AIRSPACE MODERNISATION AIRSPACE CHANGE PROPOSAL

ANNEX 1 – PUBLIC FOCUS GROUP REPORT & MATERIAL

Heathrow

HEATHROW AIRSPACE MODERNISATION
STAKEHOLDER ENGAGEMENT

Report of residents' focus groups
31 October 2021

Heathrow
Making every journey better

Headland

Contents

1. About this report

During Step 1B of its airspace modernisation programme, Heathrow is engaging with various potentially affected stakeholders. As part of this engagement, Heathrow wanted to hear directly from residents in areas which are currently overflown and/or might be overflown in future.

This is an audience which typically does not proactively engage in debates on airspace design. Heathrow wanted to expose residents to information about airspace change which would largely be new to them, understand what Heathrow should pay attention to in designing its airspace (i.e. what the design principles should be) and understand how they would like those principles to be prioritised..

Headland Consultancy was engaged to support this work. Following guidance from Heathrow, Headland designed a research methodology and conducted four focus groups (moderated by an Association of Qualitative Research-qualified moderator). This report was written by Headland to reflect the findings and conclusions arising from the focus groups.

Our approach closely modelled that taken by Heathrow in 2018 when conducting engagement for its previous Airspace Change Programme (Airspace, Departures and Arrivals Procedure - Third runway (FASI South)).[1] Where appropriate in this report we make comparisons to the previous findings, either to demonstrate consistency or indicate where residents' attitudes may have changed.

2. Methodology

Four focus groups were held on 12 and 13 October 2021, each lasting 90 minutes. In the interests of the safety and welfare of those participants, Heathrow staff and Headland staff, and in keeping with Heathrow's ways of working at the time (due to the Covid-19 pandemic), the focus groups were held virtually. Each group was recruited to contain six participants, with two of the 24 ultimately unable to participate because of technical issues. Participants were recruited by independent qualitative fieldwork agency Leftfield International, and, following standard practice in market research, were each incentivised with a £50 cash payment.

Participants were assigned to a group depending on age, gender and location, with a range of demographics represented across the four groups. This is also standard practice in market research: focus group participants are more likely to speak openly when they share a similar background or other characteristics to the other participants, without going so far as to recruit a group of near identical individuals. The division by location is helpful because it allows the groups to speak about their common experience of the impact of aircraft and the airport on their area.

Participants were also screened according to certain other characteristics and attitudes. In order to speak to residents who do not have strong opinions about Heathrow's operations, we excluded anyone with strong views in favour or against a hypothetical third runway expansion at Heathrow. We also excluded participants who work in, or who share a household with anyone working in, any of the following industries: advertising, journalism, public relations, market research, aviation or at Heathrow itself.

In selecting the location of the groups, we sought to meet the following criteria:

- From areas that reflect a mix of different experiences of overflying aircraft (mostly departures vs mostly arrivals; near to vs further from the runways; east vs west).
- From areas that are affected by flight paths currently, or plausibly might be in the future

See Fig 1 for an indication of the locations that participants were drawn from relative to typical current flight paths.

[1] The report from the 2018 focus groups can be found at https://airspacechange.caa.co.uk/documents/download/275

The groups contained individuals from or near the following locations, and meeting the indicated characteristics:

A. Wycombe – Male, 45-65
B. Windsor – Female, 25-45
C. Brentford & Isleworth – Male, 25-45
D. Mitcham & Morden – Female, 45-65

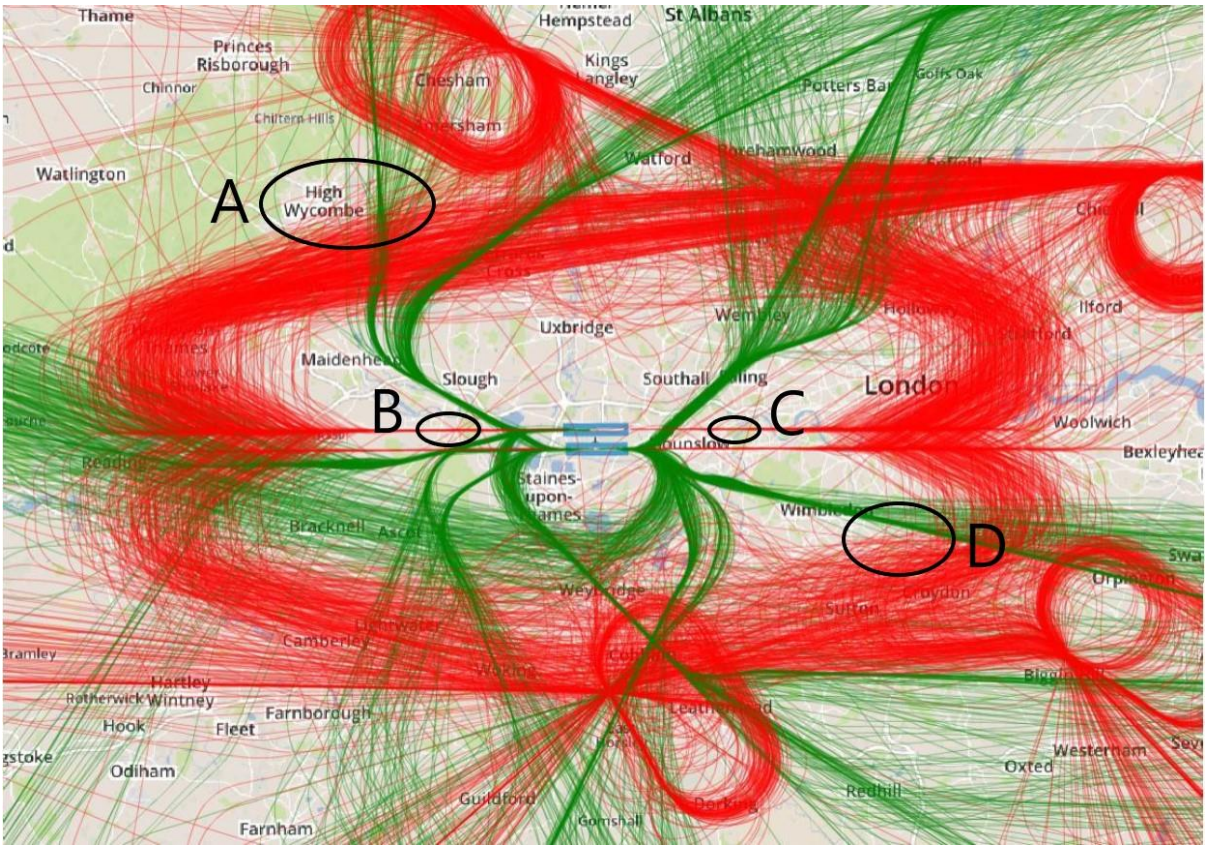


Fig. 1. Approximate locations that residents were recruited from for each focus group, overlaid with current Heathrow flight paths, arrivals shown in red and departures in green.

3. Topics discussed

Every discussion followed the following structure:

- Introduction
- Views and opinions on Heathrow and discussion of its local impacts
- Introduction to airspace modernisation and Performance Based Navigation (PBN)
- Presentation of four potential design principles, and a discussion of what makes them important / unimportant:
    - Minimise the impact of aircraft noise
    - Minimise the environmental impact of flight paths
    - Improve operational performance
    - Use the most up-to-date navigation technology
- Presentation of three trade-offs between or within design principles and discussion of prioritisation:
    - Minimise ***total*** number of people affected by noise VS ***Share*** noise impacts across a wider group of people
    - Minimise ***total*** number of people affected by noise VS Minimise people ***newly*** affected by noise
    - Avoid built up areas (reduce noise impact) VS More direct routes (reduce environmental impact)

The explanations of airspace modernisation, PBN and each of the design principles and trade-offs were presented in a slide shown on screen (containing text and illustrative diagrams) which was read out and explained by the moderator. The stimulus shown to participants can be found in the appendix on page 15.

Three headline principles were mentioned to the participants briefly but not included in the prioritisation discussion, because they are requirements for Heathrow to fulfil in its design:

1. Ensure safety
2. Follow the law and government policy
3. Allow Heathrow to meet demand within the annual cap on air traffic movements (ATMs).

4. Findings

Overall context

There is an expectation that overall aviation demand, and therefore the number of flights, will increase, especially in the south east. Residents believe that the recovery from the pandemic will be fairly swift, and then carry on growing. There is no sense that business travel and working practices will experience long-term changes.

> They're trying to get passengers to start flying again. Well, that's the point given the volume of people who haven't been flying as much. And the losses that all these airlines are making, I think the intention is they're going to try to increase business and interest. So, it's going to be a lot more flights in the air.
>
> *Female, 45-65, Mitcham & Morden*

> There's gonna be a point where the world can live with COVID and survive, and international travel will open up because the way it works at the moment is inconvenient for a lot of people, and there's going to be demand for air travel in the future.
>
> *Male, 25-45, Brentford & Isleworth*

When prompted with an introduction to airspace modernisation, residents responded that modernisation and simplification were necessary. Most supported this on the basis of Heathrow and the government achieving their stated goals: managing noise impact, reducing environmental impact, increasing efficiency and increasing capacity to meet demand. Some participants worried about the "concentrating" effects of PBN. Others had a very strong confidence in the development of technology and the prospect of "modernisation" as a general concept delivering improvements, and supported airspace change on this basis.

> With the technology you can put in the parameters of you know, these (are) the residential areas so that we can get the best of both worlds [reduce emissions and fly over less residential areas] using the tech.
>
> *Male, 45-65, Wycombe*

> I feel sorry for the houses that are bang over the route. They're going to be more concentrated. If every single plane is right over your house, rather than maybe one slightly to the right slightly to the left... I'm not quite sure how I'd feel if that was my house.
>
> *Female, 25-45, Windsor*

> It sounds to me like it's gonna be a good thing if they can. Does it mean that now a flight path can actually be moved and controlled or switched off or diverted? There's much more accuracy and much more control.
>
> *Male, 45-65, Wycombe*

Many residents believed that the motivation behind airspace modernisation for Heathrow and the government was to make airspace more efficient and thereby increase capacity. This was irrespective of the current cap on air traffic movements (ATMs) at Heathrow. Those who made this point argued that it would be unacceptable for airspace modernisation to lead to an increase in ATMs that offset any other resulting improvements to noise and environmental impacts. They were prepared to accept (and indeed expected) a moderate increase in aviation over time but wanted noise and environmental impacts to come down in concert.

> [Being environmental] means not flying as often and reducing the number of flights. But then that directly goes against their goal of increasing flights. It's a business isn't it, it's money as with all of these things. So thinking from a health perspective, noise pollution has a detrimental effect, like long term in severe cases, almost as much as physical.
>
> *Female, 25-45, Windsor*

> What the efficiency is being driven from is the economy of the airport, and it's a major economic hub, and it's enormous for the growth and financial stability of the country. I think what they should be looking at is how they harness the increased economic output

> from the airport and re-introduce that into some of the other objectives. So for example, how do they harness the additional financial benefit to the airport and invest that into the efficiency of air travel from an environmental perspective or efficiency of aeroplanes into making them less noisy?
>
> *Male, 25-45, Brentford & Isleworth*

Most participants agreed that noise benefits and environmental benefits from airspace modernisation were possible and likely. However, they questioned how big the impacts could be, for example they queried the difference that could be made to the fuel burn of a transatlantic flight by changing airspace design close to the airport. Over the long-term they entirely expected the impacts of aviation to reduce, particularly in the light of the UK government's net zero commitments. They put considerable faith in technology change (aircraft, engines, fuel types) to lessen noise and environmental impacts, much more than airspace modernisation.

> How much difference does this actually make to the average plane journey or something? Like, if you change the flight path, that bit over London, does that make a big difference over the whole 8-10 hour journey? Or does it really make not much difference at all?
>
> *Male, 25-45, Brentford & Isleworth*

> Compared to the overall length of flight, probably the approach is not that big. So I wonder how much CO2 you really get down. 20% [a number suggested by another participant] seems high, maybe 5-10% and really the problems we're facing with emissions and the impact the airlines have, I think it's not enough just to say oh, we've done our bit.
>
> *Male, 45-65, Wycombe*

> There's only so much you can do to reduce the flight times, countries are where countries are... So then it does purely become about the type of aircraft, the type of fuels, maybe not flying as often reducing the number of flights.
>
> *Female, 25-45, Windsor*

> The air travel thing, that's all regulated so in terms of pollution that's a global thing that has to be kind of managed. These regulators are gonna start looking for better ways in which they can improve air pollution… I have trust in the system.
>
> *Male, 45-65, Wycombe*

Potential design principles

Environment – Minimise the environmental impact of flight paths

Minimising environmental impact emerged as the key priority for residents we spoke to, over and above the impact of noise and other potential design principles. This represents somewhat of a change from the 2018 findings, which reported that the environment was only narrowly prioritised over noise.

> *First participant:* I do feel CO2 and the environment, it shouldn't be a choice of Heathrow, it should be what every airport needs to do.
> *Second participant:* It should be the foundation that they all build off.
> *Third participant:* It should be industry standard.
>
> *Female, 25-45, Windsor*

The main reason for this was the perceived scale of the impact. In the view of the residents we spoke to, environmental concerns are a much larger and longer-term problem than noise impact. They affect the whole community, country and world, whereas noise impacts are localised. Carbon emissions build up over time, whereas noise is (largely) seen as having a transient impact.

> I think that the environment and the CO2 emissions override and come up trumps for me over everything else, because we're losing things that we will not be able to replace very easily.

Female, 25-45, Windsor

> For noise, it's the people underneath, directly underneath it that are suffering but for CO2 it's a global issue.
>
> *Male, 45-65, Wycombe*

> I think overall, reducing CO2 emissions is far more important for the longevity of that rather than a few planes going over me, it doesn't bother me as much.
>
> *Female, 25-45, Windsor*

This is not to minimise noise concerns, which are addressed in the next sub-section. However, most people we spoke to either did not feel meaningfully affected by aircraft noise or found it tolerable. Even most people who were clearly bothered by aircraft noise were inclined to prioritise the environment. In comparison, the challenge of environmental damage, specifically climate change, was an order of magnitude more important for most participants.

> I never really felt any negative impacts from the aeroplanes. You do see them and you do hear them, and I guess there'll be an increase as well. But for me, it's not that intrusive.
>
> *Male, 45-65, Wycombe*

> [Prioritise the] environment, because it's bigger than just us. Yes, the noise affects us. And obviously, there's some of us that are worse (affected) than others, but in terms of environment that's going to affect us all, it's gonna affect our families, it's gonna affect our future generations.
>
> *Male, 25-45, Brentford & Isleworth*

Although it wasn't suggested in the text of the potential design principle, many participants made a link between carbon emissions and the health impacts of air pollution and poor air quality. Largely these went hand in hand with concerns about fuel burn and carbon emissions, on the basis that a route that emits more carbon will also emit more of other forms of pollution. This had the effect of heightening the importance attached to the overall principle of minimising environmental impact, although the focus was still on carbon.

The only exception to the linkage between carbon and air quality was in discussing direct routes over a populated area. This would reduce carbon emissions (because the route was direct) but a small number of participants were concerned about whether concentrated routes would worsen the air quality in the localised area overflown. This linked to health concerns and had a bearing on their attitude towards concentrating routes vs sharing impact, discussed below.

> We can't have crappy air and expect you know, global warming to slow down like. If there was no pollution then you know, all of this stuff would apparently slow down. So you can't have one without the other.
>
> *Female, 25-45, Windsor*

> If you're burning more fuel, you're creating more pollution, aren't you in a long run, which is gonna affect the planet? Young children's lungs, schools are along that route.
>
> *Female, 45-65, Mitcham & Morden*

> What you're probably doing is concentrating emissions, in one particular area for a longer period of time. I'm not a scientist but that doesn't feel like that's necessarily a benefit.
>
> *Male, 25-45, Brentford & Isleworth*

Noise – Minimise the impact of aircraft noise

Despite being a lower priority than environmental impact, noise impact remains an important concern for the residents we spoke to. Noise is the top-of-mind association for most people when thinking about the impacts of aircraft and changes to airspace. Those closer to the runways (our groups in Windsor and Brentford & Isleworth) and therefore with lower flying aircraft – especially arrivals – felt most affected by noise. They reported the impacts of noise being worst in disrupting sleep, interrupting outside time and recreation, and in the summer when windows are more likely to be open.

> I do notice the first planes coming in at half past five, six o'clock in the morning. Just when I'm starting to wake up and then I just hear those planes coming in. But obviously in the winter when the windows shut, you can't hear them. In the summer, I hear those planes coming in.
>
> *Female, 25-45, Windsor*

> I suggest maybe some of you come and sit in the local park, and see how noisy the planes are and how close they are. And when you hear them come over your house at five in the morning.
>
> *Male, 45-65, Wycombe*

> My mental health has been impacted by the noise of the planes. And it's one of the reasons that we moved, even just a little bit. And it's helped a lot.
>
> *Male, 25-45, Brentford & Isleworth*

The coronavirus pandemic seems to have had an impact in terms of perceptions of noise, with residents from all areas talking about the experience of much less noise during the first lockdown (both road and air traffic), how much they enjoyed it, and the contrast being quite painful when it returned. For some people this feeling of enjoying the absence of noise seemed to have sustained; others had returned to tolerating noise quite quickly.

> When COVID came and everything went quiet it was quite a revelation really how much noise and stuff there is going on. My brother used to live in Hounslow at one time so I know it could be a lot worse but I think you learn to live with it to an extent and almost not notice it until it's gone.
>
> *Male, 45-65, Wycombe*

> I think because it [noise] gradually came back [after lockdown] it wasn't a sudden, straight back in the deep end like it was before. It was quite a transitional period of some flights going and then obviously they've probably got more.
>
> *Female, 25-45, Windsor*

A small difference from the 2018 focus groups is that in 2018, many residents who lived in built-up areas reported being so exposed to other forms of noise (road, rail, emergency services) that aircraft noise was a relatively minor factor. That perspective did not come up in our focus groups in more built-up areas (Brentford & Isleworth and Mitcham & Morden).

Noise was the only potential design principle where the wording of the draft principle itself became a topic of discussion, which occurred in one group. Our introductory stimulus spoke of a goal of “Manag[ing] the impacts of noise on local communities” whereas the draft principle spoke of “Minimis[ing] the impact of aircraft noise”. Residents who picked up on this preferred the language of “minimising” because it suggested a commitment to a reduction in the overall impact, albeit not necessarily everyone experiencing a reduction in noise impact. The language of “managing” suggested Heathrow would be compensating for the impacts of noise rather than trying to reduce overflight.

> It [the statement describing the government’s airspace modernisation strategy] talks about “managing the impact” and our thought is about “minimising the impact”, which is a much clearer goal to align with, I'd say.
>
> *Male, 25-45, Brentford & Isleworth*

> I think minimise implies that it gets better. Whereas redistribute [term suggested by another participant] implies they get stuck with people, but now we're just going to move it to somewhere else. Which is true, right? Well it's gonna suck less for some people but suck more for others.
>
> *Male, 25-45, Brentford & Isleworth*

Efficiency – Improve operational performance

Residents felt that greater efficiency and performance was an important goal, but not as important as minimising noise and environmental impacts. Almost everyone had some experience of delays when flying and felt it would be good to eliminate them. It was an emotive thing that residents could relate to more than the slightly intangible prospect of lower carbon emissions or experiencing noise less often. However, this was tempered by an understanding that only a small proportion of flight delays were the result of airspace issues, and therefore the impact would be relatively minor.

> Oh, this is definitely more interesting to me. There's nothing worse than being delayed or like you say, sitting on a runway, especially with kids. I should be saying “more CO2 emissions” but [with delays], I might kill myself otherwise.
>
> *Female, 25-45, Windsor*

> I suppose making it more efficient means more aircraft leave, there's less congestion, I suppose coming into and out of the airport as one way, I can see a benefit, perhaps.
>
> *Male, 25-45, Brentford & Isleworth*

Many residents were aware of the concept of stacking and reacted very positively to the idea that airspace modernisation might be able to reduce or largely eliminate it. It was a change where the benefits were felt to be general and not subject to trade-offs minimising noise impacts, environmental impacts and passenger flights times.

> I know they stack them that they go round and round? And then they all come into land? If that’s not going to happen, shorter and less pollution.
>
> *Female, 45-65, Mitcham & Morden*

The biggest question associated with greater efficiency – as discussed in more detail in the Overall Context section – was residents’ suspicion that greater efficiency and therefore greater capacity was the primary goal of airspace modernisation. They feared that more aircraft would destroy the noise and environmental benefits that residents were expecting.

Technology – Use the most up-to-date technology

Relying on up-to-date technology seemed sensible to most residents, and necessary to achieve the other goals discussed. When explicitly prompted that this could exclude many older aircraft, most residents viewed this as a benefit, given people believe newer aircraft will typically be quieter and more efficient.

> With new aircraft, the only thing that I can think of that actually a little bit like electric cars, which are becoming quieter. Is that part of their development plan?
>
> *Female, 25-45, Windsor*

> So if they're going to do this, why wouldn't they just ban all older aircraft that aren't very efficient? Anyway, in terms of fuel, that would be a better idea for me.
>
> *Male, 25-45, Brentford & Isleworth*

> Heathrow is oversubscribed, so I'm sure they could shed off people [airlines] and get other people [airlines] in, if they needed to.
>
> *Male, 45-65, Wycombe*

The main concern about excluding older aircraft was that those airlines would have to replace their aircraft and therefore pass the cost onto consumers in ticket prices. On balance though, they thought this was a price worth paying for the other benefits. The idea that destinations from Heathrow might be restricted did not bother residents much, on the basis that they believed choices from Heathrow were already quite restricted, and they relied on other London airports for most European and budget airline options.

> I'm probably thinking that they're going to start passing the costs to passengers, making them more expensive to compensate for these requirements. We as the public are the

> one that's bearing the extra cost of paying for these things… I think it's something that we need to be aware of.
>
> *Female, 45-65, Mitcham & Morden*

> It forces them to buy new planes, they're going to be more efficient in the long run. And then they will stop using those old planes which are less efficient. But it's whether or not they can afford that which they probably can't.
>
> *Female, 25-45, Windsor*

> And we'll still end up going to Luton, because it's cheaper.
>
> *Female, 25-45, Windsor*

Exploring trade-offs

Minimise the total number of people affected by noise VS Share noise impacts

After some debate, a clear majority of participants were in favour of sharing the impacts of noise over a larger number of people. At heart, they made a fairness argument, that the impacts of aviation should be borne widely by the community that otherwise benefits from proximity to the airport. There was also a strong fear about the concentrating effect of precise flight paths – a consequence of PBN that they worried about – that sharing created the opportunity to offset. This reflected a general desire for the approach to mirror the status quo fairly closely, with precise and alternating routes quasi-replicating today's natural spread of flight paths over certain areas.

> I don't think it's fair, for one collective group of people to just be constantly bombarded with noise. I don't think that's fair.
>
> *Female, 45-65, Mitcham & Morden*

> I would envisage the house prices in that concentrated area would be cheaper because there's traffic over it so who really wants to live there.
>
> *Female, 25-45, Windsor*

> Although it's less people, it's the same people. So to me, that's just really unfair. Whereas we all experienced noise anyway, to some degree, obviously not as bad as the people that live quite close to the airport. But I think if you're mindful that you're going to live near an airport, there is going to be noise, but it's going to be shared out and spreading the routes over a wider area, then those people are going to be affected less frequently. I think that's fair.
>
> *Female, 45-65, Mitcham & Morden*

> It's like the screw this guy, but everyone else is fine. Like the pariah argument: throw one guy under the bus or out of the plane in a situation and everyone else is fine. I don't think that's a good thing because that would divide the community.
>
> *Male, 25-45, Brentford & Isleworth*

Predictable respite from aircraft noise was also an anticipated benefit of alternating routes, with participants speaking of the advantages of knowing that the aircraft would be overflying on particular days, in addition to simply having a break from aircraft noise.

> I think sharing for me because people can plan then, oh, it's Tuesdays can be quiet or I'll go outside on Tuesdays or something.
>
> *Female, 45-65, Mitcham & Morden*

> I think sharing the noise is probably a lot better. And even if they could do it on a different day basis. Whereas on one month, Monday, for example, a certain time, they'll fly this flight path, and then the next day, that kind of eliminates one particular area getting the flight path more than others
>
> *Male, 25-45, Brentford & Isleworth*

Some of the women we spoke to also worried about the socio-economic “sink” effects of single concentrated flight paths. They suggested that intense concentrations of flights might make those places more deprived and less healthy (due to perceived health impacts of both noise and air quality).

> Below a flight path will become an area of poverty, essentially. And so I think from that perspective, I lean towards more shared.
>
> *Female, 25-45, Windsor*

> It's going to end up in the places of deprivation, isn't it? But that's how it always does, isn't it? Well, that's no good because then like you said, the impact of health implications again, are going to be amplified because of other socio-economic factors.
>
> *Female, 25-45, Windsor*

There were however some arguments in favour of concentrating flight paths within a given area. Most simple was an agreement with the idea that it would be better to impact as few people as possible. A couple of men we spoke to were strongly in favour of making flight paths as simple as possible to make airspace as efficient as possible – they were believers in the power of technology and also took very frequent flights themselves. Finally, some people acknowledged that some people would suffer if flight paths were concentrated, but that Heathrow could compensate those areas (triple glazing, etc.).

> I’m all about efficiency, adopting technology, innovation. Take advantage of the technology. So they can look at soundproof windows and perhaps maybe doing more to help them.
>
> *Male, 45-65, Wycombe*

Minimise the TOTAL number of people affected by noise VS Minimise the number of people NEWLY affected by noise

This trade-off provoked a nuanced discussion, with a narrow majority of those we spoke to preferring to minimise the number of people newly overflown. Participants found this the toughest to decide among the questions we posed. In general the key idea was that people currently unaffected by aircraft noise might have chosen to live in that area (partly) on that basis. And therefore it would be unfair to overfly them now. The typical touchstone here was house prices – that new aircraft noise could materially depress those people’s house prices, again unfairly. This was very consistent with the focus group findings from 2018.

> If you haven't experienced noise, then you don't want to experience noise. And then those who've purchased a home with the view to not having noise are now going to be having noise. So they're not gonna really be very happy, are they?
>
> *Female, 45-65, Mitcham & Morden*

> I think you should minimise the number of people newly affected by the noise at the end of the day. They've purposely bought their house because it's so nice and quiet. And then all of a sudden, there's a flight path that's gone in, you know, what do you do?
>
> *Female, 25-45, Windsor*

> It's quite unfair, isn't it? I mean, if you just moved somewhere or you've lived somewhere for years even… and all of a sudden you're going to get a letter in the post to tell you guess what, you're gonna have a bit of noise now that can be quite overwhelming can’t it. That wasn't the original plan.
>
> *Female, 45-65, Mitcham & Morden*

> I can imagine if I bought a house that was off the flight path, and all of a sudden, I've got flights coming overhead. How's that gonna affect the value of my home?
>
> *Male, 45-65, Wycombe*

It was also suggested that if Heathrow were to overfly new areas, they would need to give many years of notice, and/or compensation.

> If it's that precise and you can identify that maybe these people could be compensated or something or mitigation.
>
> *Male, 45-65, Wycombe*

> If you start over-flying people who weren't under the path before I think they need to be kind of duly warned and duly compensated like because it affects you know, affects your mental health, your house price.
>
> *Male, 25-45, Brentford & Isleworth*

Those suggesting that Heathrow should seek to minimise the total number of people affected did so on the basis of trying to reduce as much as possible the impact on the whole community. Many of those who felt this way were those who felt themselves to be most affected by aircraft noise today (though these were not always people who lived closest to the runways).

> For me, it still comes down to having the lowest impact on the community. So even if that means affecting new people, it's pretty harsh if you've been living somewhere all of your life, and then suddenly, the flight paths get changed, has a massive impact. But having said that, I still think the best thing that you can do is have the lowest impact shared across the whole community.
>
> *Male, 25-45, Brentford & Isleworth*

> I'm going with the first one, minimise the total number of people affected. I think change is good. I think if you get stuck doing the same thing, and you don't risk and try something new, then you're not gonna get any better.
>
> *Male, 45-65, Wycombe*

It was notable that, unlike other questions we discussed, their answers to this issue appeared to differ along gender lines. Men were more likely to make a principled argument about affecting as few people as possible, and women arguing not to impact new people unfairly.

Where people lived also had a bearing on how they approached this question. For those living in London, where most surrounding areas are built up, participants found it hard to imagine how flight paths could be moved in their area and not still overfly built-up communities. Those outside London, for example the women in Windsor, could more easily imagine fewer people being overflown, but made a different argument. They suggested that development and housebuilding were so extensive in the south east of England, that any relatively unpopulated areas today would have houses built within 10 or 20 years, meaning any gains in noise impact would soon be lost.

> They're going to probably still build in places that are not built up, because they're going to have to eventually. So I say long term, probably not going to make that much difference.
>
> *Female, 25-45, Windsor*

> It's gonna get worse for everybody at some point, no matter where you live. In 20 years, there'll be houses under every flight path. So for now, let's just piss off the people that were already pissed off.
>
> *Female, 25-45, Windsor*

5. Conclusions

Based solely on the findings of this research, and without considering the other elements of stakeholder engagement that Heathrow is conducting, Heathrow should consider the following views of residents when setting design principles for airspace modernisation:

1. “Minimising the environmental impact of flight paths” is the most important design principle for residents, with a greater priority attached to it than was seen in 2018. The principle is largely interpreted in terms of its impact on carbon emissions, although the impact on air quality and therefore health also plays a factor.

2. “Minimise the impact of aircraft noise” is the next most important design principle for residents. It is the top-of-mind association with airspace changes.

3. “Improve operational performance” is important to residents in terms of its impact on delays and on stacking. However, residents would not want greater efficiency or capacity to translate into more aircraft that destroy noise and environmental benefits.

4. “Use the most up-to-date technology” was seen as an important goal that would enable the other benefits of airspace modernisation and have other useful benefits in terms of newer aircraft.

Within the principle of minimising noise impact, residents’ views on the two trade-offs we presented were:

1. Preferring to share the impacts of noise rather than concentrating a single flight path for a given area

2. Narrowly preferring to protect people from being newly overflown and impacted by noise, rather than minimise the total number of people overflown.

Appendix: Stimulus materials

Introductory text

Airspace – the space above land that aircraft fly in – is a crucial, and congested, resource. It connects people, businesses and trade across the country and around the world.

The basic structure of UK flight paths was developed in the 1960s, but a lot has changed since then:

Demand for aviation has increased significantly

Aircraft types have advanced and the way they fly has changed

Navigation technology has evolved

The government is requiring airports across the country, including Heathrow, to modernise their airspace – this will change where the aircraft fly – with the following goals:

1. Make the airspace more efficient and reduce delays
2. Reduce CO2 emissions
3. Manage the impacts of noise on local communities
4. Ensure there is capacity to meet future demand

The complexity of UK airspace today

(Source: NATS)

Performance Based Navigation: From ground-based navigation to satellite navigation

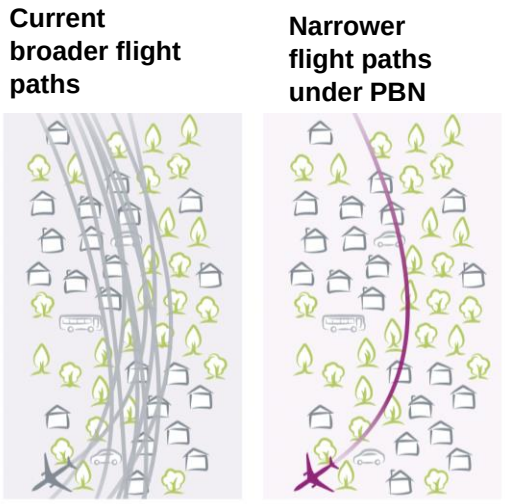
Performance Based Navigation, or PBN, is a modern navigation system that uses satellite technology to direct aircraft. This is in contrast to the current system of 'conventional' navigation, which is based on aircraft flying between ground-based radio beacons.

Aircraft following a PBN route can fly much more accurately because they are using satellite guidance.

However, because this technology will enable aircraft to follow a route more precisely, it could lead to routes becoming narrower and more concentrated than they are today.

But it also provides the flexibility to potentially introduce alternative flight paths that can be switched on and off to provide areas overflown with periods of respite from aircraft noise.

The Government has instructed UK airports to modernise their flight paths using PBN, and PBN is also being introduced around the world.



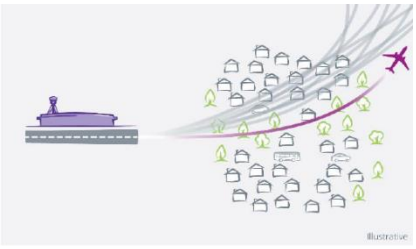
Illustrative

Potential design principles for consideration

Minimise the impact of aircraft noise

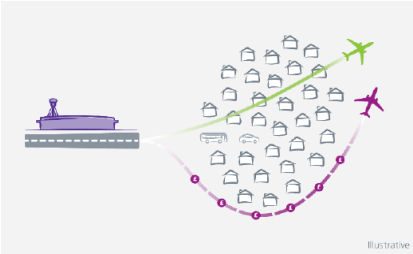
Heathrow could seek to limit or reduce the number of people annoyed or disturbed by aircraft noise

Heathrow could seek to limit or reduce adverse health effects associated with aircraft noise.



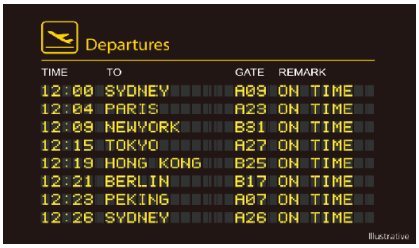
Minimise the environmental impact of flight paths

Heathrow could seek to minimise the amount of fuel and CO2 emissions required by aircraft flight paths (this could mean keeping flight paths as short and direct as possible and enabling aircraft to climb and descend more efficiently).



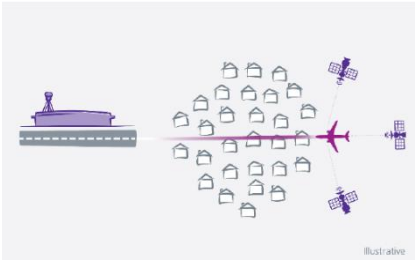
Improve operational performance

Heathrow could design flight paths that allow it to make most efficient use of its two runways, meet demand at peak times, and reduce delays for airlines and passengers by recovering more quickly from disruption.



Use the most up-to-date technology

Heathrow could require all aircraft to have the latest navigation technology. This would mean certain airlines with older aircraft might be unable to use Heathrow, and restrict destinations available.



Trade-offs for consideration

OR

Minimise the total number of people affected by noise

Heathrow would generally place one flight path over a given area. Fewer people would be impacted by noise but those people would experience noise more regularly.

Share noise impacts

Heathrow would generally share the impact of noise by spreading routes over a wider area. The use of additional flight paths would mean each flight path was flown less frequently but more people would be affected by noise.

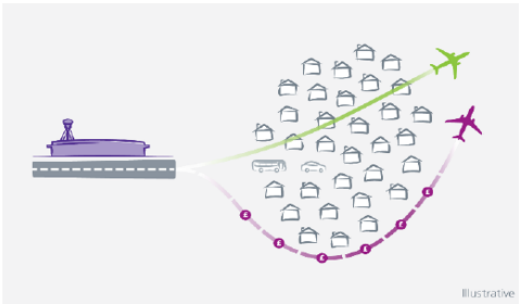
OR

Minimise the TOTAL number of people affected by noise

Heathrow would generally place one flight path over a given area, possibly over the areas with the fewest people. Fewer people would be impacted by noise but those people would experience noise more regularly. Potentially places that are not overflown currently would have flights overhead.

Minimise the number of people NEWLY affected by noise

Heathrow would generally avoid putting in routes over those who are not currently overflown. This would mean keeping routes as close to today's flight paths as possible.



Avoid built up areas (reduce noise impact)

Heathrow would reduce noise impacts for people by avoiding built up areas where possible. This could mean flying longer routes which require more fuel so are more costly for airlines and worse for the environment.

OR

Direct routes (reduce environment impact)

Heathrow would use direct routes where possible, which would require less fuel so would be less costly and better for the environment. Where this means flying directly over built up areas, it could mean more people would be affected by noise.