HEATHROW'S DESIGN PRINCIPLES FOR COMPTON 09L/R STANDARD INSTRUMENT DEPARTURES

Final Version 1.0

Heathrow

DOCUMENT CONTROL

TITLE	Heathrow's Design Principles Compton 09L/R Standard Instrument Departures
STATUS	Final
CLASSIFICATION	Confidential
AUTHOR	Heathrow Airport
DATE	27/09/2019
VERSION	1.0

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1. INTRODUCTION

1.1 Background - Statement of Need

The existing situation

1.1.1 The current Compton (CPT) 4K/5J Standard Instrument Departures (SIDs) from Runways 09L and 09R have not been flown for over 30 years. As the number of flights using Heathrow Airport increased, the route became challenging to manage because of its proximity to the Ockham holding stack and the Heathrow Airport arrival flow to the south of the airport.

1.1.2 Instead of allowing aircraft to fly the published SID, NATS' air traffic controllers have been required to direct aircraft manually on this route to separate them from the stream of arrivals making their way from the southerly holding stacks to the airport.

1.1.3 In 2009, this manual interaction by air traffic controllers was standardised and implemented as a trial procedure in the live environment. The procedure remains in operation and is published in local air traffic control procedures as a trial. During this period, it has generated no safety concerns and from an air traffic control perspective, is considered standard practice.

1.1.4 However, it does result in poor Noise Preferential Route[1] (NPR) compliance on this route compared to Heathrow Airport's other departure routes. This route is mainly used for flights heading west, to Ireland or over the Atlantic. In 2018, 5% of all Heathrow Airport departures used the easterly CPT route.

The reason for this proposal

1.1.5 The standardisation of the manual interaction by air traffic controllers for CPT departing aircraft in 2009 was only ever meant to be a trial. Since 2009, Heathrow Airport has, on two occasions, tried to formalise this CPT procedure, however on both occasions, and for differing reasons the Airspace Change Proposal was delayed from progressing. Firstly, as Heathrow initially planned to use conventional routes, but were informed during the process that they would need to use performance-based navigation (PBN) and secondly, due to a clash with consultations from the Department for Transport (DfT).

1.1.6 As a result of the continuing poor Noise Preferential Route compliance on CPT departures, the DfT has asked Heathrow Airport to take measures to improve track-keeping, and the CAA has requested that Heathrow Airport address the issue of a long-term trial. Consequently, Heathrow Airport is proposing the introduction of new CPT SIDs from Runways 09L and 09R, prior to the proposed implementation of airspace change for an expanded Heathrow.

What this proposal will involve

1.1.7 The general direction of the new easterly CPT SIDs will be broadly similar to today, but if successful, this Airspace Change Proposal (ACP) will result in a new performance-based navigation (PBN) procedure of Heathrow Airport's easterly CPT departures onto a new SID below 7000ft. The new departure route will be designed to use PBN, in accordance with the

[1] https://www.caa.co.uk/Consumers/Guide-to-aviation/Airspace/Noise-preferential-routes/

Government's Airspace Modernisation Strategy, which has the effect of concentrating the traffic.

1.1.8 This ACP is only relevant to easterly operations. Aircraft are able to fly the existing westerly CPT SIDs and these do not therefore require changing.

1.1.9 Heathrow Airport is planning to design new CPT SIDs from Runways 09L and 09R so that aircraft can fly without the need for routine controller intervention and provide more certainty to local communities about where flights using those routes will be. The routes will provide more certainty for flight crews and standardise the handling of CPT departures by the Heathrow Aerodrome Controller, in line with other Air Traffic Control (ATC) procedures.

1.1.10 Heathrow Airport is aware that by altering the CPT SID, there will be a requirement to align the associated Noise Preferential Route to this change, and this will require approval from the DfT.

What this proposal does not affect

1.1.11 The easterly CPT SIDs determined during this ACP will operate in the existing two-runway environment. However, all of Heathrow Airport's SIDs, including the easterly CPT SIDs, are being redesigned to meet the Government's Airspace Modernisation Strategy[2]and that redesign will also accommodate the planned expansion of Heathrow Airport, should it be consented. This Expansion project will involve the complete redesign of all Heathrow's airspace and flight paths, so the new CPT SIDs will cease to exist following modernisation in either a two-runway or three-runway environment. If development consent is granted, Heathrow Airport's new runway will open as early as 2026.

1.1.12 This proposal does not seek to change the westerly CPT SIDs from Runways 27L or 27R.

1.1.13 This proposal does not seek to change any other easterly departure SIDs.

1.2 CAP1616

1.2.1 In December 2017 the Civil Aviation Authority (CAA) published CAP1616 Airspace Design: Guidance[3] on the regulatory process for changing flight paths, including community engagement requirements.

The Airspace Change Process

1.2.2 The Department for Transport is responsible for all aviation policy in the UK, including airspace. The CAA is the organisation responsible for airspace regulation and for the Airspace Change Process (ACP) which all airspace 'change sponsors' must follow.

1.2.3 Proposals for changes to flight paths are submitted to, and assessed and approved by, the CAA following the Airspace Design Guidance set out in their document CAP1616. This seven-stage 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.

[2] https://publicapps.caa.co.uk/docs/33/CAP%201711%20Airspace%20Modernisation%20Strategy.pdf
[3] https://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=8127

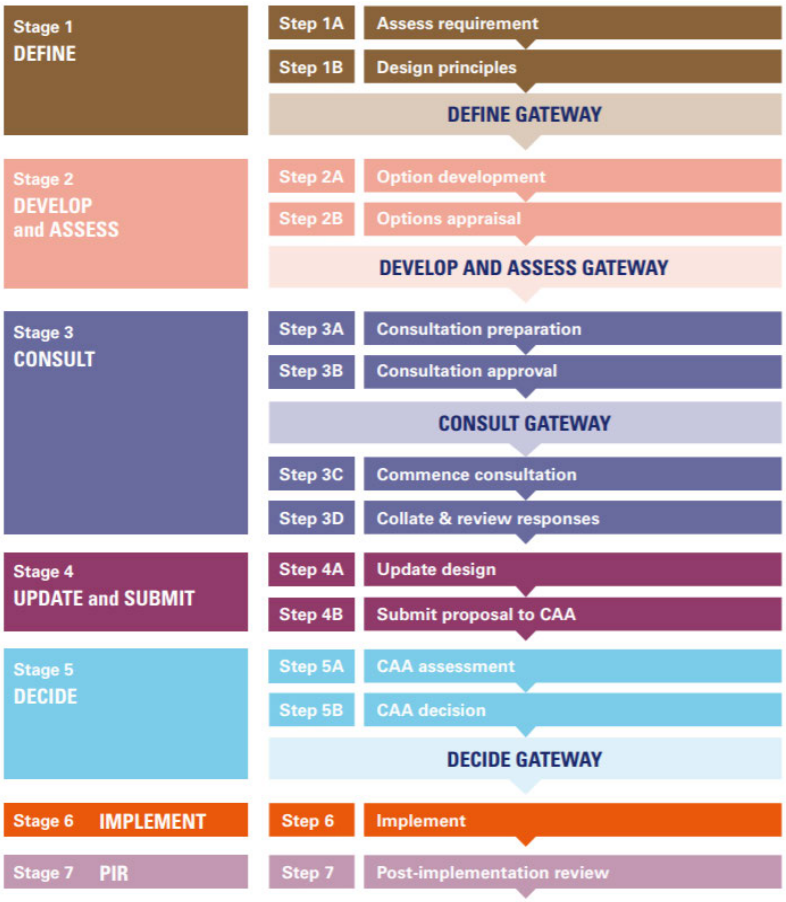

Figure 1: Overview of the CAA's CAP1616 Airspace Change Proposal Process

1.2.4 At Step 1A ('Assess requirement') an assessment meeting was held with the CAA on the 17 March 2019. Following this meeting, Heathrow submitted an updated Statement of Need, which was published on the CAA's portal on the 21 March 2019[4].

1.2.5 This document forms our submission to the CAA for Step 1B of the CAP1616 process ('Design Principles') and provides evidence of our compliance with the process. This document:

- Sets out our proposed design principles;
- Shows how these design principles have been informed by two-way stakeholder engagement.

1.2.6 The CAA will decide whether we have satisfied Step 1B of the process at the Define Gateway scheduled for 25 October 2019.

[4] https://airspacechange.caa.co.uk/PublicProposalArea?pID=110

2. DESIGN PRINCIPLES

2.1 What is a Design Principle?

2.1.1 CAP1616 describes the design principles as encompassing "the safety, environmental and operational criteria and the strategic policy objectives that the change sponsor seeks to achieve in developing the airspace change proposal."

2.1.2 Design principles must also consider government policy documents (e.g. Air Navigation Guidance 2017) and any local criteria, such as planning agreements and Noise Preferential Routes (NPRs)[5].

2.2 How will Heathrow use the Design Principles?

2.2.1 The airspace change process requires Heathrow to develop a set of design principles with identified stakeholders. Design principles essentially provide high-level criteria that the proposed airspace design options 'must' meet or 'should' meet.

2.2.2 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.

2.2.3 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.

Heathrow's Approach to Prioritisation of Airspace Design Principles	
Policy, regulatory and business requirements	These set out the safety, environmental and operational criteria that Heathrow's airspace chance 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. 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.

Table 1: Approach to prioritisation of airspace design principles

2.2.4 The prioritised design principles will be used in the development of airspace design options for CPT, and in the appraisal of those design options. We would normally favour an option that benefits a higher priority over one that provides the same level of benefit to a lower priority principle (all other things being equal). However, the design decision will rarely be that straightforward as every option will have its own complex mix of benefits and impacts across the range of principles.

[5] https://www.caa.co.uk/Consumers/Guide-to-aviation/Airspace/Noise-preferential-routes/

2.2.5 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.

2.2.6 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.

2.2.7 Our list of airspace design principles for CPT 09L and 09R Standard Instrument Departures is presented below, in Table 2. This table is the result of our findings from stakeholder engagement activities from July to August 2019.

2.2.8 The first six 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…".

2.2.9 Whilst all principles were discussed with stakeholders, design principles 7-9 are the result of the majority of our discussions during the workshops, in particular the engagement with local authorities and community groups and the sub-sections are shown in an agreed priority order. These are set out as "Heathrow should…"

2.3 *Heathrow's Design Principles for Compton 09L and 09R Standard Instrument Departures*

2.3.1 Following our recent stakeholder engagement, Heathrow's design principles for the Compton 09L and 09R Standard Instrument Departures airspace change proposal are:

	Final Prioritised Design Principles for CPT 09L and 09R SIDs
1	Must be safe
2	Must not change the rest of the existing airspace network
3	Must meet the three aims of the Noise Policy Statement for England[6]* (NPSE[7]); a) Avoid significant adverse impacts on health and quality of life b) Mitigate and minimise adverse impacts on health and quality of life c) Where possible, contribute to the improvements of health and quality of life

[6] The vision and aims of the NPSE should be interpreted by having regard to the set of shared UK principles that underpin the Government's sustainable development strategy

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

	*It is implicit that any airspace change proposal must meet the requirements of Air Navigation Guidance 2017[8] and the CAA's Airspace Modernisation Strategy[9]
4	Must meet local air quality requirements
5	Must not degrade Heathrow's runway throughput performance
6	Must enable the departures to stay within a Noise Preferential Route or Routes
7	Mitigate the effects of aircraft noise, enabled through; a) Continuous climb for aircraft to be as high as possible, as soon as possible, balancing any benefits between community and the airline industry, subject to compliance with Design Principle 4 b) Use of multiple routes, which diverge as soon as possible and converge as late as possible, to provide respite from aircraft noise, whilst sharing flights equitably and predictably across those routes c) Minimising tactical intervention by ATC below 7000ft[10] d) Avoiding overflight of communities not currently overflown by easterly CPT departures e) Positioning flights over non-residential areas, whilst avoiding AONBs and National Parks, where practicable f) Minimising the impact on communities overflown by other routes to/from Heathrow
8	Should not require any new Controlled Airspace (CAS)
9	Should not affect the ability for arrivals to Runways 09L and 09R to perform a Continuous Descent Approach

Table 2: Final Prioritised Design Principles for proposed new easterly CPT SIDS

[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf
[9] http://publicapps.caa.co.uk/docs/33/CAP%201711%20Airspace%20Modernisation%20Strategy.pdf
[10] See section 3.6.2 and Appendix D for more information

3. STAKEHOLDER ENGAGEMENT

3.1 CPT 09L and 09R SID Departures - Stage 1 Stakeholder Identification

3.1.1 Identifying stakeholders is a process that needs to be carried out at the beginning of any Airspace Change Proposal and continually assessed as the proposal develops.

3.1.2 Due to the nature of this airspace change it has been possible to identify stakeholders geographically, based on the current CPT departure swathes. This allowed Heathrow to identify the stakeholders who would potentially be impacted by any changes to the CPT route by overlaying the area onto local authority and constituency maps. This provided Heathrow with the following geographical area; this area includes a 'buffer' zone.

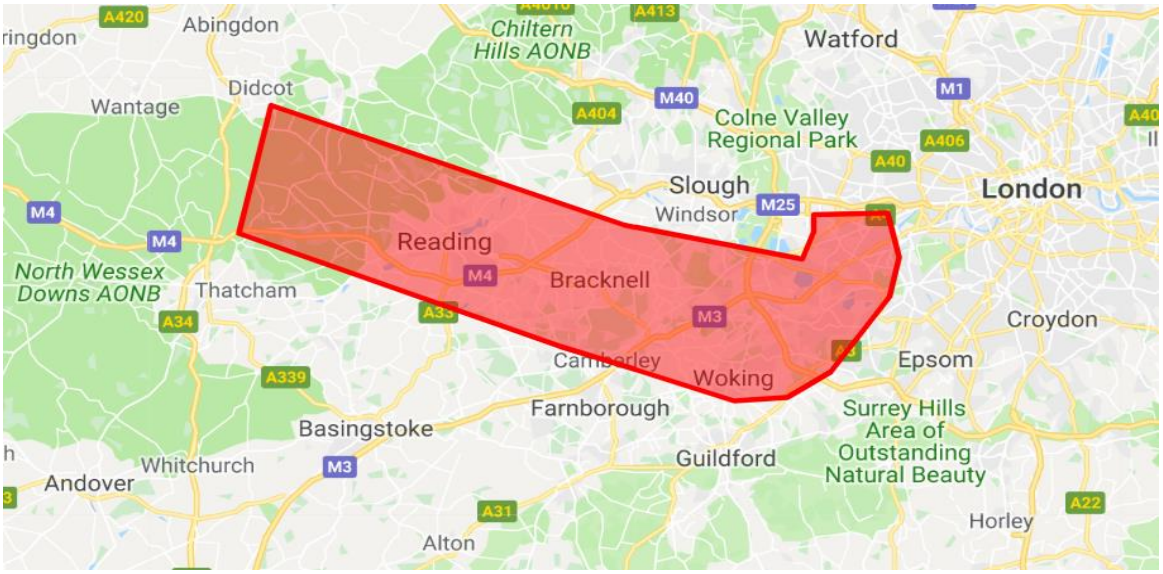

Figure 2: Map of potentially impacted areas[11]

3.1.3 Although the CPT SIDs could potentially extend to the western edge of the area shown in Figure 2, such departures towards the western side of the area are expected to be significantly above 7,000ft.

3.1.4 CAP1616 states that at this stage of the process design principles should be drawn up through discussion between the change sponsor and affected stakeholders. Local stakeholders should normally include elected community representatives, local community groups, the airport consultative committee and representatives of local General Aviation organisations or clubs.

3.1.5 For this stage of the engagement we focussed on those stakeholders that would be most affected by changes at 7,000ft and below. In the case of this ACP, no effect on local General Aviation organisations or clubs was expected as the SIDs would be expected to be contained within the existing Controlled Airspace boundary and the Heathrow Radar Manoeuvring Area (RMA), therefore, they were not specifically engaged on the design principles.

[11] As on the CAA Portal

3.1.6 After using the current CPT departure swathes[12] to identify the larger potentially impacted area in Figure 2, Heathrow undertook a further exercise to identify those stakeholders who could be most affected by changes to the CPT SIDs at 7,000ft and below. This is the area that Heathrow has chosen to focus on for the Stage 1B Design Principle Engagement.

Figure 3: Design principle engagement area

Who Heathrow engaged

3.1.7 For this stage of the engagement we identified the following stakeholders:

- Elected community representatives (Local Authorities/Constituencies)
- Heathrow Strategic Planning Group (HSPG)
- Heathrow Community Engagement Board (HCEB)
- Heathrow Community Noise Forum (HCNF)
- Industry Groups – Selected Heathrow Airlines and the National Air Traffic Management Committee (NATMAC)
- Public Focus Group – members of the public who reside in the potentially impacted area and have not previously engaged with Heathrow

3.1.8 Focussing on Figure 3, Heathrow identified the Local Authorities within that geographical boundary, and representatives from those areas were invited to participate in the engagement.

[12] The pattern of tracks over the ground, depicting the area overflown by aircraft following a particular route

Local Authority (11)
Bracknell Forest
Elmbridge
Hillingdon
Hounslow
Richmond upon Thames
Runnymede
Spelthorne
Surrey Heath
Windsor & Maidenhead
Woking
Wokingham

Table 3: List of engaged Local Authorities

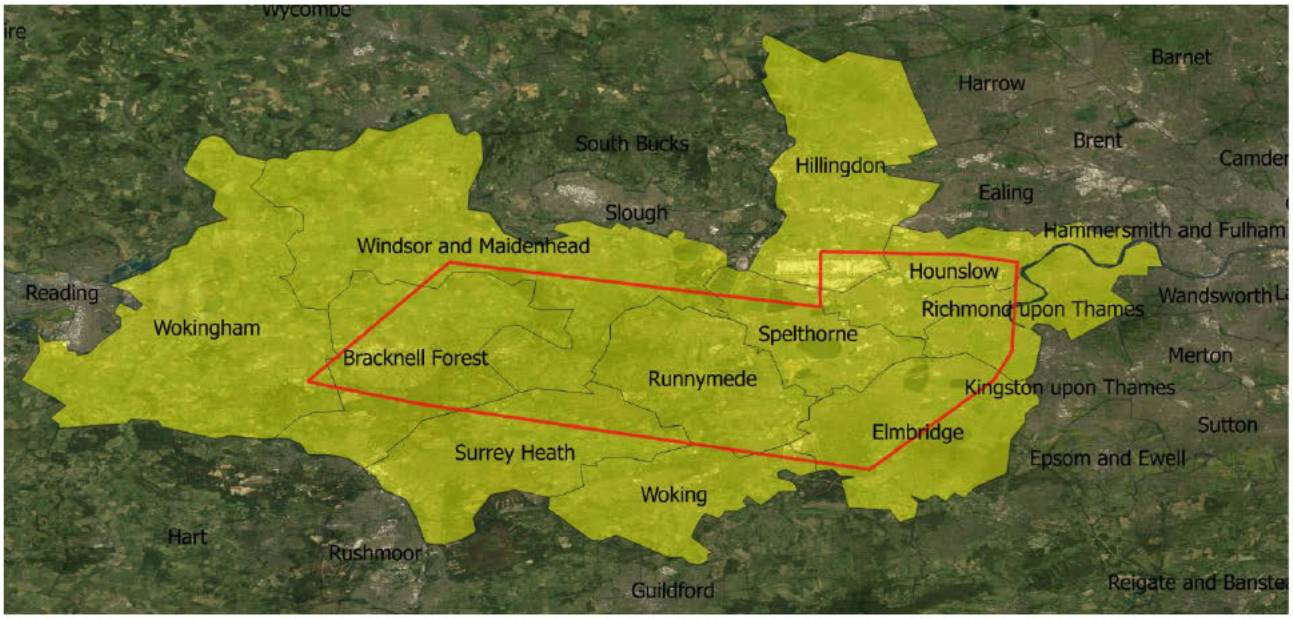

Figure 4: Map of engaged Local Authorities

3.1.9 As the over-arching constituency, Heathrow also invited Surrey County Council to attend the engagement sessions.

Heathrow Strategic Planning Group (HSPG)

3.1.10 The Heathrow Strategic Planning Group represents many of the local authorities and other public organisations responsible for planning the land use, transport, environment, economic development and sustainable development of the sub-region surrounding Heathrow Airport.

List of HSPG Members	
Buckinghamshire County Council	Runnymede Borough Council
Colne Valley Park Community Interest Company	Slough Borough Council
Elmbridge Borough Council	Surrey County Council
Enterprise M3 Local Enterprise Partnership	South Bucks District Council
London Borough of Ealing	Spelthorne Borough Council
London Borough of Hounslow	Thames Valley Berkshire Local Enterprise Partnership
Royal Borough of Windsor & Maidenhead	Buckinghamshire Thames Valley Local Enterprise Partnership

Table 4: List of HSPG members[13]

Heathrow Community Engagement Board (HCEB)

3.1.11 The Heathrow Community Engagement Board was set up to increase community and stakeholder participation in Heathrow's planning and decision-making processes. They fulfil the role of Airport Consultative Committee under Section 35 guidance issued by the Department for Transport[14], replacing the previous Heathrow Airport Consultative Committee (HACC). They also work with local people to provide challenge and scrutiny of the airport's day-to-day operations and expansion proposals.[15]

List of HCEB Members	
Chair	[redacted]
Director	[redacted]
Director	[redacted]
Non-Exec Board Member	[redacted]
Non-Exec Board Member & Chair of Passenger Services Group	[redacted]
Residents Adviser	[redacted]
Executive Assistant	[redacted]
Head of Communications & Strategy	[redacted]

Table 5: List of HCEB Board of Directors

Heathrow Community Noise Forum (HCNF)

3.1.12 The Heathrow Community Noise Forum was set up in 2015 and is made up of representatives from local authorities around Heathrow, NATS, British Airways, Virgin Atlantic Airways, the Department for Transport, the Civil Aviation Authority and Heathrow

[13] Information taken from http://www.heathrowstrategicplanninggroup.com/about-us
[14] https://www.legislation.gov.uk/ukpga/1982/16/section/35
[15] Rules of the Organisation https://static1.squarespace.com/static/5abcb26f9772aee7f0dd7ec8/t/5b98fce370a6ad55d7a94c9f/1536752868105/HCEB_Rules_of_Organisation_v1_2.pdf

(Table 4). Heathrow set up the forum in response to local concerns regarding future changes to airspace as a result of the Government's Airspace Modernisation Strategy.

3.1.13 The aim of the Forum is to:

- Keep community representatives and local authority stakeholders informed and seek their input in preparing for and consulting on future airspace modernisation as part of the Government's Airspace Modernisation Strategy and airspace changes associated with Heathrow expansion;
- Improve understanding of members on Heathrow's operations and airspace issues;
- Seek input from members to inform the communications approach to public consultations regarding potential airspace changes;
- Build trust in Heathrow's data through members involvement in the independent verification and analysis of data.

Borough	Councillor/Officer	Community Representative
Bracknell Forest	[redacted]	[redacted] LAANC
Buckinghamshire CC	[redacted]	[redacted]
Elmbridge	[redacted]	[redacted]
Hillingdon		[redacted] HASRA [redacted]
Hounslow	[redacted]	
London Borough of Ealing	[redacted]	[redacted] EANAG
Hammersmith & Fulham	[redacted]	
London Borough of Lewisham		[redacted] Forest Hill Society
London Borough of Southwark		[redacted] Plane Hell
Richmond	[redacted]	[redacted] Richmond Heathrow Campaign (RHC) [redacted] RHC [redacted], Teddington Action Group (TAG) [redacted] TAG
Runnymede	[redacted] [redacted]	[redacted] Englefield Green [redacted] Englefield Green Action Group (EGAG) [redacted] EGAG [redacted] EGAG
South Bucks	[redacted]	[redacted] Richings Park Residents Association
Spelthorne	[redacted] [redacted]	[redacted] Spelthorne resident
Surrey Heath	[redacted] [redacted]	[redacted] Aircraft Noise 3 Villages (AN3V) [redacted] AN3V [redacted] AN3V [redacted] The Windlesham Society
Surrey County Council	[redacted]	

Slough	[redacted]	
Windsor & Maidenhead	[redacted]	
Wokingham	[redacted]	
Other		[redacted] HACAN

Industry		
To70 (Independent Advisor)	Anderson Acoustics	British Airways
Virgin Atlantic	Civil Aviation Authority	Department for Transport
NATS	Independent Commission on Civil Aviation Noise (ICCAN)	Heathrow

Table 6: List of HCNF Members

3.1.14 Whilst all members of the HCNF were invited to attend the engagement sessions, Heathrow specifically requested for those who are overflown by the Compton route today to attend. A copy of the email sent is available in Appendix B, page 4.

Selected Heathrow Airlines

3.1.15 To ensure the correct airlines were engaged, Heathrow looked at the data on which airlines most frequently use the Compton departure route.

British Airways	Virgin Atlantic
United Airlines	American Airlines
Delta	Air Canada
Aer Lingus	

Table 7: List of Airlines engaged

National Air Traffic Management Committee (NATMAC)

3.1.16 NATMAC is a non-statutory advisory body sponsored by the CAA Safety and Airspace Regulations Group (SARG). The Committee is consulted for advice and views on any major matter concerned with airspace management, including Unmanned Aerial Vehicles. NATMAC is to assist SARG in the development of airspace policies, configurations and procedures in order that due attention is given to the various requirements of all users of United Kingdom airspace, civil and military.

List of NATMAC Members	
Airlines UK	Airspace4All
Airport Operators Association (AOA)	Airfield Operators Group (AOG)
Aircraft Owners & Pilots Association (AOPA)	Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)

British Airways (BA)	Bae Systems
British Airline Pilots Association (BALPA)	British Balloon & Airship Club (BBAC)
British Business & General Aviation Association (BBGA)	British Gliding Association (BGA)
British Helicopter Association (BHA)	British Hang Gliding & Paragliding Association (BHPA)
British Microlight Aircraft Association (BMAA)	British Model Flying Association (BMFA)
British Parachute Association (BPA)	General Aviation Alliance (GAA)
General Aviation Safety Council (GASCo)	Guild of Air Traffic Control Officers (GATCO)
Honourable Company of Air Pilots (HCAP)	Helicopter Club of Great Britain (HCGB)
Heavy Airlines	Isle of Man CC
Light Aircraft Association (LAA)	Low-Fares Airlines
National Air Traffic Services (NATS)	PPL/IR (Europe)
UK Airprox Board (UKAB)	UK Flight Safety Committee (UKFSC)
Ministry of Defence – Defence Airspace & Air Traffic Management (MoD DAATM)	United States Air Force Europe (USAFE)
Navy Command Headquarters	Military Aviation Authority (MAA)

Table 8: List of NAMTAC members

3.2 Methods of Engagement

Date	Event	Stakeholders
11 Jul 19	Workshop	Community Groups
11 Jul 19	Workshop	Local Authorities
16 Jul 19	Email	NATMAC
16 Jul 19	Public Focus Group	Public
17 Jul 19	Workshop	Additional Local Authority session
26 Jul 19	Email	Selected Airlines
16 Aug 19	Workshop	Community Groups
16 Aug 19	Workshop	Local Authorities
20 Aug 19	Workshop	Combined Community/Local Authorities

Table 9: List of Engagement events

3.2.1 The stakeholders were not engaged as one whole group but separated into smaller forums to ensure that Heathrow was able to cater for the range in knowledge, adapt presentation styles according to the audience and to ensure all opinions could be heard.

3.2.2 Workshops were held for the community groups and local authorities. Industry stakeholders were engaged via email, due to the limited opportunity to gather key people together for sessions.

3.2.3 Members of the HCNF, HCEB, HSPG and local authorities, including Surrey County Council, were invited to attend workshops. Whilst all members of the HCNF were invited to attend the engagement sessions, Heathrow specifically requested for those who are overflown by the Compton route today to attend. The format of the workshops would be the same but split between the community groups (HCNF/HCEB) and the local authorities/HSPG.

3.2.4 The first round of workshops informed stakeholders of the background to the Compton 09L and 09R Standard Instrument Departures airspace change proposal, CAP1616 and design principles. The focus was a discussion in which stakeholders were given the platform to suggest and discuss design principles. A copy of the presentation is available in Appendix B, pages 11-29.

3.2.5 All the design principle suggestions made by stakeholders during the first round of workshops were included in a scoring matrix (Tables 10-12). This matrix was then emailed to all stakeholders (who had been invited to the first round of workshops), the selected airlines (Table 7) and all members of NATMAC, and their input and feedback was requested.

3.2.6 All stakeholders were given two weeks to provide feedback, by filling out the matrix provided, and given the opportunity to add any additional design principles or provide any further information if they wished.

3.2.7 Following the analysis of the feedback received, Heathrow held a second round of workshops, with the same invited groups. During these sessions, Heathrow went through all the feedback received and presented a draft list of design principles for further discussion. A copy of this presentation is available in Appendix B, pages 59-79. Stakeholders were given the opportunity to suggest re-wording or a change in prioritisation of the proposed design principles. They did make suggestions, and these are reflected in the final principles, as explained in section 3.5-3.6. The notes from this workshop are available at Appendix B, pages 37-42 and pages 45-47.

3.2.8 Heathrow then considered all feedback from the discussions that had taken place and produced the final set of design principles listed in Table 2. The evolution of the design principles from the first round of workshops to the final list is available at Appendix D.

3.2.9 Overall, six workshops took place during the engagement period. All correspondence that took place between Heathrow and stakeholders is available in Appendix B.

3.2.10 To ensure stakeholders who do not currently have an existing relationship with Heathrow Airport, but who may be impacted by the CPT airspace change, were also engaged Heathrow conducted public focus groups.

3.2.11 Stonehaven, an independent communication consultancy was asked to support this work. In consultation with Heathrow, Stonehaven made a recommendation on the research methodology and conducted two public focus groups (moderated by an Association of Qualitative Research-qualified moderator). Stonehaven set up and hosted the Public Focus Groups and collated feedback on the CPT airspace change proposal and thoughts on

design principles. This feedback was used in Workshop 2 and is summarised in sections 3.4.25-3.4.28, with the full report available in Annex 1.

3.3 First Round of Workshops

3.3.1 A full copy of the presentation given at the first round of workshops is available in Appendix B, pages 11-29.

3.3.2 Initially two sessions were arranged, one for community groups (HCEB & HCNF) and one for local authorities and the HSPG. However, to ensure that everyone was able to attend, an additional session was added for local authorities. A full list of attendees at each workshop is available at Appendix B, pages 37,40 and 45.

3.3.3 All stakeholders, excluding airlines, queried the need for a new CPT SID and queried the need for aircraft to stay within an NPR. There was a strong preference from all community representatives and from within the public focus groups that the CPT situation was left alone. Heathrow explained that this ACP is driven by a DfT requirement to improve NPR adherence on the easterly CPT departure.

3.3.4 Following these three sessions, the design principle matrix was created. Although there was some repetition or similarities between some proposed principles, for transparency and completeness Heathrow felt it was important to have all suggestions made available for all stakeholders to see and score:

Design Principles Proposed by Community Groups	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Multiple routes are a must							
Routes should be as far apart as possible & stay apart as long as practicable & the noise impacts distributed evenly across them							
Those that already suffer should not suffer any more than this; use N metrics[16] or suite of metrics to measure this							
The different routes should 'split' as soon as possible, but keep away from other routes and don't get them any closer & minimise numbers of people significantly affected below 1000ft							
Where possible, do not overfly communities who are not already within the existing CPT 09 departure swathe below 6000ft							
Routes should be designed so controllers don't have to routinely intervene below 6000ft							
Avoid overflying communities with multiple routes in the same runway configuration							

[16] https://www.macnoise.com/faq/what-number-above-noise-metric

Don't overfly those communities who are currently overflown by Heathrow's westerly SIDs below 4000ft, with a CPT09 SID below 4000ft							
Don't be constrained by existing NPR or the current definition of an NPR							
Enable Continuous Climb							
Noise should take the priority up to 6000ft							
Minimise fuel/CO_2 above 6000ft							

Table 10: Design principles proposed by community groups

Design Principles Proposed by Local Authorities	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Climb as fast as possible							
Multiple (& enough) flight paths sufficiently spaced to make a difference							
Equitably share the noise and frequency of overflight							
Where possible, fly over open spaces not residential areas							
Take into account other routes, do not overfly the same communities below 4000ft on easterly vs westerly operations. Do this by imposing a minimum 4000ft point or a maximum noise threshold							
Route alternation should be predictable							
Do not degrade current air quality							
Don't increase noise more for those already significantly affected							

Table 11: Design principles proposed by Local Authorities

Design Principles Proposed by HSPG	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Should factor in ambient/ background noise (using the BS4142 methodology)							
Should aim to define 'Respite' for this ACP so we can assess our options against that benchmark							

Table 12: Design Principles proposed by HSPG

3.3.5 The matrix was emailed out to all stakeholders invited to all the workshops, the selected airlines, NATS and NATMAC. Attendees of the workshops also received a copy of the relevant meeting notes. All stakeholders were given two weeks to provide feedback.

3.3.6 A full copy of the workshop notes from all three sessions are available at Appendix B, pages 37-39 (Community Group), pages 40-42 (Local Authorities) and pages 45-47 (HSPG).

3.4 Summary of Workshop 1 Feedback Received

3.4.1 Heathrow received feedback from 22 stakeholders. A summary of the feedback received is in the sections 3.4.4-3.4.24. Although not all the stakeholders completed the design principle matrix, the results of the exercise were:

Design Principles Proposed by Community Groups	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered
Multiple routes are a must	IIIIII	II	IIIIII	I		I
Routes should be as far apart as possible & stay apart as long as practicable & the noise impacts distributed evenly across them	IIIII	IIII	IIIIII			I
Those that already suffer should not suffer any more than this; use N metrics or suite of metrics to measure this	III	IIIIII	IIIII			I
The different routes should 'split' as soon as possible, but keep away from other routes and don't get them any closer & minimise numbers of people significantly affected below 1000ft	IIII	IIIII	IIII	I		I
Where possible, do not overfly communities who are not already within the existing CPT 09 departure swathe below 6000ft	IIIII	II	IIIIIII	I		
Routes should be designed so controllers don't have to routinely intervene below 6000ft	IIIIIII	II	IIIII			
Avoid overflying communities with multiple routes in the same runway configuration	IIII	IIIII	IIIII	I		
Don't overfly those communities who are currently overflown by Heathrow's westerly SIDs below 4000ft, with a CPT09 SID below 4000ft	IIII	IIII	IIIIIII	I		I
Don't be constrained by existing NPR or the current definition of an NPR	III	IIIII	IIIIIII			
Enable Continuous Climb	IIIIIIIII	I	IIIII			I
Noise should take the priority up to 6000ft	IIIIIIIII		IIIIII	II		
Minimise fuel/CO2 above 6000ft	IIIII	II	IIIIII	I		I

Table 13: Results of design principle matrix – community group suggestions

Design Principles Proposed by Local Authorities	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered
Climb as fast as possible	IIIIIII	IIII	IIIII			
Multiple (& enough) flight paths sufficiently spaced to make a difference	IIIII	IIIII	IIIII			
Equitably share the noise and frequency of overflight	IIII	IIII	IIIIII			
Where possible, fly over open spaces not residential areas	IIIIII	IIII	IIIIII			
Take into account other routes, do not overfly the same communities below 4000ft on easterly vs westerly operations. Do this by imposing a minimum 4000ft point or a maximum noise threshold	IIII	IIIII	IIII	II		
Route alternation should be predictable	IIII	IIIIIII	IIII			I

Do not degrade current air quality	IIII	IIIII	IIIII			I
Don't increase noise more for those already significantly affected	IIIIII	IIIII	IIIII			

Table 14: Results of design principle matrix – local authority group suggestions

Design Principles Proposed by HSPG	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Should not be considered
Should factor in ambient/background noise (using the BS4142 methodology)	I	I	II	I		II
Should aim to define 'Respite' for this ACP so we can assess our options against that benchmark		IIII	II			I

Table 15: Results of design principle matrix – HSPG group suggestions

3.4.2 The general agreement reflected in the matrix is an indication of the positive nature and recurring themes from all stakeholders that took part in the workshops.

3.4.3 Some stakeholders completed the matrix and provided written feedback and others chose not to complete the matrix and only provided written feedback. All the feedback received was analysed and taken into account and is summarised in the following paragraphs. Full copies of all the feedback received is available at Appendix C.

Industry Feedback

3.4.4 Through engagement with members of NATMAC and selected airlines, Heathrow received feedback from the following industry organisations:

British Helicopter Association (BHA)	UK Flight Safety Committee (UKFSC)
London Luton Airport Operations Ltd	Honourable Company of Air Pilots
National Air Traffic Services (NATS)	Ministry of Defence (MOD)
Virgin Atlantic Airways	Delta Airlines
United Airlines	

Table 16: List of Industry Groups who responded to the design principle engagement

3.4.5 The BHA made no comments on the design principle matrix, however they stated that the number one principle should be safety.

3.4.6 The UKFSC, the MOD and Delta Airlines completed the matrix, full copies are available at Appendix C.

3.4.7 London Luton Airport Operations Ltd completed the matrix, a fully copy is available at Appendix C, pages 15-18. They also suggested two additional design principles:

- Keep controlled airspace (CAS) requirements to a minimum
- Should avoid overflying communities with multiple routes, including those from other airports below 7000ft.

3.4.8 The Honourable Company of Air Pilots completed the design principle matrix, a full copy is available at Appendix C, pages 24-26. They also suggested two additional design principles:

- Should prioritise ‘continuous climb’ over ‘continuous descent’
- Should not introduce complexity to flight deck procedures during departure.

3.4.9 NATS completed the design principle matrix, a full copy is available at Appendix C, pages 27-30. They also made the following remarks/additional design principles (DPs):

- The intent of many DPs seems to be the equitable distribution of noise impacts. Several suggested DPs attempt to prescribe methods of achieving that concept. These DPs should not go into detail on any particular prescriptive method, and the wording should focus on the outcome, along with a qualifier such as “maximise the equitable distribution of noise impacts” suffixed by a general concept if necessary.
- There should be fewer DPs, each dealing with a single general subject. If a DP contains too many clauses, there will be design options which meet one part of a DP and not the other. This would allow design options to be focussed, consistently worded, and more easily qualitatively evaluated under CAP1616 Step 2B.
- From an air traffic control / airspace technical design point of view, the focus on multiple routes may cause issues when design options are evaluated against DPs under CAP1616 Step 2B. Existing airspace and traffic flows will constrain the region within which the route(s) could realistically be placed, and it is not reasonable to expect to move other flows due to all the consequential impacts. It may not be possible for one or more design options to meet DPs which demand multiple routes. Likewise, a design option with only one route may be appropriate and meet the majority of DPs and should not be discounted.
- Please add an appropriate DP of higher priority than all others concerning the maintaining or improving standards of aviation safety.
- This should be a “golden DP”, always the highest priority.
- It would encompass technical regulations concerning flight procedure design, and operational complexity with regard to air traffic control workload (not considering the new design in isolation, but in combination with adjacent flows and procedures). However, the simple general DP would not need to specify these subjects.

3.4.10 Virgin Atlantic Airways completed the design principle matrix, a full copy is available at Appendix C, pages 40-42. They suggested the following additional design principles:

- All routes should be designed to achieve the best efficiency and the lowest noise impact – as a balance
- All routes must be flyable by all the projected fleet of aircraft in operation at Heathrow
- Designs must take into account the range of aircraft weights, radius of turn and climb capabilities for the flights that will use the proposed Compton SIDs.
- Designs should not impose undue limitations on other routes linked to Heathrow and adjacent airports, for example; arrival routes into Heathrow.

3.4.11 United Airlines did not complete the matrix, however they provided feedback stating that safety should be a consideration and that a new departure procedure should be efficient with a continuous climb. A full copy of their feedback is available at Appendix C, page 45.

3.4.12 All these proposed design principles have been considered and the outcome is available at Appendix D, the evolution of the design principles.

Local Authority Feedback

3.4.13 Heathrow received written feedback from members of Surrey County Council, the Royal Borough of Windsor & Maidenhead, Woking Borough Council, the HSPG, Elmbridge Borough Council, Bracknell Forest Council and Runnymede Borough Council.

3.4.14 Surrey County Council did not complete the design principle matrix however they did provide written feedback on their high-level principles; this feedback was utilised and taken forward into the second workshop. A full copy of their feedback is available at Appendix C, pages 1-2.

3.4.15 The Royal Borough of Windsor & Maidenhead, Runnymede Borough Council and Bracknell Forest Council completed the design principle matrix, full copies are available at Appendix C.

3.4.16 Woking Borough Council did not complete the design principle matrix and referred to the Airspace and Future Operations consultation that Heathrow undertook earlier in the year. Their feedback focussed on providing respite for their communities and questioned the need for change on this route – bearing in mind the changes proposed due to the third runway. A full copy of their feedback is available at Appendix C, page 5.

3.4.17 The HSPG did not complete the design principle matrix and provided no additional feedback during this stage of engagement.

3.4.18 Elmbridge Borough Council did complete the design principle matrix, however they stated 'neither agree nor disagree' for each suggestion and commented that they would like to see a greater level of detail on the ground level impacts and more data.

Community Group Feedback

3.4.19 Heathrow received written feedback from Teddington Action Group (TAG), Englefield Green Action Group and a representative from Surrey County Council.

3.4.20 The representative on the HCNF from Surrey County Council completed the design principle matrix, a fully copy is available at Appendix C, pages 6-7. Additional design principles were also suggested:

- Do not overfly world heritage sites such as Hampton Court Palace.
- Do not route Compton PBN routes over those communities which are already overflown by departures on other routes on Easterlies from the southern runway (in Elmbridge e.g. Molesey, Thames/Long Ditton and Esher).
- Route over non-built up areas (such as reservoirs) where possible.

These proposed design principles have been considered and the outcome is available at Appendix D, the evolution of the design principles.

3.4.21 Englefield Green Action Group did not complete the design principle matrix however they did provide written feedback. A fully copy is available at Appendix C, pages 19-23. The feedback received focused on previous changes made to the CPT departure route by NATS and provided diagrams of how Englefield Green was affected. The feedback also quoted

from the presentation given by Heathrow to the CAA during the assessment meeting held on 7th March 2019 and gave the position that communities under a single PBN route will be blighted and that distributed flight tracks are preferable.

3.4.22 Both HCEB responses included a completed design principle matrix, copies are available at Appendix C, pages 33-34 and pages 82-83.

3.4.23 Teddington Action Group completed the design principle matrix and provided a presentation on their "Key considerations for Compton redesign based on latest evidence", copies of both are available at Appendix C, pages 46-81. They also suggested the following concepts of operations and design principles:

- Planes must use full take-off thrust to 1500ft to get as high as possible as quick as possible (i.e. NADP1)
- Planes must use reduced climb thrust (over populations) and keep flaps out to at least 3000ft (i.e. NADP2)
- Planes must use reduced climb thrust (over populations) and keep flaps out to 4500ft or higher (i.e. NADP1 extended)
- SID should design routes for different plane types – For Narrow bodied planes – set minimum heights of 1500ft at boundary fence (~4km from SoR)
- SID should design routes for different plane types – For 2 engined wide bodied planes – set minimum heights of 1500ft just beyond boundary fence (~4.5km from SoR)
- SID should design routes for different plane types – For 4 engined planes – set minimum heights of 1500ft at beyond boundary fence (~5km from SoR) but in principle as close as possible to boundary fence.

These proposed design principles have been considered and the outcome is available at Appendix D, the evolution of the design principles.

3.4.24 All the feedback received at this stage of engagement is available in Appendix C.

Public Focus Groups

3.4.25 Two group discussions were held on 16th July 2019, each lasting 90 minutes. Participants were recruited by an independent qualitative fieldwork recruiter. Participants were recruited using a recruitment screening questionnaire. In each group there were a mix of socio-economic groups (BC1C2), all were aged 25-65. All participants lived in or near the current Noise Preferential Route and/or CPT departure swathe, in a mix of areas; Egham, Staines, Sunningdale, Longcross, Chertsey, Ashford, Walton-on-Thames and Weybridge.

3.4.26 The group sessions were structured around a discussion guide, which is available in Annex 1 and following introductions and a warm-up, they focused on reactions to design principles and prioritisation exercises.

3.4.27 A full copy of the report is available in Annex 1. The recommendations from the discussion groups for prioritising the design principles were:

1. Safety
2. Minimise noise per flight

3. Continual climb to decrease noise and CO_2 emissions per flight
4. Design new routes based on where they currently fly
5. Review Noise Preferential Route to take into account population and landscape today
6. Minimise number of people overflown by flying over industrial and commercial areas where possible
7. Ensure respite, but not necessarily predicted respite
8. Multiple channels to share the impact of noise
9. Minimise fuel and CO_2 emissions
10. Simple and efficient flight paths
11. Less air traffic control impact to allow greater predictability to communities

3.4.28 This feedback was incorporated into the presentation given during the second round of workshops. A full copy of the presentation is available at Appendix B, pages 59-79.

3.5 Second Round of Workshops

3.5.1 A full copy of the presentation given during the second round of workshops is available at Appendix B, pages 59-79.

3.5.2 Initially two workshops were arranged, one specifically for the community groups (HCNF/HCEB) and one for the potentially impacted local authorities. However, an extra session was added to the schedule, which would be a combined workshop for those who may be unable to attend the original date.

3.5.3 The focus of the sessions was to assess and discuss Heathrow's proposed design principles. Stakeholders were asked for their opinions on each, and if they felt they were appropriate or should be re-worded, amended, or prioritised differently. The initial list proposed by Heathrow was:

1	Must be safe
2	Must not change the rest of the existing airspace network and adhere to Instrument Flight Procedure design criteria
3	Must meet the three aims of the Noise Policy Statement for England* (NPSE[17]); a) Avoid significant adverse impacts on health and quality of life b) Mitigate and minimise adverse impacts on health and quality of life c) Where possible, contribute to the improvements of health and quality of life *It is implicit that any airspace change proposal will be required to meet the requirements of Air Navigation Guidance 2017[18]
4	Must meet local air quality requirements
5	Must not degrade Heathrow's runway throughput performance
6	Must enable the departures to stay within a Noise Preferential Route or Routes

[17] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf
[18] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf

7	Mitigate the effects of aircraft noise, enabled through; a) Enabling efficient, continuous climb for aircraft to be as high as possible, as soon as possible, subject to compliance with Design Principle 4 b) Use of multiple route structures, spread as far apart as possible, as soon as possible, to provide respite from aircraft noise for as many people as possible and whilst sharing flights equitably and predictably across those route structures c) Minimising tactical intervention by ATC below 7000ft d) Avoiding overflight of communities not currently overflown by easterly CPT departures e) Positioning flights over non-residential areas whilst avoiding AONBs and National Parks, wherever possible f) Minimising the impact on communities overflown by other routes to/from Heathrow
8	Should not require any new Controlled Airspace
9	Should not affect the ability for arrivals to Runways 09L and 09R to perform a Continuous Descent Approach

Table 17: List of proposed design principles presented at the second round of workshops

Community Group Workshop

3.5.4 The community group workshop notes and list of attendees are available at Appendix B, pages 85-87.

3.5.5 The purpose of this workshop was to inform stakeholders of all the feedback received following the first round of workshops and from our engagement with selected airlines, NATMAC, NATS and the public focus groups. A presentation was given summarising the feedback received, via both the matrix and any further written feedback.

3.5.6 Stakeholders were given the opportunity to assess the results of the matrix and discuss the findings, as well as discuss the additional design principles which had been proposed by other stakeholders.

3.5.7 Discussions during this session focused on community concerns on the balance between community and industry requirements and how communities feel the airline industry has a bigger voice. They also believed that any benefits of quieter aircraft were not being passed onto the communities. A full copy of the workshop notes is available at Appendix B, pages 85-87.

3.5.8 During the discussion on Heathrow's proposed design principles, much of the focus was on design principle 7. Attendees felt that the proposed design principle 7a should be re-worded to ensure a fair balance was given to community noise concerns. The following suggestion was proposed "Enabling efficient, continuous climb for aircraft to be as high as possible as soon as possible, *balancing any benefits between community and industry*, subject to compliance with design principle 4". The attendees felt that this change addressed their concerns.

3.5.9 Following discussion on all the proposed design principles and the re-wording of design principle 7a, all the attendees were content with the remaining proposals and the order in which they were prioritised. A full record of the workshop is available at Appendix B, pages 85-87.

Local Authority Workshop

3.5.10 The local authority session workshop notes and list of attendees are available at Appendix B, pages 88-89. Due to inclement weather conditions on the day, some stakeholders were unable to attend this session at short notice. They were informed of the additional workshop being held the following week and were invited to attend.

3.5.11 The purpose of this workshop was to inform stakeholders of all the feedback received following the workshop 1 sessions and engagement with selected airlines, NATS, NATMAC and the public focus groups. A presentation was given summarising the feedback received, via both the matrix and any further written feedback.

3.5.12 Stakeholders were given the opportunity to assess the results of the matrix and discuss the findings, as well as discuss the additional design principles which had been proposed by other stakeholders.

3.5.13 Heathrow informed stakeholders of the reasons for including the proposed design principle 3, concerning adherence to the Noise Policy Statement for England (NPSE), as it includes many aspects which are important to communities.

3.5.14 Heathrow explained the proposed change to design principle 7a made during the community group workshop.

3.5.15 Attendees disagreed with proposed design principle 5 “Must not degrade Heathrow’s runway throughput performance”, as they felt that Heathrow should consider reducing the number of flights, if that would deliver benefits to communities. Following this workshop, one of the attendees emailed a formal question on this subject, the question and Heathrow’s responses are available at Appendix B, pages 83-84.

3.5.16 Attendees were content with the amendment made to design principle 7a and apart from design principle 5, they agreed with the remaining proposed design principle and the order in which they were prioritised.

Combined Community/Local Authority Workshop

3.5.17 The full workshop notes from the combined session and the list of attendees is available at Appendix B, pages 90-92.

3.5.18 The purpose of this workshop was to inform stakeholders of all the feedback received following the workshop 1 sessions and engagement with selected airlines, NATMAC, NATS and the public focus groups. A presentation was given summarising the feedback received, via both the matrix and any further written feedback.

3.5.19 Stakeholders were given the opportunity to assess the results of the matrix and discuss the findings, as well as discuss the additional design principles which had been proposed by other stakeholders.

3.5.20 During the discussion on the design principles proposed by other stakeholders, attendees at this session disagreed with suggestions made by Virgin Atlantic Airways and asked about the meaning of the word ‘efficient’ in proposed principle 7a. It was suggested that this word could be removed, as efficiency is covered with the rest of the sentence.

3.5.21 Attendees at this workshop were informed of the proposed change to design principle 7a made during the community group workshop and they agreed with this amendment.

3.5.22 Discussions took place on the prioritisation of the design principles, with the majority of attendees requesting that design principle 7 (in relation to noise) be moved higher up the list and sit above design principle 4 “Must meet local air quality requirements”. Attendees felt that air quality did need to be in the list, however lower down, as it is not as important to residents as noise. It was noted that a representative from one Borough Council did not agree with this proposal.

3.5.23 Attendees were content with the additional re-wording to design principle 7a and notwithstanding the request to re-prioritise design principle 7, they were content with the remaining design principles but stressed again their strong desire to see noise placed as a higher priority in the list than local air quality. A full record of the workshop is available at Appendix B, pages 90-92.

3.5.24 Heathrow confirmed that an internal discussion would take place regarding re-prioritising of these principles. Attendees were informed, however, that a re-ordering might not take place, due to the importance placed on air quality as Heathrow sits within boroughs declared Air Quality Management Areas; meaning annual mean nitrogen dioxide levels were found to be exceeding the Government's Air Quality Objectives. The outcome of this internal discussion is available in paragraph 3.6.2 and stakeholders were informed via email, alongside the workshop notes and the final design principles for submission on 25th September 2019. Copies of all the emails are available at Appendix B, pages 94-96 and 99-101.

3.5.25 Elmbridge Borough Council were unable to attend the second round of workshops arranged and requested a separate session with Heathrow. This took place on 29th August 2019 and Heathrow went through the presentation shown at the other sessions, available at Appendix B, pages 59-79 and the outcome of the previous workshops. During this briefing, Heathrow explained the design principles and the points raised by Elmbridge in their initial feedback, summarised at paragraph 3.4.18. Heathrow explained that data on impacts would not be available until later in the process.

3.6 Outcomes Following Second Round of Workshops

3.6.1 Following all three workshops sessions, design principle 7a was re-worded as suggested by stakeholders. Design principle 7b was also slightly re-worded to ensure clarity. The evolution of the design principles is at Appendix D.

3.6.2 Although it was not suggested during the workshops that design principle 7c required any re-wording, further clarification was recommended. Design principle 7c should be read as "Mitigate the effects of aircraft noise, enabled through; minimising tactical intervention by ATC below 7000ft". This sits within the noise related design principles, as it ties in with providing predictable routes and respite, as if Air Traffic Control intervene the aircraft route is no longer predictable for those on the ground.

3.6.3 Heathrow also addressed the question raised in the combined session, concerning the re-ordering of the design principles to move design principle 7 (noise related principles) above design principle 4 (air quality).

3.6.4 CAP 1616[19] establishes that the CAA's airspace change process must operate within the Government's policy framework. Also, that airspace design principles must take account of government policy documents such as the government's Air Navigation Guidance and local criteria such as section 106 planning agreements or other planning agreements[20]. The Air Navigation Guidance in particular:

[19] CAP1616 page 13, para 32
[20] CAP1616 page 33, para 108

- Establishes an environmental objective to minimise local air quality emissions and in particular ensure that the UK complies with its international obligations on air quality[21].
- States that while the CAA should prioritise noise below 7,000 feet, there could be circumstances where local air quality may be a consideration because emissions from aircraft taking off, landing, or whilst they are on the ground have the potential to contribute to overall pollution levels in the area. This could lead to a situation where prioritising noise creates unacceptable costs in terms of local air quality or might risk breaching legal limits[22].

3.6.5 The London Boroughs of Hillingdon, Hounslow and Spelthorne have been declared Air Quality Management Areas because annual mean nitrogen dioxide levels were found to be exceeding the Government's Air Quality Objectives (AQOs).

3.6.6 Given this policy context, Heathrow has prioritised the design principle for local air quality above that for aircraft noise.

3.6.7 In practice, it is unlikely that any of the design options for Compton SID will impair attainment of local AQOs. To avoid any preconception, however, Heathrow will assess this fully as part of our CAP1616 Stage 3 environmental assessment process and as an integral part of options appraisal in Stages 2 and 3 of the CAP1616 process.

3.6.8 It is important to note that during our engagement workshops and in the written feedback, stakeholders vocalised strong opinions on this airspace change and whether it should go ahead. Community groups feel that the current dispersion of CPT departures is preferable to one or more concentrated PBN routes. Evidence can be seen in the workshop meeting notes in Appendix B and in Appendix C, in the feedback from Woking Borough Council, Englefield Green Action Group and Teddington Action Group

3.6.9 On completion of the second round of workshops an additional note was added to design principle 3, stating that it was implicit that the airspace change proposal would comply with the CAA's Airspace Modernisation Strategy – CAP1711[23] (AMS). This was added following correspondence with the CAA in which they informed Heathrow that they would consider it 'best practice' to include a reference to the AMS in all airspace change proposals. Stakeholders will be informed of this addition via email alongside the final set of design principles.

3.6.10 The notes from the second round of workshops, along with the explanation for the prioritising of air quality above noise, and the final design principles due to be submitted to the CAA were distributed to the stakeholders by email on 25th and 26th September 2019.

[21] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf para 1.2
[22] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf para 3.29
[23] http://publicapps.caa.co.uk/docs/33/CAP%201711%20Airspace%20Modernisation%20Strategy.pdf

4. FINAL DESIGN PRINCIPLES

4.1.1 The table below contains the final design principles Heathrow has submitted to the CAA for the Compton 09L and 09R Standard Instrument Departure Airspace Change Proposal.

	Final Prioritised Design Principles for CPT 09L and 09R SIDs
1	Must be safe
2	Must not change the rest of the existing airspace network
3	Must meet the three aims of the Noise Policy Statement for England[24]* (NPSE[25]); a) Avoid significant adverse impacts on health and quality of life b) Mitigate and minimise adverse impacts on health and quality of life c) Where possible, contribute to the improvements of health and quality of life *It is implicit that any airspace change proposal must meet the requirements of Air Navigation Guidance 2017[26] and the CAA's Airspace Modernisation Strategy[27]
4	Must meet local air quality requirements
5	Must not degrade Heathrow's runway throughput performance
6	Must enable the departures to stay within a Noise Preferential Route or Routes
7	Mitigate the effects of aircraft noise, enabled through; a) Continuous climb for aircraft to be as high as possible, as soon as possible, balancing any benefits between community and the airline industry, subject to compliance with Design Principle 4 b) Use of multiple routes, which diverge as soon as possible and converge as late as possible, to provide respite from aircraft noise, whilst sharing flights equitably and predictably across those routes c) Minimising tactical intervention by ATC below 7000ft[28] d) Avoiding overflight of communities not currently overflown by easterly CPT departures e) Positioning flights over non-residential areas, whilst avoiding AONBs and National Parks, where practicable f) Minimising the impact on communities overflown by other routes to/from Heathrow
8	Should not require any new Controlled Airspace (CAS)
9	Should not affect the ability for arrivals to Runways 09L and 09R to perform a Continuous Descent Approach

Table 18: Final Prioritised Design Principles for proposed new easterly CPT SIDS

[24] The vision and aims of the NPSE should be interpreted by having regard to the set of shared UK principles that underpin the Government's sustainable development strategy

[25] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

[26] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf

[27] http://publicapps.caa.co.uk/docs/33/CAP%201711%20Airspace%20Modernisation%20Strategy.pdf

[28] See section 3.6.2 and Appendix D for more information