



***HEATHROW'S DESIGN PRINCIPLES FOR
INDEPENDENT PARALLEL APPROACHES***

Heathrow

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1. INTRODUCTION

1.1 Context

- 1.1.1 Heathrow is one of the world's busiest two runway airports, serving over 200,000 passengers a day, flying to over 180 destinations in 90 countries. Heathrow operates at 98% of its capacity which means that any disruption or delays during the day can have a knock-on effect to the punctuality of flights resulting in delays to passengers. Because of this, we are always looking for new ways to improve how the airport operates. Using new technology to improve how we manage aircraft arriving at Heathrow during particularly busy periods is one way this could be done.
- 1.1.2 A new procedure known as Independent Parallel Approaches (IPA) has been identified as one way we can achieve this. Used as part of Heathrow's current operations, IPA would improve punctuality, reduce flight cancellations, and will mean that the airport can recover more quickly from delays. The proposed changes would also help to reduce the number of late running flights into the night which are disruptive to local communities. For airlines and travelling customers, this will mean less disruption and more flights operating on time.
- 1.1.3 We are also exploring opportunities which would enable us to increase the number of flights allowed to use our existing two runways in advance of a third runway. IPA would also help to enable this, as set out in section 3.2.

1.2 What are Independent Parallel Approaches?

- 1.2.1 IPA is a way of making the arrivals process at Heathrow more efficient when the airport is experiencing delays and therefore landing on both runways. It uses a modern aircraft satellite-based navigation system called Performance Based Navigation (PBN) which allows aircraft landing on the departures runway to follow a route with more precision and consistency.
- 1.2.2 The introduction of IPA would require new PBN arrival flight paths from Heathrow's holding stacks to the departure runways. These new flight paths would only be used by those aircraft landing on the departures runway. Aircraft would fly these new flight paths precisely, meaning that aircraft using each flight path would follow the same route. These new flight paths would not be used by aircraft landing at Heathrow before 6am.
- 1.2.3 Whilst it improves the overall performance of the airport and reduces delays, the introduction of IPA will mean a number of flights flying over areas that do not routinely see arriving aircraft today from 6am onwards.

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- 1.2.4 The new IPA flight paths are planned for Heathrow's existing two runways. If Heathrow is successful in obtaining consent for the third runway, this (IPA) airspace change will only be in place until our broader airspace change for an expanded Heathrow is introduced. The airspace change for expansion requires a complete redesign of all arrivals and departures including these IPA routes.

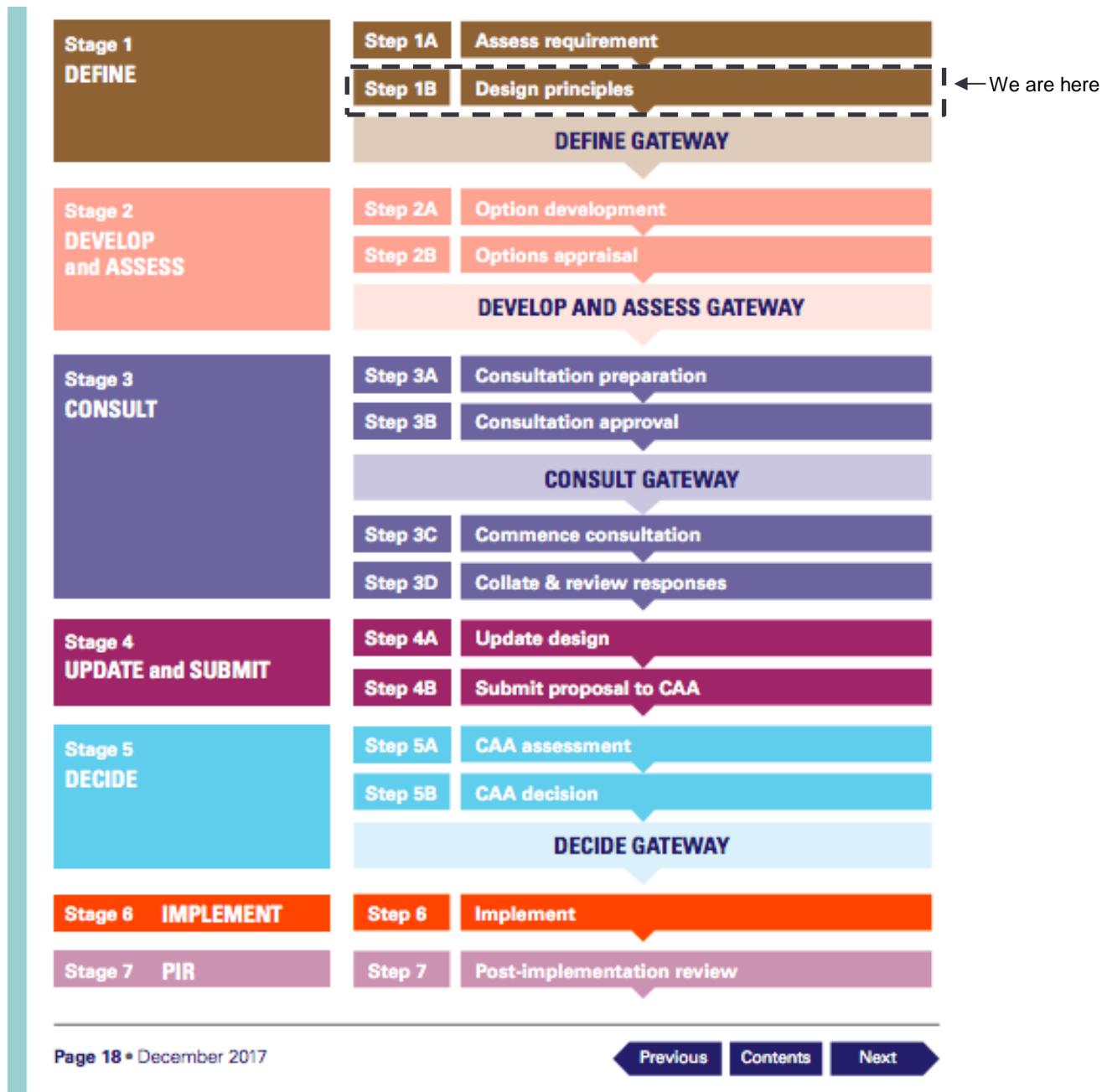
1.3 *The Airspace Change Process*

- 1.3.1 The Department for Transport is responsible for all aviation policy in the UK, including airspace. The CAA is the organisation responsible for its regulation and for the Airspace Change Process (ACP) which all airspace 'change sponsors' must follow. Heathrow is responsible for the design of any changes to flight paths into and out of the airport up to approximately 7,000ft.
- 1.3.2 Changes to flight paths are submitted to, and approved by, the CAA following the Airspace Design Guidance set out in their document known as 'CAP1616'. This guidance provides a framework for changing airspace, and places great importance on engaging and consulting on airspace change proposals with a wide range of stakeholders, including potentially affected communities (see figure 1).

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Figure 1: Overview of the CAA's CAP1616 Airspace Change Proposal Process



- 1.3.3 At the Step 1A ('Assess requirement') assessment meeting on the 14 September 2018 we submitted our updated Statement of Need to the CAA, and that document was published on the CAA's website on 27 September 2018.
- 1.3.4 The purpose of this document is to set out Heathrow's airspace design principles, which will be used to inform the redesign of airspace to enable the implementation of IPA at Heathrow.

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- 1.3.5 This document forms our submission to the CAA for Step 1B of the CAP1616 Airspace Change Proposal process ('Design Principles') and provides evidence of our compliance with the CAA's requirements. It:
- Sets out our proposed Design Principles;
 - Provides an overview of how they will be applied in the development and appraisal of the different airspace design options; and
 - Shows how these have been informed by two-way stakeholder engagement.
- 1.3.6 The CAA will confirm whether we have satisfied Step 1B of CAP1616 at the Define Gateway scheduled for 21 December 2018.

2. OUR DESIGN PRINCIPLES FOR IPA

2.1 What is a Design Principle?

- 2.1.1 CAP1616 defines design principles as encompassing “the safety, environmental and operational criteria and strategic policy objectives that the change sponsor aims for in developing the airspace change proposal”. The design principles must take account of all relevant Government policies and any local criteria.
- 2.1.2 Design principles will include fundamentals such as safety, throughput of air traffic, and environmental impacts. But they must also be developed in a local context to take account of local priorities within the area affected by Heathrow’s airspace. A key requirement in the development of design principles is therefore stakeholder engagement to help identify airport-specific and proposal-specific design principles. CAP1616 states that design principles must “be drawn up through discussion between the change sponsor and affected stakeholders.” Section 3 sets out how our design principles have been informed through engagement with our stakeholders.

2.2 How will we use our Design Principles?

- 2.2.1 Design principles will be used in two ways:
1. To inform the development of airspace design options; and,
 2. To form a framework against which airspace design options can be evaluated.
- 2.2.2 In some cases, design principles may be contradictory; for example, where avoiding one kind of impact is likely to increase another. Our proposed design principles have therefore been given a priority order based on a combination of criteria, as set out below.

Table 2 Approach to prioritisation of airspace design principles

Heathrow's Approach to the Prioritisation of Airspace Design Principles	
Policy, regulatory and operational requirements	These set out the safety, environmental and operational criteria that Heathrow’s airspace change will need to meet to achieve the required approval for the airspace change. These are our ‘core requirements’ and any airspace design option must deliver against these design principles. These principles are given the highest priority.
Stakeholder Feedback	The other design principles are based on stakeholder feedback, and are essentially our strategic policy objectives.

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	These design principles clarify how we will approach the various trade-offs and options which we expect to encounter during the airspace design phase (Stage 2 of CAP1616) by identifying which of these design principles will take the highest priority when evaluating different airspace design options.
Practical design considerations	The prioritisation takes account of practical airspace design considerations to ensure the design principles are fit for purpose.

- 2.2.3 The prioritised design principles will be used in the development of airspace design options for IPA, and in the appraisal of those design options. We would normally favour an option that benefits a higher priority principle over one that provides the same level of benefit to a lower priority principle (all other things being equal). However, the design decisions will rarely be that straightforward as every option will have its own complex mix of benefits and impacts across the range of principles. We will ensure that we are fully transparent in our final design choice and our rationale for choosing it.
- 2.2.4 CAP1616 also recognises that there are a number of constraints that will inform the development of airspace designs, and our design principles can only be used to consider design options that meet these constraints. Constraints include:
- Safety;
 - Operational;
 - Technical;
 - Economic; and
 - The policy and regulatory framework within which the proposal must comply.
- 2.2.5 These sit alongside the design principles as factors to consider in the design process, for example our designs must fit with the available technology and within cost constraints. While safety is immutable (the design must be safe), the importance of these other factors can be challenged as part of the stakeholder engagement process.
- 2.2.6 The principles reflect the feedback received from our stakeholder engagement. We will continue to engage with our stakeholders as we develop our airspace design options for IPA. As part of this engagement, we will be consulting with our stakeholders in January 2019 to promulgate the geographical areas potentially impacted by our proposal to introduce IPA at Heathrow. We will be requesting feedback on local factors, for example our consultation may highlight particular noise sensitive buildings/areas that we should consider when developing the proposed new flight paths for IPA.

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2.2.7 We will refer to the framework of the design principles when we present our shortlisted and preferred flight path options later in the design process, along with an evaluation of these options. The results of our options evaluation and assessment will be published on the Heathrow website and CAA Portal at Stage 2A of the CAP1616 process, to ensure full transparency to our stakeholders.

2.3 Heathrow's Design Principles for IPA

2.3.1 Our list of airspace design principles for IPA is presented below, in Table 2. This table is the result of our findings from stakeholder engagement activities throughout October and November 2018. Our stakeholder engagement was also informed by the insight gained during the process to develop the design principles for expansion.

2.3.2 The first five principles are core requirements of the airspace design related to policy, regulation or business requirements. They all have equal priority since any airspace design option will need to deliver against each of these. These are set out as "Heathrow must...".

2.3.3 The following principles 6 - 9 are the more strategic principles that Heathrow intends to deliver against. These are set out as "Heathrow should..." and are shown in the table in priority order – informed by stakeholder engagement.

2.3.4 Recognising the complex trade-offs in considering the impact of aircraft noise, the principle to minimise the impact of aircraft noise has been broken down into seven sub principles.

2.3.5 The table includes:

- The design principles;
- The rationale for inclusion of each principle and for its priority ranking,
- A summary of stakeholder feedback; and
- the degree of consensus reached during stakeholder engagement, graded as "Strong agreement", "General agreement", "Disagreement" or "Strong disagreement"

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Table 2: Heathrow's Design Principles for IPA

	Design Principle	Rationale	Stakeholder Feedback	Level of Agreement
1	Must be safe.	Safety is paramount. The design must meet or exceed all relevant national and international safety standards.	Historical feedback has shown high support for this as a core principle.	Strong agreement
2	Must meet the three aims of the Noise Policy Statement for England (NPSe) ¹ : <ul style="list-style-type: none"> • avoid significant adverse impacts on health and quality of life • mitigate and minimise adverse impacts on health and quality of life where possible, contribute to the improvement of health and quality of life. 	We recognise that airspace change must be delivered in a sustainable way and we are fully supportive of the Noise Policy Statement for England's three stated aims within the context of the government's policy on sustainable development.	All stakeholders recognised the value of these aims. In particular, the community groups felt that these three aims must be met as a minimum.	Strong agreement
3	Must meet local air quality requirements.	We will meet local air quality requirements. We will prioritise air quality in the design of airspace up to 1000ft ² in accordance with Government guidance ³ .	All stakeholders agreed with this as a core requirement, in particular the focus groups placed importance on this.	Strong agreement
4	Must base our technology on the latest navigation technology widely available.	IPA requires the use of a high level of technical equipage RNP (AR).	Airlines understand the rationale for this requirement. Community stakeholders expressed concerns over the implications of PBN concentrating flight paths over narrower areas.	Disagreement (over the use of PBN, rather than its use as a design principle)

¹ These three policy aims are set out in Section 1.7 of the Government's Noise Policy Statement for England, 2010 [here](#). It is implicit that any airspace change proposal will be required to meet the requirements of the Air Navigation Guidance 2017

² Air Navigation Guidance, 2017, para 3.28, states that 'emissions from aircraft above 1000 feet are unlikely to have a significant impact on local air quality'.

³ Flight tracks up to 1000ft are largely dictated by runway position and operating procedures rather than airspace design. Air Navigation Guidance, 2017, recognises that airspace design above 1000ft is unlikely to have a significant effect on local air quality due to mixing and dispersion exhaust gases but states that the CAA should include consideration of whether local air quality could be impacted when assessing airspace change proposals.

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5	Must meet Heathrow's hourly landing rate requirements.	It must meet the hourly landing rate required for early morning TEAM (0600 – 0700) arrangements.	Airlines supported this as a core requirement, but also commented on the need for maintaining current resilience levels. Some community groups opposed any increase in overall landing rates at Heathrow.	Disagreement (with the concept of increasing capacity, rather than its use as a design principle)
6	Should limit and, where possible reduce, local noise effects from flights.	We will seek to minimise noise effects where possible, and we will consider local circumstances when evaluating ⁴ the noise impact. Government guidance states that minimising noise should be the priority (over environmental considerations) for the design below 7000ft.	Limiting the impact of noise was raised by all community and some industry stakeholders as being the number one priority following the mandatory principles listed above.	Strong agreement
	a. Use more noise efficient operational practices.	More noise efficient operations such as optimal descent rates, descending continuously, avoiding low level holding, and noise reduction through speed management have obvious benefits with limited, or no, disbenefits to trade off against. The Airports NPS recognises that Heathrow has already introduced more noise efficient operational practices over recent years ⁵ and states that further opportunities should be investigated.	Historic engagement has shown that quieter operating practices are important to our local communities, particularly those living closest to the airport. A number of airlines mentioned the need for aircraft to follow noise efficient practices to minimise the impact of aircraft noise. No evidence that stakeholders disagree with this principle.	General agreement

⁴ Air Navigation Guidance 2017, section 3.3, 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' and 'at or above 4,000feet to below 7,000feet, 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'.

⁵ "It is recognised that Heathrow Airport already supports a number of initiatives to mitigate aircraft noise, such as developing quieter operating procedures (like steeper descent approaches) and keeping landing gear up as long as possible. The applicant is expected to continue to do so, and to explore all opportunities to mitigate operational noise in line with best practice. The implementation of such measures may require working with partners to support their delivery" (Airports NPS, June 2018)

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		New technology should enable further advancements. Flight paths will therefore be designed to incorporate noise efficient operational practices both vertically and horizontally, wherever possible.		
	b. Maximise sharing through predictable respite	We will seek to offer predictable respite to those overflown especially if required to reduce and/or mitigate adverse or significant effects of noise. The Government recognises that predictable periods of relief from aircraft noise (known as respite) are important for communities affected by noise ⁶ .	Community stakeholders and public focus groups felt strongly that sharing noise would be the best way of reducing the impact of the new IPA flight paths. Heathrow Community Noise Forum members strongly opposed the principle of 'minimising the number of people newly overflown' and, during discussions, explained that the noise should be shared, where required to mitigate any adverse and/or significant effects.	Strong agreement
	c. Avoid overflying communities with multiple flight paths	This is a further application of the sharing principle. Where possible we will seek to avoid the following below 7,000ft: - arrivals and departures overflying the same communities; - converging flight paths over the same communities; - Heathrow's flight paths and those from neighbouring airports overflying the same communities.	Feedback from our stakeholders, both written and in discussions at the public focus groups expressed that this principle would help deliver against the broader principle to "share noise".	Strong agreement
	d. Minimise the number of people newly overflown	Recognising that IPA will result in new areas being overflown, we will	Some community groups (that are currently overflown) felt	Disagreement

⁶ Air Navigation Guidance, 2017, section 3.25, states that "The Government also expects the CAA to encourage the use of new and innovative approaches to managing aviation noise through airspace design such as the provision of respite for communities already significantly affected by aircraft noise where possible".

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		<p>seek to share the noise over the fewest number of newly overflowed people as possible.</p>	<p>very strongly that minimising new was not appropriate for IPA, as this would result in the same communities being exposed to the IPA flight paths again and again. However local authorities (not currently overflowed) placed a higher priority on this principle. This placed "maximising sharing for predictable respite" above "minimise the number of people newly overflowed".</p>	
	e. Minimise total population overflowed.	<p>While we will endeavour to minimise the number of people overflowed, in line with government policy⁷, this principle has been placed lower down as our stakeholder feedback reflected that it was considered to be less important than minimising the number of people newly affected by noise, and maximise sharing.</p>	<p>Stakeholder engagement indicated that minimising the number of people newly overflowed and sharing flight paths over a wider area were of greater priority to our community stakeholders than minimise total. This principle is therefore of lower priority.</p>	General agreement
	f. Design flight paths over commercial and industrial areas (rather than residential areas).	<p>Where possible we will seek to design flight paths to go over commercial and industrial areas to reduce the noise impact over residential areas.</p>	<p>Stakeholders agreed that this principle should help to minimise the noise impact, although there was some discussion as to whether this would be feasible given residential areas are located next to commercial areas.</p>	General agreement
	g. Where appropriate, prioritise routing over parks and open spaces (rather than residential areas), but avoid overflight of Areas of	<p>Where we are able, we will seek to route flight paths over parks and open spaces, rather than the residential areas surrounding</p>	<p>Stakeholder feedback showed a preference for overflying parks and open spaces but considered that this should be limited to</p>	General agreement

⁷ Air Navigation Guidance, 2017, section 1.2 sets out the Government's environmental objectives with respect to air navigation, including: "limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise".

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	Outstanding Natural Beauty (AONB) where possible.	them. However, we have listened to the feedback of the Heathrow Community Engagement Board (HCEB) and the Government guidance on avoiding overflight of national parks and AONB that overflying these areas could impact adjacent areas and may involve overflying new communities or limiting the sharing possibilities. This principle is our lowest noise priority.	times when they are not being used for leisure. The HCEB also raised the importance of preserving the quality of our countryside.	
7	Should minimise impact on Heathrow's existing traffic patterns and other airspace users.	In our Statement of Need for IPA we refer to our business objective for IPA being limited to adding new flight paths within the existing flight path framework. This is to keep the amount of airspace change for this project to a minimum, with the more fundamental change to our airspace to be set out in our airspace change proposal for expansion. Without this objective, the boundary between the two ACPS may blur, which is not in the interests of the sponsor or stakeholders. Industry feedback also highlighted the need to minimise the impact on other users of airspace.	Industry respondents and, in particular, general aviation and the MoD, emphasised the need to preserve airspace for other users. This was prioritised lower by other stakeholders than the noise design principles, hence its lower position in the list.	General agreement
8	Should minimise fuel and CO ₂ greenhouse gases per flight.	Government guidance states that minimising noise should be the priority (over CO ₂ considerations) for the design below 7,000ft, and we have prioritised that accordingly. Government guidance recognises the importance of minimising the	After noise, the environment was considered high priority by our public focus groups, some local authorities and community groups and BA.	General agreement

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		environmental impact of aviation ⁸ .		
9	Should be simple and efficient flight paths for operational efficiency.	We will seek to design airspace to minimise pilot and air traffic control workload. This will enhance safety and reduce delays for airlines and their passengers.	Supported by stakeholders, but not prioritised highly.	General agreement

- 2.3.6 Appendix 5 (Appendix 5: Evolution of our Design Principles) provides further information on the stakeholder feedback received on each of our design principles and how this influenced the final wording of each design principle.

⁸ Air Navigation Guidance, 2017, section 1.2, sets out the Government's environmental objectives with respect to air navigation, including: "ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions".

3. OUR STAKEHOLDER ENGAGEMENT

3.1 Our Key Stakeholder Representatives

- 3.1.1 Heathrow recognises the importance of, and requirement for, two-way engagement with our stakeholders, and has followed this principle in the development of our Design Principles for IPA. We continue to define “two-way engagement” as listening to, and acting on, the views of our stakeholders and providing them the opportunity to provide us with feedback.
- 3.1.2 CAP1616 says that Design Principles are to be drawn up through discussion between the change sponsor and effected stakeholders. These will normally include elected community representatives, local community groups, the airport consultative committee and representatives of local General Aviation organisations or clubs. Following this guidance, we have engaged with:
- Heathrow Community Engagement Board (HCEB)
 - Heathrow Community Noise Forum (HCNF)
 - Representative members of our Local Authorities (LAs) potentially impacted by IPA
 - National Air Traffic Management Advisory Committee (NATMAC)
 - Future Airport Strategy Industry Implementation Group (FASIIG)
- 3.1.3 A full list of the stakeholders we engaged on IPA, including an overview of each stakeholder group, their purpose, key objectives and membership can be found in Appendix 1: Stakeholders Engaged on IPA.
- 3.1.4 We also held **four public focus groups** to hear from individuals who live in areas less affected by today’s operations but who may potentially be affected by the new IPA flight paths in the future.
- 3.1.5 We have listened to the views of all our stakeholders, and have adapted our design principles to reflect the feedback in a way which balances the differing views we have heard, and in a way which is aligned with the business requirements for IPA. We have shared our proposed design principles with the HCEB and we will be communicating them to the rest of our key stakeholders , ahead of the CAA Define Gateway scheduled for 21 December.

3.2 IPA engagement in the context of future expansion

- 3.2.1 On 25 June 2018, Parliament formally backed Heathrow expansion, with MPs voting in support of the Government’s Airports National Policy Statement (ANPS). The

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ANPS sets out Government policy for new airport infrastructure in particular the need for a new north-west runway at Heathrow. The Airports NPS requires that an expansion of Heathrow will enable at least an additional 260,000 Air Transport Movements (ATMs) from the airport.

- 3.2.2 However, the third runway and other expansion infrastructure still needs to obtain development consent and, if that is successful, be built. Should consent be granted, in advance of the completion of the third runway and other infrastructure, we want to explore new ways to make the best use of our existing two runways.
- 3.2.3 If development consent is granted for expansion of Heathrow, the planning restriction of a maximum of 480,000 ATMs per year, on our current two runways, would, by definition, cease to apply. Heathrow is considering plans whereby a small amount of the additional capacity to be provided by expansion, up to 25,000 ATMs, would be released early as a first phase of expansion ahead of the opening of the new third runway.
- 3.2.4 IPA could also be used to facilitate additional capacity in advance of the third runway being brought into operation, should that be permitted by the development consent for expansion.
- 3.2.5 Any proposals to release expansion capacity before the third runway is completed would be subject to full environmental assessment and examination as part of the development consent order process. If we progress these proposals they will be part of our statutory development consent consultation, currently proposed for June 2019.
- 3.2.6 The new IPA flight paths are planned for Heathrow's existing two runways. If Heathrow is successful in obtaining consent for the third runway, this airspace change will only be in place until our broader airspace change for an expanded Heathrow is introduced. The airspace change for expansion requires a complete redesign of all arrivals and departures and therefore these IPA routes may be replaced with new arrival routes to all 3 runways, but which will maintain the operational capabilities IPA provides.
- 3.2.7 Heathrow intends to progress the introduction of IPA, regardless of whether Heathrow expands. This is because of the overall improvements that IPA would bring to our current two runway operation as described above.

3.3 Our Starting Point for Engagement

- 3.3.1 Earlier this year we developed the design principles for expansion. This involved a ten-week public consultation, as well as significant engagement with key industry and community groups. This activity shaped the final set of design principles for an expanded Heathrow which we submitted to the CAA in August 2018. At the

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Assessment Meeting on 28 September 2018 the CAA confirmed that the process that Heathrow followed to develop the design principles for expansion met the requirements of the Stage 1b Gateway.

- 3.3.2 Our intention at that time was to use the set of design principles developed for the expansion airspace change proposal for all of Heathrow's future airspace change proposals going forward. However, the CAA advised that we should carry out engagement on design principles for each individual airspace change proposal, which is why we have reached out again to our stakeholders to help us develop a set of design principles for IPA.
- 3.3.3 The process to develop the design principles for an expanded Heathrow provided us with significant insight on our stakeholders' priorities for airspace design, as well as highlighting the main areas of difference of opinion. Given that this exercise completed just before the start of our engagement process for IPA, and acknowledging the CAA's requirement for Heathrow to develop airspace change specific design principles, we decided to use a similar, but not identical set of design principles as the starting point for our engagement on the IPA Design Principles, rewritten in the context of IPA.
- 3.3.4 These initial design principles for IPA are set out below. We adapted our presenting style so that the language used to describe the design principles was tailored to our audience. The first five principles were considered to be mandatory, reflecting policy or regulatory requirements and stakeholders were not asked to comment on their relative ranking.
- 3.3.5 The remaining principles were presented as a non-prioritised list of suggested IPA design principles for stakeholders to consider and prioritise, as well as asking whether there were any that were missing:

Table 4: Our proposed design principles at the start of our engagement

Our Proposed Design Principles at the start of our engagement
Must be safe
Must meet Heathrow's capacity requirements
Must meet the three stated aims of the NPSe
Must meet local air quality requirements
Must base our technology on the latest navigation technology widely available
Minimise the impact of aircraft noise
Minimise the number of people newly affected by noise
Design multiple flight paths, with only one flight path active at a time to provide predictable respite from noise

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Minimise the total number of people affected by noise
Avoid multiple flight paths over one community
Prioritise flight paths over rural areas, rather than over urban areas
Prioritise flight paths over parks and open spaces, rather than residential areas
Prioritise flight paths over commercial and industrial areas, rather than residential areas
Minimise fuel requirements and greenhouse gas emissions per flight
Simple and efficient flight paths for operational efficiency
Minimise the impact on other airspace users

3.4 Stakeholder Engagement on our Design Principles

3.4.1 We focussed our engagement activity on dedicated sessions with our key stakeholder representative groups, as listed in section 3.1. This enabled an informed and targeted discussion of the design principles on what is a complicated technical subject.

Table 5: Summary of key engagement with stakeholders on IPA design principles

Date	Stakeholders engaged	Method of engagement
19 September 2018	HCNF	High Level briefing session, including IPA
2 October 2018	HCEB	HCEB working group with an invite to comment
4 October 2018	LA	Dedicated LA session on IPA with an invite to comment
5 October 2018	NATMAC FASIIG	Initial design principles emailed to industry groups with an invite to comment
9 October 2018	HCNF	Dedicated workshop on IPA and discussion on proposed design principles
9 October 2018 & 15 October 2018	Members of the public	Public focus groups
9 November 2018	All	Deadline for comments
21 November 2018	HCNF	Update to HCNF on engagement
27 November 2018	HCEB	Briefing to HCEB on proposed principles
7 December 2018	NATMAC and FASIIG	Proposed design principles emailed to industry groups
13 December 2018	HCNF	Presentation on proposed design principles

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- 3.4.2 A presentation setting out information on the concept of IPA and the potential implications was circulated to each group, and was published on our website. This presentation also included the initial list of design principles with a request for feedback, asking:
1. How would you prioritise our suggested Design Principles in the context of IPA?
 2. Do you have any other design principles for us to consider?
- 3.4.3 All presentations, information on the meetings held, and minutes from these sessions can be found in Appendix 2: Stakeholder Engagement log, and Appendix 4: Material Used to Engage Stakeholders.
- 3.4.4 To ensure that our local stakeholders had the greatest chance of providing an informed response, we held 'pre-engagement' working group sessions with the HCNF, HCEB and Local Authorities. These sessions allowed Heathrow to set out how we were following the CAP1616 airspace change process to introduce IPA at Heathrow. We explained our rationale for introducing IPA, including an overview of current operations and an explanation of the technical concept of IPA. This allowed stakeholders to ask questions and fully understand the concept itself, before moving on to an informed discussion of the proposed list of design principles and their application in the airspace design process.
- 3.4.5 Each group was given the same background information and the same list of suggested design principles to ensure that a consistent message was presented. However, the way in which this information was presented was tailored to each group of stakeholders, based on their level of understanding, to ensure that our stakeholders could give an informed response. For example, some members of our focus groups have had little cause to interact with Heathrow and its operations historically, and therefore had a lower starting knowledge base. In recognition of this, our public focus group sessions were much smaller (with seven to eight members in each group), allowing for those sessions to be informal, and to discuss operational practices and concepts at a less detailed level.
- 3.4.6 All our industry and community stakeholders were given at least a four-week period, until the 9 November 2018 to provide their feedback on the initial list of design principles. Comments from our public focus groups were collated at the sessions themselves.

3.5 Feedback Received on our Design Principles

Community Feedback

- 3.5.1 We received responses from the HCEB, members of the HCNF, and a number of Local Authorities. Overall, across our community groups, noise was by far the most

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important design principle, and was given highest priority out of the non-mandatory design principles. Likewise, the noise sub-principles generated the majority of the comments from respondents, and discussion at the workshops. In particular, the HCNF members strongly opposed the principle of 'minimising new' and, during our workshop, explained that the noise should be shared, especially where required to mitigate any adverse and/or significant effects.

- 3.5.2 The remaining design principles on operational efficiency, environment and CO₂ and minimising the impact on other users were relatively uncontentious and were generally supported by all groups, albeit in a different priority order.

Industry Feedback

- 3.5.3 Responses in this group came from airlines and airline representative organisations, NATS, the MoD and the British Helicopter Association (BHA).
- 3.5.4 Airlines requested that Heathrow should be cognisant that, in order to use the new IPA flight paths, airlines may need to upgrade their fleet with the required technology and also train their flight crew, and that the timing for this be clearly signposted. Some airline responses also requested additional clarification on Heathrow's proposal to potentially increase capacity at Heathrow, and the potential impact of this on the resilience of the airport.
- 3.5.5 Both the Ministry of Defence and the British Helicopter Association (BHA) requested that the design principles should strive to minimise the impact on other airspace users.

Public Focus Groups Feedback

- 3.5.6 Stonehaven, an independent communications consultancy, was asked to support this work. In consultation with Heathrow, Stonehaven made a recommendation on the research methodology, conducted four public focus groups (moderated by an Association of Qualitative Research-qualified moderator), and wrote a report of the research findings.
- 3.5.7 The goal was to present information on the design principles to an audience which is yet to engage in debates on airspace design, and seek to understand which of the design principles they would prioritise, and why.
- 3.5.8 Focus group participants initially prioritised environmental impacts highly, commenting on the need to ensure that the flight paths were designed with a view to minimising the environmental impact in terms of fuel / CO₂. However, once participants discussed the potential that they might become one of the "newly affected", and had a chance to consider further the implications of being newly overflowed, the participants reconsidered, and their priorities changed to minimising the noise impact.

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- 3.5.9 In terms of the noise sub principles, the view was that it was fairer for more people to share noise effects. However, their preference was to minimise the number of people newly affected by noise, as they themselves had a concern of being newly affected by noise. The discussion found that this concern could be mitigated with the provision of predictable respite. Hence the research suggests that the principles of sharing and respite are the two noise impacts that Heathrow should prioritise, and that they should sit hand in hand.
- 3.5.10 Avoiding multiple flight paths over one community was seen as an outcome of the two principles above, and therefore not considered a priority in its own right. While the groups had some support for the design principle to minimise the total number of people affected by noise, this was at odds with their more strongly held belief that sharing of aircraft noise was a fairer approach.
- 3.5.11 The responses received from our stakeholders can be found in Appendix 3: Stakeholder Feedback on Design Principles. Stonehaven's report of its findings is contained in Annex 1: Stonehaven Report on Public Focus Groups.