant UK policy, legislation and regulatory standards (for example, Air Navigation Guidance). This includes preventing any worsening of local air quality due to emissions from Heathrow's aircraft movements, to remain within local authorities' limits	Flight path options developed
3		Use noise efficient operational practices to limit and, where possible, reduce adverse impacts from aircraft noise	Concepts developed: to be applied to any of the flight path options
4		Reduce the contribution to climate change from CO ₂ emissions and other greenhouse gas emissions arising from Heathrow's aircraft activities	Flight path options developed
5		Enable Heathrow to make the most operationally efficient and resilient use of its existing two runways, to maximise benefits to the airport, airlines and cargo handlers, passengers, and local communities	Flight path options developed
6	And should also	Provide predictable and meaningful respite to those affected by noise from Heathrow's movements	Concepts developed: to be applied to any of the flight path options
7		Seek to avoid overflying the same communities with multiple routes including those to/from other airports	Initial consideration applied to all options: to be refined as other airports share more information
8		Contribute to minimising the negative impacts of night flights	Concepts developed: to be applied to any of the flight path options
9		Keep the number of people who experience an increase in noise from the future airspace design to a minimum	Flight path options developed
10		Keep the total number of people who experience noise from the future airspace design to a minimum	Flight path options developed
11		Enable the efficiency of other airspace users' operations	Initial consideration applied to all options: to be refined as other airspace users share more information
12		Minimise the impact to all stakeholders from future changes to Heathrow's airspace	Initial consideration applied to all options: to be refined as future industry and airport requirements become clearer

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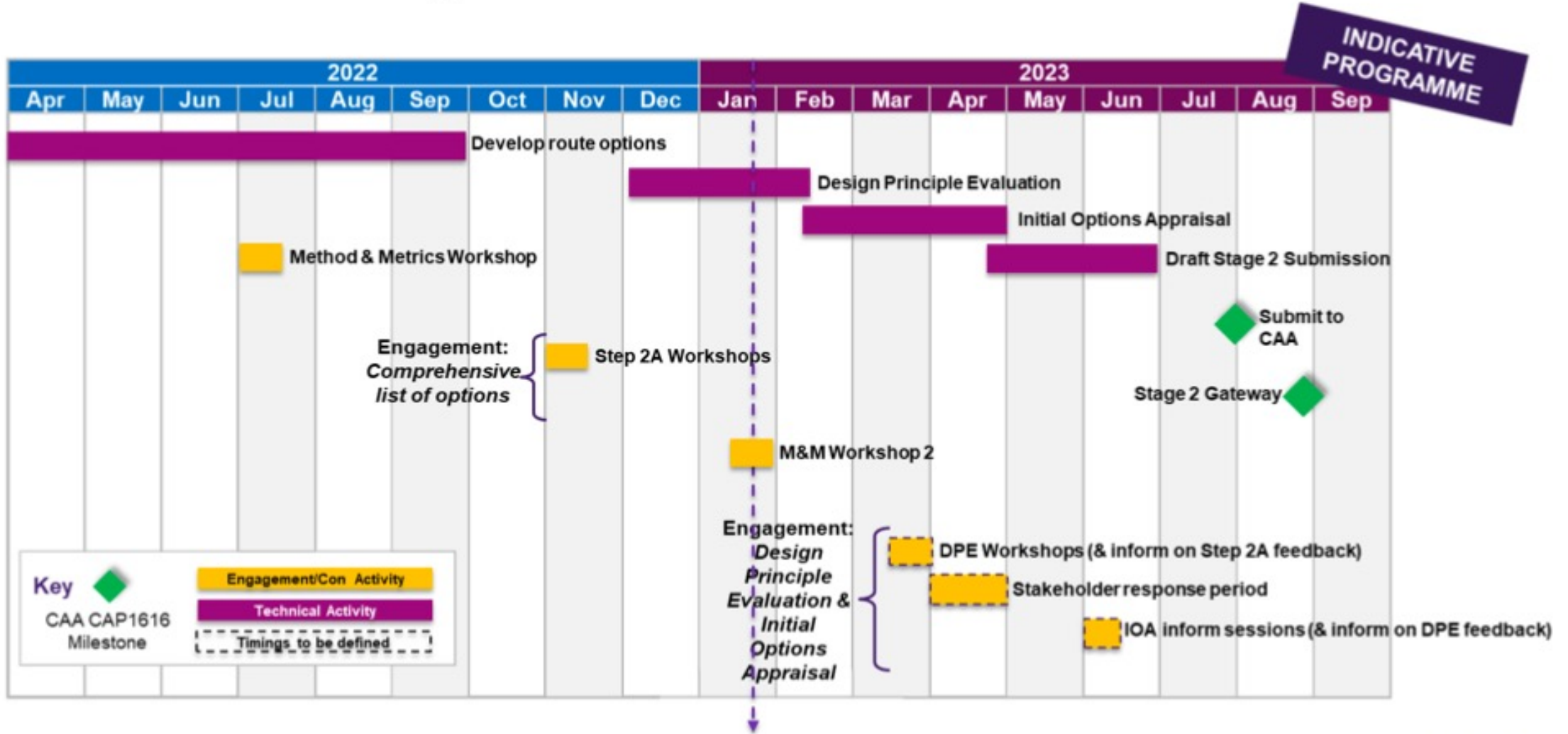
The CAA's Airspace Change Process

- We are following the CAA's Airspace Change Process, known as "CAP1616" and we are now at Stage 2, known as "Develop and Assess"
- This is the stage where we develop a **comprehensive list of options** that address the Statement of Need and align with the Design Principles we set last year at Stage 1
- At this stage we are required to engage with our stakeholders to ensure we have understood and accounted for stakeholder concerns specifically related to the design options

The CAA's CAP1616 Process



Heathrow's Stage 2 Plan



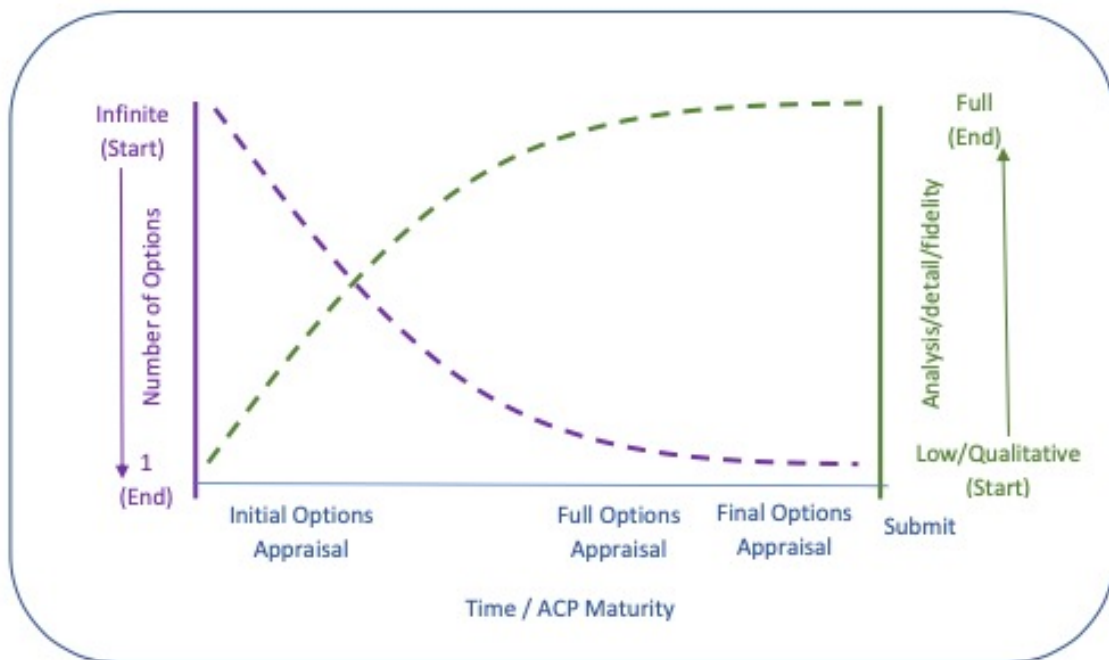
WE ARE HERE

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CAP1616: Phases of Appraisal

The Initial Options Appraisal (IOA) is the first of three appraisal phases, and **the level of detail will increase as we move through the appraisal phases**

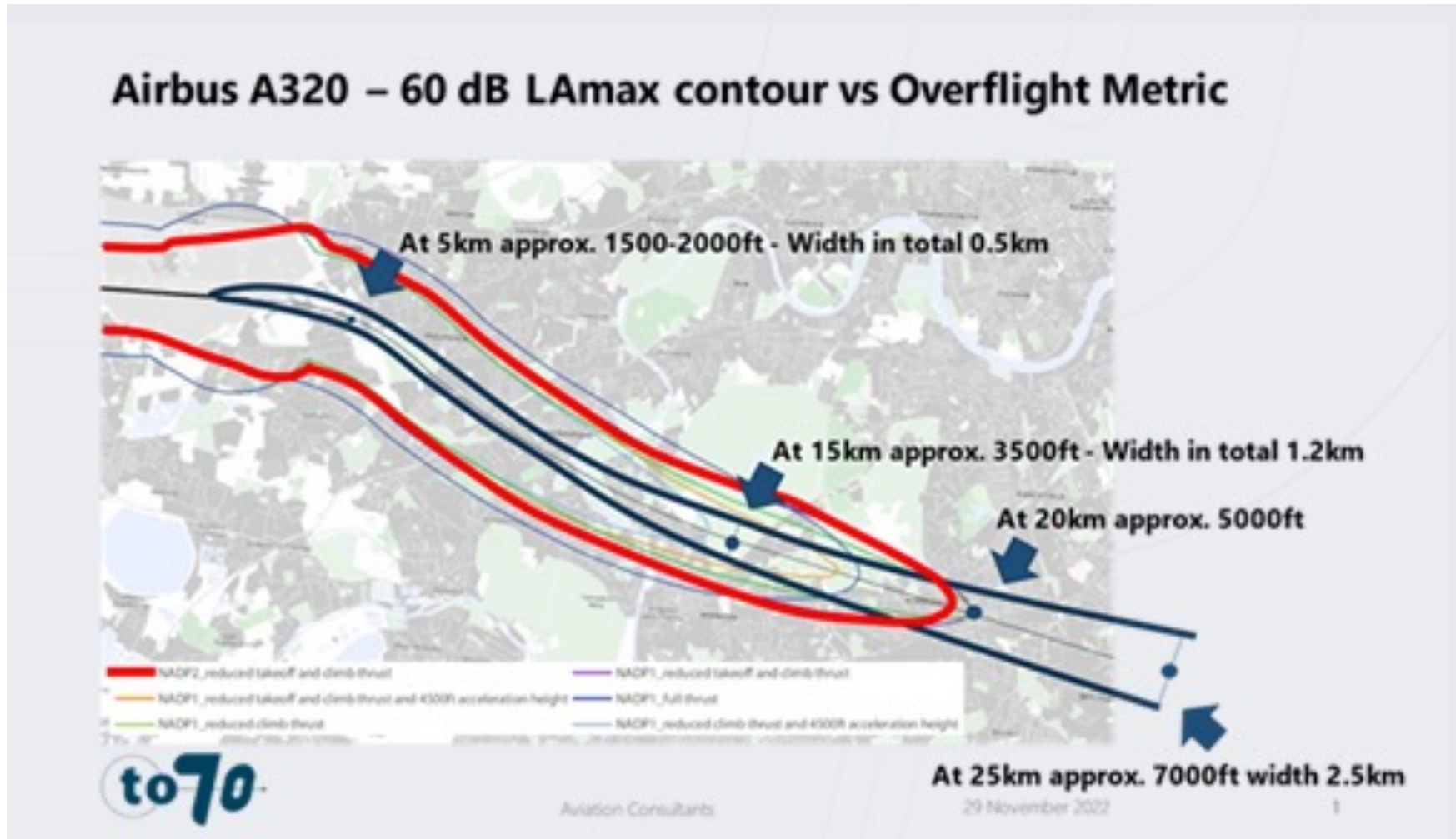
Stage 2B: 'Initial' Options Appraisal:	Qualitative and/or quantitative assessment of longlist of options
Stage 3A: 'Full' Options Appraisal:	Quantitative assessment of shortlist of options, shared at consultation
Stage 4A: 'Final' Options Appraisal:	Update based on any changes required following public consultation



CAP1616 requires an 'Initial' Options Appraisal (IOA) to be prepared at Stage 2B which can be based on **qualitative information rather than quantitative analysis***, however Heathrow intends to use data wherever possible to ensure the appraisal is robust, consistent and evidence-based.

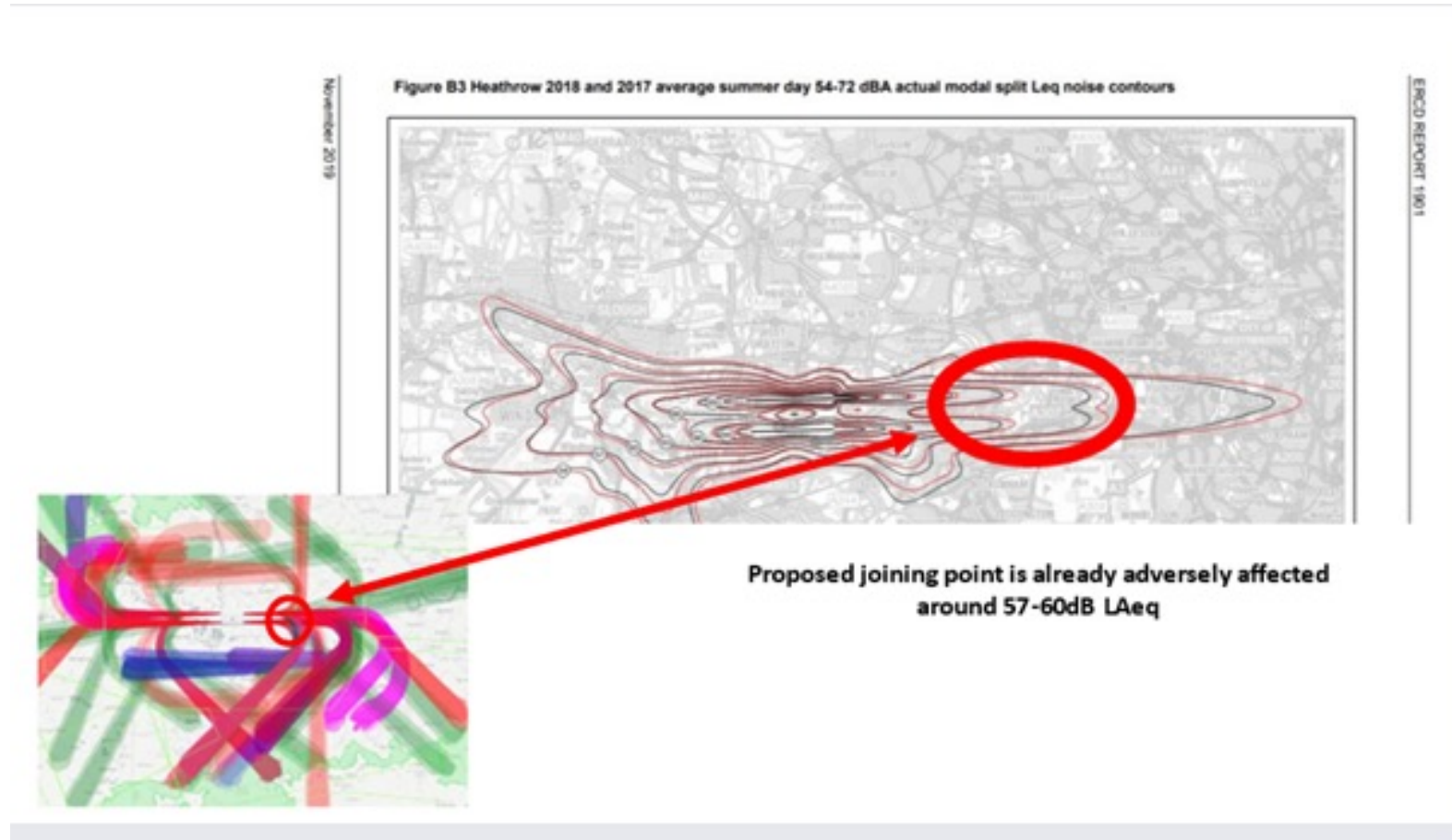
** Appendix B, B8*

Comparison of noise cone against 60 dBLAmax



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Close in joining points are likely to significantly increase adverse effects at that point



Runways 27L and 27R: All vectored arrival options



Runways 09L and 09R: All vectored arrival options



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From: DD - Airspace
Sent: 17 March 2023 13:32
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: HR AM TAG Stakeholder Engagement Record - agenda, core documents and most relevant enclosures

Dear [REDACTED],

Thank you for your email. I have reviewed your proposed agenda with the Technical Team and we have consolidated the items into what we hope is a succinct and logical list. We hope that it will be possible to cover each of these items in the time we have available next week.

1. Introductions
2. Process for setting up a Stakeholder Engagement Record
3. Queries relating to Stage 1 (Design Principles)
4. Queries relating to the CLOO (Stage 2A)
5. Heathrow's Plans for Stakeholder Engagement and Consultation
6. Presentation of Heathrow's DPE Engagement Material

We have had difficulties securing a suitable meeting room but have now confirmed a meeting room at the Compass Centre for the **slightly later start time of 2pm until 4:30** on Tuesday 21st March. We hope that you are still available to join us at this time. Please use the visitors car park if driving, sign in at reception and we will meet you there. Any issues on the day, please get in touch.

The team look forward to seeing you and beginning constructive 1:1 discussions with you on the topics you are most interested in.

Many thanks,
[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From:

Sent:

19 March 2023 11:21

To:

DD - Airspace

Cc:

Subject:

Re: HR AM TAG Stakeholder Engagement Record - agenda, core documents and most relevant enclosures

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Thank you for your email confirming arrangements for Tuesday [REDACTED]

I confirm the later starting time and location are fine for me - hopefully other CNGs also.

Kind regards

[REDACTED]

Meeting with Teddington Action Group (& Observers)

Tuesday 21 March 2023, 14:00 – 16:30, Compass Centre & Microsoft Teams

Name	Organisation
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Heathrow
[REDACTED]	Teddington Action Group
[REDACTED]	Teddington Action Group
[REDACTED]	Molesey Resident Association
[REDACTED]	Richmond Heathrow Campaign
[REDACTED]	Englefield Green Action Group (EGAG)

From: DD - Airspace
Sent: 31 March 2023 16:24
To: [REDACTED]
Cc: DD - Airspace
Subject: Stakeholder Engagement Record - HAL-TAG
Attachments: 3103_Stakeholder Engagement Record_TAG v1.docx

Hi [REDACTED]

Thank you for coming to meet with the team last week. The Heathrow team found it a useful discussion and we hope you did too.

As promised, we have drafted a Stakeholder Engagement Record for us to capture your questions and concerns related to the Airspace Modernisation ACP, and for Heathrow to provide responses to these. This approach is working well with some other community groups, and we hope it will enable us to have a single “source of the truth” and a mechanism for (hopefully) resolving some of the issues you have raised.

We have drafted the items in the list based on:

- a) Discussions in the meeting last week;
- b) Your CLOO Feedback response; and
- c) Your document highlighting queries related to ANG.

Please could you review these issues and amend the text in the “Stakeholder Comments” column if necessary? Once you are content that this captures your key queries/concerns then please do email it back to us and we will complete the “Heathrow Comments” column.

The intention is for this to be a “live document” that you can update with additional issues/queries whenever something arises, and then send it to us for a written response. We can obviously set up future meetings to discuss issues on the Stakeholder Engagement Record in person if needed.

I hope that all makes sense but please do let me know if you have any questions on the process.

Many thanks,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 24 April 2023 10:01
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Stakeholder Engagement Record - HAL-TAG

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Thank you for your email of 31 March. Unfortunately this diverted straight to my spam folder and it was only when catching up with [REDACTED] late on Friday afternoon this was discovered. (The same thing happened to another HR AM presentation pack around the same time.)

We will put our heads together and go through the draft Record and respond to you as soon as we can (there have been and continue to be a range of consultations and other aviation related issues we have been working through recently). We will aim to get back to you by the end of next week - but please let us know if there is greater urgency at your end.

Kind regards

[REDACTED]

From: DD - Airspace
Sent: 25 April 2023 10:29
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Stakeholder Engagement Record - HAL-TAG

Hi [REDACTED]

No problem at all, thanks for letting us know.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

The logo for Heathrow Airport, featuring the word "Heathrow" in a bold, purple, sans-serif font.

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 27 April 2023 17:48
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Stakeholder Engagement Record - HAL-TAG
Attachments: Airspace Navigation Guidance 2017 - key extracts and questions for Heathrow 24.01.23.pdf; CLOO pro forma response final 08 12 22.pdf; HR AM Stakeholder Engagement Record.docx

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Dear [REDACTED]

I refer to our emails dated 25 April.

I have now had the opportunity to go through the Engagement Record pro-forma and to discuss it with [REDACTED]. In its current form this is a very high level summary of TAG's engagement responses, missing a range of the specific challenges made by TAG in its various submissions, and without setting out a Heathrow response.

As you will appreciate it took a substantial effort to collate a comprehensive set of TAG's formal submission documents through Stages 1 and 2A of HR's CAP 1616 process. These were sent to your team in advance of the meeting. In addition, in order to help the engagement meeting cover a lot of ground in the time allocated we also provided a note for the AM team of the key points for discussion.

We found the meeting constructive. However, the main action point which we understood had been agreed was that a formal reply would be made by Heathrow's AM management team in relation to two key TAG submissions - the ANG document and the CLOO Feedback response. We suggested a focus on these documents as they encapsulate the key issues that, as far as TAG is concerned, are not considered to have received a substantive (or in some cases any) response during the engagement process to date.

We will be happy to continue to engage constructively in relation to working up and maintaining the Stakeholder Engagement Record but would request that we receive a response to the aforementioned documents together with the summary of key issues note (all attached for ease of reference) before we return the schedule, as Heathrow's replies to the issues raised will be a major factor in shaping the document and the nature of the dialogue that we (and other communities) would like to hold with you.

I look forward to hearing from you.

Regards

[REDACTED]

HR AM Stakeholder Engagement Record

Stage 1 - Design Principles

Key issue – DPs don't reflect precedence of ANG 17 (after safety)

- Sec of State binding direction to CAA and HR under Section 70(2) Transport Act 2000
- Sec State letter to CAA 31 August 2021 states 'Government not asking CAA to change how noise is considered in your regulatory decision-making activities'
- ANG – significant adverse impacts to be minimised, assessed by health, not numbers in noise contours, altitude priorities (noise reduction to be prioritised below 7000 ft) and state preference for existing flight path distribution
- DPs do not follow ANG, conflate noise adverse impacts with other factors, do not address health, are based on total numbers and self-conflict (no prioritisation in secondary DPs)
- CNGs wrote to HR AM formally on 08 Nov 2021 raising ANG precedence
- TAG submission after M&M workshop on 05 07 22 raised the ANG issue again, HR's first Response ignored the point, TAG raised this again in its Elaboration submission, but it was ignored again in HR's response of 22 11 22
- ANG point raised again in TAG's CLOO submission dated 02 12 22. This enclosed the unresolved TAG M&M submission issues asking for a response

In addition to TAG's formal submissions, this issue has been raised at a number of HCNF and ANCF presentations, most recently the NACF presentation on 08 02 23

Stage 2 A – Develop and Assess Gateway (CLOOs)

Key issues – CLOO analysis doesn't reflect ANG or even HR's adopted DPs, questions regarding the status of flight paths and engagement

- The DPs don't reflect ANG – this is still unresolved. No consideration of health impacts
- The CLOOs that are assessed are based on a flawed analysis of HR's DPs – based on single flight assumptions, conflated considerations, flawed interpretation of altitude-based priorities and metrics that have no official status (70 dB SEL)
- Key CLOOs omitted entirely from consideration – in particular multiple routes, respite, etc

- Failure to consider usage of flight paths, cumulative impacts of flight path option combinations – based on the current analysis the most workable/acceptable flight path options could be ruled out - ‘the CLOOs are incomplete, unacceptable and indicative of a pre-judged approach’ (TAG CLOO submission 02 12 22)
- There is no health evidence base, and it is unclear whether HR will undertake a qualitative analysis of the CLOOs.
- The ICAO/ICCAN acknowledged impact of ‘change’ is apparently ignored entirely. The impact of concentration and experience from international examples (particularly from the US) are not addressed
- There is uncertainty whether some of the CLOOs can be flown by all of HR’s fleet mix as well as their impact on ATM capacity
- The status of vectored flight paths is unclear
- Lack of engagement of the public who will be potentially impacted. It will be too late at the culmination of Stage 3. Gunning Principles.

From: DD - Airspace
Sent: 03 May 2023 15:24
To: [REDACTED]; DD - Airspace
Cc: [REDACTED]
Subject: RE: Stakeholder Engagement Record - HAL-TAG
Attachments: 3103_Stakeholder Engagement Record_TAG v1.docx

Dear [REDACTED]

Thank you for your email.

I'm afraid there may be some misunderstanding over the action we agreed to at our last meeting. Heathrow agreed to extract any issues or questions from the two documents you refer to ('CLOO pro forma response' and 'ANG – key extracts and questions for Heathrow') for inclusion in the Stakeholder Engagement Record. This ensures we have one document that captures all of TAG's questions/issues in a concise manner, allowing us to meaningfully respond and for both parties to maintain a clear account of which issues have been discussed and what responses have been given. This approach is working well with other stakeholders and is ensuring that issues are clearly articulated in a way that allows both parties to:

- a) understand the issue/concern/question that TAG has raised; and
- b) understand Heathrow's response.

This approach also ensures we have all issues and responses in one document to avoid any ambiguity or inconsistency.

I have re-attached the draft Stakeholder Engagement Record (SER). The SER clearly references the two documents in the table at the top (your CLOO feedback is allocated reference "B" and your ANG questions are referenced as "C"). Each issue in the record is then cross-referenced to these documents. The SER also includes issues you raised during the meeting in March.

We are confident that we have captured all of the issues from these two documents within the SER, but please do add any other issues/questions in additional rows and we will then provide a full written response to each issue.

Many thanks,
[REDACTED]

Airspace modernisation

[REDACTED]
Tue 30/05/2023 11:15

To [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] DD - Airspace <airspace@heathrow.com>

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED]

Further to the NACF meeting last week and follow up correspondence concerning the lack of a health study on the effects of concentration please see the link below regarding US experience. It would be helpful for the Heathrow Airspace team to comment formally on this before finalising their IOA. It also emphasises the importance of having independent health research in the process leading up to planning future airspace.

[Guest Commentary: Now is your time to comment as FAA evaluates jet noise standards and mitigation](#)

Guest Commentary: Now is your time to comment as FAA evaluates jet noise...

In 2017, the Federal Aviation Administration began to implement the NextGen Southern California Metroplex projec...

Regards
[REDACTED]

Guest Commentary: Now is your time to comment as FAA evaluates jet noise standards and mitigation



How to measure the community impact of aircraft noise is part of the FAA's Noise Policy Review. (Hayne Palmour IV)

BY [REDACTED]

MAY 15, 2023 12 PM PT

In 2017, the Federal Aviation Administration began to implement the NextGen Southern California Metroplex project, which modified commercial flight patterns to and from San Diego International Airport to optimize the efficiency of airspace use.

This led to a further concentration of flights, or “highways in the sky,” above several San Diego communities. Recent [scientific research](#) and objective data indicate that concentrated exposure to repetitive jet noise may cause serious medical harm,

including cardiovascular events such as stroke and heart disease, along with cognitive processing problems such as decreased school performance for children, sleep disturbances and increased stress.

Similarly, small-particle jet emissions are linked to serious human diseases like respiratory ailments.

Dispersing jet noise and particle emissions is an acknowledged antidote to concentration and is defined as “the process of introducing track variability by changing aircraft lateral position enough to spread out repetitive and intrusive noise events experienced by people living under highly concentrated flight paths” (UC Davis Aviation Noise and Emissions Symposium, February 2021).

This is an update on recent developments regarding the efforts to reduce commercial jet noise over impacted San Diego communities.

██████████ the FAA’s director of noise research and policy, gave the keynote address at the recent Air Noise and Emissions Symposium in April. He acknowledged that the FAA received many more noise complaints after it rolled out the NextGen concentrated flight paths nationwide. He noted the significant noise impact on “flight corridor communities” and that the FAA’s recent Neighborhood Environmental Survey reported a significant increase in reported annoyance complaints.

██████████ announced that the FAA is open to considering additional metrics to measure noise levels and reassess thresholds, including modifying the level at which the FAA considers noise to be “normally compatible” or of “insignificant impact.”

A key question is how to measure the impact of aircraft noise on residents and communities. The FAA has traditionally used a decibel threshold, but recent research suggests that measuring the frequency of noise events is a more accurate metric of human annoyance, stress and resulting health consequences. While one overflight at 65 decibels may not bother you, 10 overflights in 30 minutes is another story.

Noise experts recommend that a standard that measures noise repetition and frequency, or the “N above” standard, be used, i.e., assessing the number of noise “doses” above a threshold after which noise becomes a significant stressor.

To that end, the FAA recently opened a public comment period on its national Noise Policy Review. The NPR will evaluate:

- Whether the current use of the “day-night average sound level” (DNL) should be the primary noise metric for assessing cumulative aircraft noise exposure
- Whether and how alternative noise metrics may be used in place of or in addition to DNL
- The community’s understanding of noise impacts and how to better respond to aviation noise concerns
- The findings of ongoing noise research and more

The FAA is holding four webinars this month via Zoom, and the public comment period closes July 31.

The webinars are from 10 a.m. to noon PT Tuesday, May 16; 3-5 p.m. Thursday, May 18; 6-8 p.m. Tuesday, May 23; and 1-3 p.m. Thursday, May 25. For more information, visit faa.gov/noisepolicyreview.

Quiet Skies La Jolla will be providing comments on the Noise Policy Review. For updates, visit quietskieslajolla.org.

We urge all affected areas of San Diego to submit comments by the July 31 deadline and that the San Diego County Regional Airport Authority sponsor and facilitate round-table meetings to encourage a unified voice from San Diego. We can achieve better results working together as a community.

Bird Rock way point

The Airport Noise Advisory Committee submitted a formal recommendation to the FAA to mitigate nighttime aircraft noise by implementing a “Bird Rock way point” that would take departing planes farther offshore during the hours of 10 to 11:30 p.m.

In April, the airport reported that the FAA declined to advance that proposal due to “operational and safety concerns.” As the FAA is the sole arbitrator of such changes, the proposal will not move forward.

Aviation Impacted Communities Alliance

After the FAA rolled out its NextGen navigation program in 2016-17, communities across the country united under the Quiet Skies organization and a congressional caucus, advocating for the FAA to roll back NextGen and/or mitigate the human health harms.

San Diego, Los Angeles, Palo Alto, Baltimore, Philadelphia, Lake Tahoe, Boston and many others have joined the 67 members of the Aviation Impacted Communities Alliance to pool resources, coordinate efforts and work at the national level for change.

In the past, community groups have acted individually to get noise issues addressed in FAA reauthorization bills. But now a large coalition of community groups is speaking to Congress with one voice.

AICA is lobbying on Capitol Hill for solutions to address noise in communities more than a mile from airports (that are not within the 65-decibel day-night average sound level contours), require the FAA to take advice from the National Academies of Science on human health impacts from commercial jet noise, and require the FAA to devise action plans to alleviate noise and address community concerns, among others.

No single solution will work for all airports because geography, traffic constraints and external factors will require local answers. Flight dispersion and making use of the Pacific Ocean, however, are winning concepts for the entire greater San Diego community and should be implemented at the San Diego airport.

How to fix what's broken

The NextGen project concentrated departures and landings over tight corridors, resulting in repetitive noise exposures to previously quiet communities.

Communities affected by the concentrated departure paths include La Jolla, Ocean Beach, Pacific Beach, Point Loma and Mission Beach, all of which are central to San Diego's tourism interests.

These communities participated in a series of meetings and workshops with the goal of recommending noise abatement procedures to the FAA. Proposals were made to disperse noise across three departure tracks so that no single community or group of residents will bear a disproportionate burden of living under or adjacent to a flight path.

The communities failed to come to an agreement about where to locate the three recommended dispersed flight tracks. Although the dispersion proposal would have reduced noise for thousands of residents (mostly in Mission Beach, Ocean Beach and Point Loma), a slight shift in noise would have affected a dozen or so homes in Ocean Beach.

The airport declined to move forward without unanimity. However, the airport committed to reevaluate the dispersion proposal in 2026, and it is important that all San Diego communities collaborate and reach a consensus on a solution that provides a win for the entire region.



From: [REDACTED]
Sent: 06 June 2023 18:39
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Stakeholder Engagement Record - HAL-TAG
Attachments: Stakeholder Engagement Record_TAG (TAG amendments) 06 06 23 final.docx;
Stakeholder Engagement Record_TAG (TAG amendments) 06 06 23 final.pdf

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED] and [REDACTED]

Thank you for your email of 3 May.

I attach the Stakeholder Engagement Record (SER) with TAG's amendments, capturing the specific issues we have raised in our submissions and our meeting in March. As requested this is in the tabular format in order to encapsulate all issues and responses in one 'live' document.

We look forward to receiving Heathrow's responses in due course.

Kind regards

[REDACTED] and [REDACTED]

From: [REDACTED]
Sent: 09 June 2023 07:22
To: [REDACTED]
Cc: DD - Airspace; [REDACTED]
Subject: Re: Stakeholder Engagement Record - HAL-TAG
Attachments: image001.png; Stakeholder Engagement Record_TAG (TAG amendments) 06 06 23 final.docx; Stakeholder Engagement Record_TAG (TAG amendments) 06 06 23 final.pdf; image001.png

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Thanks [REDACTED] and [REDACTED] for this detailed comprehensive work.

Your attached documents address critically important issues that must be addressed by this ACP, if communities around Heathrow are not to be subjected to the same disastrous outcomes as the USA's NextGen PBN Airspace Modernisation.

Regards,

[REDACTED]

From: DD - Airspace
Sent: 14 June 2023 14:33
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Stakeholder Engagement Record - HAL-TAG

Dear [REDACTED] and [REDACTED]

Thank you for populating the Stakeholder Engagement Record (v2) with your amendments in the format that we agreed. We will review version 2 of the Record and provide comments alongside each of your issues returning version 3 to you.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Heathrow

The Compass Centre, Nelson Road
Hounslow, Middlesex, TW6 2GW

m: [REDACTED]
w: [heathrow.com](https://www.heathrow.com) t: twitter.com/heathrowairport
a: [heathrow.com/apps](https://www.heathrow.com/apps)

From: [REDACTED]
Sent: 15 June 2023 10:49
To: DD - Airspace
Cc: [REDACTED]
Subject: Re: Stakeholder Engagement Record - HAL-TAG

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Many thanks [REDACTED]

We look forward to receiving your response.

Kind regards

[REDACTED]

From: [REDACTED]

Sent:

12 July 2023 10:06

To:

DD - Airspace

Cc: [REDACTED]

Subject:

Re: Stakeholder Engagement Record - HAL-TAG

Caution: external email. Unless you recognise the sender and know the content is safe, do not click links or open attachments.

Dear [REDACTED] and [REDACTED]

I refer to my email of 6 June enclosing the SER capturing TAG's key points.

It was disappointing to miss the virtual presentations on Heathrow's Stage 2B and the IOA whilst I was away.

It is noted that it is proposed to submit formally on the above to the CAA by the end of this month and it would be helpful if you or the AM team could provide a substantive response to the issues we have raised in advance of this key project milestone. In particular it would be helpful to know if the points are agreed or disagreed and if disputed what the reasoning is.

We look forward to hearing from you.

Kind regards

[REDACTED]
(on behalf of TAG)

From: DD - Airspace
Sent: 13 July 2023 16:00
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Stakeholder Engagement Record - HAL-TAG

Hi [REDACTED]

Please rest assured we will respond to you on the issues that TAG raised in the Stakeholder Engagement Record before our Stage 2 submission to the CAA at the end of this month.

Kind regards,

[REDACTED]

[REDACTED]
Airspace & ATM Engagement Specialist

Heathrow

From: DD - Airspace
Sent: 20 July 2023 13:34
To: [REDACTED] DD - Airspace
Cc: [REDACTED]
Subject: RE: Stakeholder Engagement Record - HAL-TAG
Attachments: 2007_StakeholderEngagementRecord_TAG_v3.docx

Dear [REDACTED],

Thank you for updating the Stakeholder Engagement Record (SER) with TAG's amendments. We have reviewed and updated the record with Heathrow's comments and have named this version 3.

Please feel free to use the SER to add any new issues or expand/respond on any existing issues. Equally if there are any issues in there that you feel are resolved/need no further comment, please feel free to highlight in green to close it (you can always re-open at a later date if you want to).

We are sorry you weren't able to attend our latest round of IOA Inform sessions and as stated in our email to you with the slide material, we are happy to arrange a 1-2-1 session to answer any questions you may have on it. Please let us know if this is something you'd like to arrange.

Kind regards,

[REDACTED]

[REDACTED]

Airspace & ATM Engagement Specialist

Airspace Modernisation ACP: Stakeholder Engagement Record

Stakeholder:		Teddington Action Group (TAG)	
Engagement Record:			
Ref.	Date:	Location:	Present:
A	21/03/23	Compass Centre	TAG: ██████████ HAL: ██████████ Observers: ██████████
B	15/03/23	Email – list of core TAG engagement submissions (appended to email)	<ol style="list-style-type: none"> 1. HR Design Principles (DP) Workshop 27 09 21 – TAG submission 06 11 21 2. HR DP Workshop 27 09 21 – TAG completed proforma matrix submitted 11 11 21 3. HR Methods and Metrics Workshop 05 07 22 – TAG submission 12 07 22 4. HR CLOO Stage 2A Engagement Presentation 09 11 22 – TAG Feedback Form returned 08 12 22 – included in the proforma response submission was TAG’s Statement 02 12 22 and TAG’s updated schedule of unresolved points in HR’s response to TAG’s M&M Workshop submission, which had been sent to HR on 05 11 22 5. HR Methods and Metrics Workshop 2 Initial Options Appraisal 25 January 2023 – TAG submissions presented in advance on 24 01 23 covering (a) community concerns and (b) ANG 17 - key extracts and questions for HR
C	15/03//23	Email – list of core NACF presentations related to AM (appended to email)	<ol style="list-style-type: none"> 6. CNG presentation for NACF 23 11 22 7. CNG presentations for NACF 08 02 23 (a) Issues surrounding SoNA 2014 and (b) AM – CLOOs, DP Evaluation and Initial Options Appraisal (IOA)

Revision History:

Version	Date	Author	History
1	29-Mar-23	HAL	1 st DRAFT for TAG review
2	05-June-23	TAG	Includes full list of TAG core documents and summary clarification points tabled at Engagement meeting
3	20-July-23	HAL	V3 for TAG review

Record of Discussion Points:

Ref:	Discussion Point:	Stakeholder Comments:	Heathrow Comments:
1.	Concerns around Heathrow’s consideration of ANG17	TAG does not consider that ANG17 has been properly reflected in devising	

		HR's DPs and CLOOs? ANG 17 is legally binding on sponsors and the CAA	
A, B	1.1 ANG in Design Principles	<p>The Design Principles do not follow the requirements of ANG, as well as being in conflict with each other.</p> <p>For example the DPs (against which CLOOs have been designed and assessed) refer to “numbers of people” within contours rather than adverse effects, which is specifically contrary with ANG.</p>	<p>CAP1616 paragraph 115 states that <i>"the CAA acknowledges that unanimous agreement on the principles may be unlikely. Some of the principles may contradict one another and some may be prioritised over others."</i></p> <p>The references to “number of people” in DP9 and DP10 were suggested by stakeholders during workshops we held to develop the principles for this airspace change. Some stakeholders (including TAG) requested that adherence to ANG was also explicitly referenced in the design principles, so we added this to DP2.</p> <p>Our ACP will need to consider adverse effects, in line with ANG, and this will be part of our work at Stage 3.</p>
A, C	1.2 Altitude-based priorities	<p>ANG states the altitude priorities (up to 7000 ft) and environmental considerations are mandatory. Does Heathrow consider these requirements were fully applied in arriving at the CLOOs? Can Heathrow confirm these will be reflected in undertaking its IOA?</p>	<p>As required by CAP1616, the CLOO has been developed using the Design Principles developed with stakeholders at Stage 1. As part of their development, options were created for DP2A which reflected the ANG altitude-based priorities by minimising the number of people exposed to noise below 4,000ft and then minimising track miles above 4,000ft.</p> <p>Neither CAP1616 nor ANG require the altitude-based priorities to be used when <u>developing</u> airspace design options. Instead ANG states that the altitude-based priorities <i>"should be taken into account <u>when considering the potential environmental impact of airspace changes</u>"</i> (para 3.2).</p> <p>Heathrow chose to use the altitude-based priorities as the basis for our shortlisting of options following the IOA results. Please refer to our 'Step 2B IOA Inform Engagement Material' slide 22, which sets out how each priority has been considered.</p> <p>ANG is government policy so we will need to ensure our final shortlisted options are consistent with the ANG altitude-based priorities.</p>
A, C	1.3 Determining “disproportionate” impacts	<p>How has the requirement to demonstrate CO2 emissions are disproportionately increased been reflected in the CLOOs and how will it be applied in the IOA? What metrics</p>	<p>In developing the CLOO, we sought to include a <i>comprehensive</i> range of options that met our design principles and Statement of Need. Our Design Principle 4 is to <i>"Reduce the contribution to climate change from CO2</i></p>

		<p>and values have/will be applied? Regarding ANG para 3.11 it is apparent that overflight metrics are less applicable to areas impacted by low altitude flight paths (as they do not reflect noise on the ground). How have these metrics been applied in devising the CLOOs? What suite of metrics (intelligible to the general public) does Heathrow propose to use in the IOA? Will these include N>, single mode, time of day/night contours, respite periods (including operational mode) and impact of multiple routes?</p>	<p><i>emissions and other greenhouse gas emissions arising from Heathrow's aircraft activities</i>" so some options were created specifically for this DP. Others were created to meet the noise-related DPs.</p> <p>In accordance with ANG, our IOA assesses the options against a criteria of CAP1616 Appendix E metrics and other supplementary metrics. Included in the criteria is 'Overall Track Miles' and 'Change in Fuel Burn' to assess the carbon impact of each option. Our shortlisting process considers if CO2 is disproportionately affected for each option by assessing the change in track miles compared to the baseline.</p> <p>Overflight is one of the metrics used in the IOA. However, we have used a range of other metrics to illustrate the noise impacts of the options, including:</p> <ul style="list-style-type: none"> - Population above Partial LOAEL - Population above WHO threshold - Population experiencing >1 N65 (or N60 for night) - Population experiencing a 1dB change in noise exposure
C	1.4 Taking on board the views of different parties	<p>How will Heathrow as AC sponsor demonstrate it has satisfied this ANG requirement? How have representations from communities been addressed substantively by Heathrow in relation to its DPs and CLOOs? The CLOOs presented so far seem to bear little resemblance to the requirements of ANG. What evidence relating to community views has Heathrow used in arriving at these and how does it propose to comply with this requirement in the IOA and later stages? How will the general public be engaged going forwards? What representations have been made by parties other than communities?</p>	<p>Evidence of Heathrow's Stage 1 engagement when developing the Design Principle can be found on the CAA's Airspace Change Portal. Heathrow engaged with industry, community and environmental stakeholders on our approach to developing the CLOO in November 2022. We created an additional option based on feedback received from a stakeholder group.</p> <p>We completed numerous rounds of engagement throughout Stage 2, including technical workshops where we tested our inputs to the CLOO and metrics for the IOA with stakeholder representatives (including members of TAG). These sessions provided you and other stakeholders with the opportunity to feedback and ask questions on the developing work.</p> <p>We plan to continue this type of engagement at Stage 3, working with smaller groups of technically-minded stakeholders and larger groups of stakeholder representatives, including Local Authorities. Later in Stage 3 we</p>

			will undertake a full public consultation with widespread advertising to ensure all potentially affected stakeholders are aware of the proposed changes and have a chance to share their views.
C	1.5 Adverse effects on people	<p>What does Heathrow understand by limiting/reducing total adverse effects on people? How far have these been assessed in the CLOOs and how will the reduction of total adverse effects be addressed in the IOA? Does Heathrow accept it should not rely on a simplistic analysis of numbers within noise contours in its IOA? Critically, how will 'total adverse effects' be assessed in a local context in the IOA (see para 3.6 below)? Does Heathrow accept ICAO recognition, international research and local evidence (based on its 2014 PBN trials) that change itself will cause major significant adverse effects? Does Heathrow believe that there is equivalence in impact between numbers of people experiencing increased noise from change compared to the benefit to those who receive a reduction in aviation noise? CAP 2091 sets out the minimum standards for reporting noise impacts but crucially does not preclude more detailed consideration. Given Heathrow's unique location and enormous noise impact, does it consider it should address these considerations by undertaking a local health and quality of life/annoyance study? Given the radical nature and scale of the change scoped within Heathrow's CLOOs does it disagree, as sponsor, that it is essential that these considerations are fully understood and reflected in the IOA and subsequent stages? Communities have made numerous submissions to the HCNF on the impact of PBN (internationally) and the change effect which can add 6-9 dB Leq in terms of adverse impact.</p>	<p>Adverse effects are calculated using a LOAEL contour and it is not possible to produce a LOAEL without system options (demonstrating how arrivals and departures will work together, for easterly and westerly operations). At Stage 2 we created "Partial LOAELs" based on single mode options: these provide an indication of where adverse effects might be observed.</p> <p>At this early stage of the process we have used two metrics to represent the ANG priority to "limit and, where possible, reduce the total adverse effects on people":</p> <ol style="list-style-type: none"> 1. Numbers of people within a <i>partial</i> LOAEL; and 2. Numbers of people experiencing noise events (N65 and N60) <p>At Stage 3 Full Options Appraisal a full range of metrics (as described by relevant policy) will be used to determine total adverse effects, including the monetised impacts of the assembled system options. These impacts will be communicated with stakeholders and the wider community when we publicly consult on our options following the Full Options Appraisal.</p> <p>With regard to the questions on change effect and equivalence in impact, please refer to section 3.</p> <p>With regard to the question on undertaking local health and quality of life/annoyance study, please refer to section 5.2.</p>

C	1.6 Preference for existing airspace arrangements	<p>How does Heathrow meet the ANG requirement that preference is given to existing arrangements where options are similar in terms of adverse effects (ANG17,3.3b)? Will a preference for existing airspace arrangements be applied to the IOA assessment? Regarding ANG para 3.13 can Heathrow advise when it is expected the aviation fleet will be fully equipped with PBN technology and how the transition period will be addressed (particularly in the context of radical CLOOs) in the IOA? How will the safety and potential additional noise implications of sharp PBN enabled turns be addressed? ANG paras 3.15 and 3.17 emphasise the importance of full transparency with the public. How will this be achieved? It needs to be remembered that over many years a huge number of people have established their lives based on the current flight path pattern; some of those that have found the current situation unacceptable will have made conscious decisions to move away because of Heathrow's noise impact. Others who experience noise do so at a certain level, they are not expecting it to be increased or become more concentrated. The social impact of Heathrow's more radical CLOOs (if implemented) will be enormous, potentially extremely damaging and giving rise to blighted communities. How will Heathrow reflect legacy arrangements in its IOA (and subsequent stages)? Regarding para 3.20 and concentration Heathrow will recall the CAA reported to the HCNF the impact of splitting a single PBN, which monetised the benefit to be £640 million over a ten year period. Does Heathrow agree that noise sharing will reduce significant adverse effects rather than concentrating significantly greater noise over fewer people? What evidence base will be used to validate its approach in the IOA and subsequent stages?</p>	<p>At this early stage of the process, options have been assessed in single mode (departures and arrivals in isolation) and it is therefore not possible to assess these individual components against the overall existing airspace design of departures and arrivals working together. This ANG17 requirement will therefore be assessed at Stage 3 when we have a smaller number of system options and will be able to assess how different those system options are to the existing airspace arrangements.</p> <p>All shortlisted system options will be taken to public consultation, with widespread advertising, to ensure we inform, engage and seek feedback from all potentially impacted communities.</p> <p>With regard to noise sharing, we are aware of evidence that indicates that spreading operations across more routes may result in lower objective annoyance outputs. We are exploring this through a number of operational concepts that we introduced at Step 2A and assessed at Step 2B. We will continue this work into Stage 3. Any decisions regarding splitting of routes/dispersion require operational viability assessments and consideration of whether the route can deliver better outcomes with respect to noise.</p> <p>With regard to the question on PBN equipage, please refer to section 7.</p>
2.	Suitability of DfT's Transport Appraisal Guidance (TAG)	TAG is concerned that the DfT's (web)TAG CBA model is based on SoNA 2014 (which ICCAN found to be flawed)	

		and Meidema which is based on survey information 20-40 years old.	
A	2.1 Consideration of Respite in DfT's TAG	TAG is concerned that within the context of Heathrow the benefits of respite are not considered in SoNA14 or (web)TAG (which is based on LAeq metrics which ICAO found only accounts for 30% of the overall impact of aviation noise): how will Heathrow assess the effects of respite?	Our Stage 2 submission summarises our understanding of respite based on research by Anderson Acoustics and the CAA's CAP2250. This work indicates that levels of respite can be defined based on different noise level changes using the LAeq metric. CAA research also indicates reduced annoyance due to respite. These considerations cannot be addressed directly using the DfT's TAG model, therefore Heathrow will prepare separate respite assessments of the options we take to public consultation at Stage 3.
A	2.2 Consideration of Concentration in DfT's TAG	The impact of concentration is not sufficiently considered in (web)TAG: how will Heathrow assess the impact of concentration? Multiple presentations have been made to the HCNF/NACF concerning the impact of concentration – how will Heathrow factor international and UK experience of this (as well as Taylor Airey's conclusions and recommendations) into its Airspace Modernisation proposals?	<p>Heathrow is aware that some local communities are concerned about the impact of concentration as a result of the narrower flight paths that are an inevitable outcome of more accurate PBN technology. For the IOA we considered the existing airspace arrangements as the 'do nothing' baseline, against which all options were compared. This approach provided some initial indication of the potential impacts of concentration as a result of PBN.</p> <p>We have also explored potential ways of dispersing PBN departures through our concept work. We provided an update of this work in our recent IOA Inform update sessions. This work will continue into Stage 3 where we will assess the possibility of it being applied to our system options.</p> <p>Heathrow is exploring how TAG performs when an existing airspace design is converted to PBN.</p>
A	2.3 Population density	TAG is concerned that the application of (web)TAG could result in Heathrow choosing new routes over areas of relatively lower-density population, which will result in severely noise blighted communities (potentially fewer numbers in average noise contours but those who live within these areas will be far more severely affected). ANG recognises the flaws in a simplistic numbers based approach and this is reflected in ANG para 3.5 which identifies that as noise exposure increases above LOAEL, this increases the likelihood of experiencing adverse	<p>ANG para 3.5 states <i>"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"</i>. We are looking at various approaches to limiting and reducing adverse effects, including concepts for providing respite.</p> <p>ANG para 3.6 goes on to say that adverse effects must be estimated in accordance with TAG, but that sponsors can use additional noise metrics where appropriate.</p>

		affects increases. Does Heathrow accept this premise and if so how will this be addressed in the IOA and future flight path strategies?	At the Full Options Appraisal Heathrow will assess its flight path options across a range of metrics as well as TAG. For the IOA we used the CAP1616 Appendix E metrics suitable for this “initial” stage of design and appraisal, as well as supplementary metrics, identified through engagement with stakeholders at “Methods & Metrics” sessions, to help explain the potential noise impacts of the options. In determining our options for consultation, Heathrow will use a range of metrics to understand how and where these options will affect people, including assessing the total adverse effects. At the Stage 3 public consultation we will be able to share a lot more information and detail about the impacts of the shortlisted routes.
3. The “Change effect”		TAG believes that having regard to SoNA 14 and (web)TAG increased sensitivity to adverse change will not be adequately considered in the modelling of impacts. Changes to new or more intensively used flight paths will have a greater impact than existing flight paths that people have grown accustomed to. International experts suggest that change can add the equivalent of 6-9dB Laeq to those adversely impacted. Does Heathrow consider that there is equivalence in terms of impact with increases and decreases in noise levels?	We are conscious that this airspace change will lead to changes compared to today, and that this is a concern for some communities. At this early stage we have prepared information that allows us to understand the potential scale of those changes across our options compared to the ‘do nothing’ baseline. As our options narrow into systems at Stage 3, we will consider “the change effect” further, ensuring that the potential change associated with those options is quantified and forms part of our considerations. At public consultation we will need to share geographically-specific information for all stakeholders, including comparisons between our proposals and today’s airspace design.
4. Heathrow’s Comprehensive List of Options (CLOO)		TAG set out its concerns in relation to CLOOs comprehensively in its submission dated 8 December 2022. TAG believes the CLOOs as presented to reflect an unsound foundation to Airspace Modernisation for the reasons given in the submission	
A	4.1 Assessment of the CLOO	TAG has major concerns about how the CLOOs have been assessed: they appear to be based on single flight assumptions and metrics that do not reflect noise policy.	The options have been assessed in the IOA using a 2019 baseline. Each of the options from the CLOO was modelled and appraised by assuming the 2019 operations occurred using the option design. This assessment also assumes that the CLOO adopts the same vertical profiles and all aircraft types as flown in 2019. At this early stage of the process, options have been assessed in single mode and not as a

			<p>system. System options will be assembled at Stage 3 when we get more information on other airports' proposed airspace designs and NATS' design for Heathrow's future arrivals mechanism ("holding stacks").</p> <p>The noise metrics used are from CAP1616 Appendix E, supplemented by metrics requested by stakeholders at the 'M&M' sessions. All noise metrics are consistent with policy.</p>
A	4.2 Use of vectored arrival options	<p>There is uncertainty about the status of PBN arrival options and vectored arrival options - and when these will be used. – Heathrow should clarify. Please could Heathrow confirm as it operates at larger than 20 planes an hour for arrivals throughout the day it cannot use PBN approaches. Vectored approaches will therefore be used in the night period from 6am-7am and throughout the day from 7am – 11pm. Our understanding is that PBN is not safe or cannot practised at higher than 20 planes an hour. Please can Heathrow confirm the technical capability of PBN.</p>	<p>We know that the use of PBN for arrivals cannot currently deliver the level of throughput Heathrow requires during the core period of the day, so we therefore expect vectoring of arriving aircraft to continue during these times. However, PBN arrivals all the way to the runway could be used some of the time. Our PBN Arrival options have been <u>assessed</u> for operations during 0430 and 0600, as this period is reflective of times that PBN Arrivals might be used.</p>
A, B	4.3 Arrival options – implications of tight turns	<p>Arrival routes that join final approach close to the runways are a major concern, especially if the crossover point with departure routes is closer to the runways than today. A key factor is that for some areas there will be no respite which currently arises from wind direction and separation of arrival and departure routes, leading to extremely damaging health impacts and blighted areas. These options also include tight turns which will cause aircraft to lose lift and require higher thrusts, leading to more noise and more fuel use.</p>	<p>We note this concern.</p> <p>We have not yet developed system options and therefore cannot comment on how the routes may cross over in the final design. One of our design principles is to <i>"seek to avoid overflying the same communities with multiple routes"</i> (DP7). DP6 also states that we should <i>"provide predictable and meaningful respite to those affected by noise"</i>. We will be looking to meet these design principles through the design of system options (arrivals and departures working together) with respite concepts applied.</p> <p>We will provide more information to stakeholders on this in Stage 3 once we have assembled system options.</p>
B	4.4 Consideration of DPs in developing the CLOO	<p>Heathrow has ignored some of its own key DPs when developing the CLOOs, particularly DPs 6 (provision of respite) and 7 (avoidance of overflight by multiple routes). DP 9 referring to numbers of people experiencing an increase in noise (whilst not reflecting ANG advice regarding metrics) acknowledges the importance of</p>	<p>As stated in our CLOO engagement workshops in November 2022, DP6 was explored through initial concept work at Stage 2 (and not flight path designs). In our recent IOA Inform update sessions, we provided an update on the work undertaken on respite concepts. Further analysis of these respite concepts will take place at Stage 3 and appropriate concepts will</p>

		<p>INCREASES in noise, and this has also not been addressed as the combination and usage of the routes has not been considered.</p> <p>It is not clear how DPs 6,7 and 9 can be assessed without looking at full system options as this would exclude many close in arrivals routes as these would create unacceptable close in cross over points at high decibel levels and without respite.</p>	<p>be applied to the smaller number of system options.</p> <p>The assessment of DP7 is not possible until we have developed system options and taken into consideration other airports' flight path designs. This will also come at Stage 3.</p>
B	4.5 Consideration of NADPs	TAG is concerned that Heathrow has not committed to ceasing use of NADP2, particularly when overflying densely populated areas.	<p>As TAG is aware (being members of the working group), the CAA is currently leading a study into the use of NADP1 & 2. Our ACP will take into account any findings and recommendations of this study once completed.</p> <p>Please find more information in the recent Heathrow Noise Action Plan Ref 3E.</p>
B	4.6 Keeping departures and arrival routes separate	The CLOOs show arrival and departure routes overflying the same areas, which could impede the ability of aircraft to fly higher and significantly reduce respite compared with today. This is also inconsistent with DPs 3 and 7. Areas subject to arrivals should not be exposed to departures.	Our arrival and departure options have been designed and assessed in single mode at Stage 2. In Stage 3 we will assemble and assess options into a system and will seek to keep arrival and departure routes separate where possible, consistent with DP7. The design of our system options will be dependent on the wider airspace network and integration with NATS and other airports.
B	4.7 Holding Stacks	Heathrow has said that holding stacks will still be required, albeit with reduced holding times. This is significant as a claimed benefit of AM is the removal of stacks saving fuel and the ability of planes to perform departure climbs without restriction. In its choice of CLOOs has Heathrow made an assumption as to the location of the 'new' stacks? Have departure CLOOs avoided these locations?	<p>The AMS refers to benefits from reduced holding but does not claim that stacks will be removed. AMS Para 2.55 states: <i>"Flights inbound to airports that operate at close to maximum capacity often suffer congestion that results in queuing and delays. In the current airspace structure, arrival queues are managed using holding patterns such as 'stacks' or 'arcs' that cause traffic to circle in lower airspace burning extra fuel. Aircraft may also be held in take-off queues. Modernised airspace will reduce the need for holding by better managing arrival times through optimised routes and speeds, thereby reducing fuel burn and emissions per flight."</i></p> <p>NATS is responsible for designing Heathrow's future arrivals mechanism (holding stacks) and the location of these will form a key part of the system design at Stage 3.</p>
5. The Initial Options Appraisal			
C	5.1 Noise modelling	Concerned that noise contours alone do not sufficiently explain the impact of	In our IOA, the criteria has been developed using the metrics set out in Appendix E and

		airspace change (which is an ICAO acknowledged factor). What suite of metrics does Heathrow intend to use in the IOA? Will they include: N>, single mode, time of day/night contours, respite periods (including operational mode) and impact of multiple routes?	<p>supplementary metrics. Supplementary metrics include Overflight (as defined in CAP1498) where different rates of overflight below 7,000ft are assessed, Noise Exposure Contours, Aircraft noise events at N65 for day and N60 for night. All options have been assessed using these metrics and compared to the 2019 baseline. Options have been assessed in single mode (departures and arrivals in isolation of each other) at this early stage.</p> <p>Please refer to our recent IOA Inform material for further information on this.</p>
A, C	5.2 Local Health and Quality of Life Study	<p>CAP2091 sets out “minimum standards for noise modelling”. We would like Heathrow to do more given its location and noise impact.</p> <p>Will Heathrow undertake a local health and quality of life/annoyance study?</p>	<p>Please see Heathrow's recent Noise Action Plan under Ref 10B, which relates to this kind of research and proposes a noise attitudes study for Heathrow. The Heathrow Noise team would welcome your feedback in response to this.</p> <p>This ACP will take into account any findings and recommendations of these kind of studies if undertaken.</p>
6. Wider Public Engagement		How and when does Heathrow intend to engage with the wider public on the options and their impacts?	As required by CAP1616, Heathrow will undertake a full public consultation on its preferred full system options following the Full Options Appraisal at Stage 3.
7. PBN Equipage		<p>When does Heathrow expect the aviation fleet to be fully equipped with PBN technology?</p> <p>How will any transition period be addressed in the IOA?</p>	<p>All aircraft currently operating to/from Heathrow are PBN equipped and would be able to fly PBN departures and PBN arrivals. Not all aircraft will be able to fly the highest specification of PBN classification (RNP AR) and there could also be meteorological limitations on when these could be flown.</p> <p>For the IOA we have assumed all aircraft can fly all procedures. At Stage 3, we will need to further explore the use of these routes by aircraft types and time of day to clearly set out assumptions for our Full Options Appraisal and in our consultation material.</p>