Heathrow Airspace

APPENDIX 12 – STAKEHOLDER ENGAGEMENT LOG FOR AIRSPACE DESIGN PRINCIPLES

Heathrow Airspace

Date	Stakeholder Event	Topics Discussed	Heathrow Representatives	Minutes/ Presentations
17 May 2017	FASVIG	Airspace Change Process & pre-consultation engagement	See minutes	Minutes and Presentation attached to this Appendix
23 May 2017	Gatwick Airport	Airspace Change Process & pre-consultation engagement	See minutes	Minutes and Presentation attached to this Appendix
24 May 2017	HCNF[1]	Airspace Change Process	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_meeting_notes_24_May_2017.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Airspace_Change_Process_May_2017.pdf
24 May 2017	Denham Aerodrome	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix
25 May 2017	NATMAC	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix
21 June 2017	FASIIG	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix
22 June 2017	Luton Airport	Airspace Change Process & pre-consultation engagement	See minutes	Minutes and Presentation attached to this Appendix
5 July 2017	Stansted Airport	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix Presentation as used at Luton meeting on 22 June

[1] Heathrow Community Noise Forum
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19 July 2017	HCNF	Airspace Change Update	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_meeting_notes_19_July_2017.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Airspace_update_Jul_2017.pdf
21 July 2017	London City Airport	Airspace Change Process & pre-consultation engagement	▆▆▆▆▆▆▆	Presentation attached to this Appendix
31 August 2017	Public Health England	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix Presentation as used at London City meeting on 21 July
22 September 2017	Historic England	Airspace Change Process & pre-consultation engagement	See minutes	Minutes attached to this Appendix Presentation as used at London City meeting on 21 July
27 September 2017	Biggin Hill Airport	Airspace Change Process & pre-consultation engagement	▆▆▆▆	Meeting Note attached to this Appendix Presentation as used at London City meeting on 21 July
28 September 2017	Farnborough Airport	Airspace Change Process & pre-consultation engagement	▆▆▆▆	Meeting Note attached to this Appendix Presentation as used at London City meeting on 21 July
9 October 2017	Aviation Environment Federation (AEF)	Airspace Change Process & pre-consultation engagement	▆▆▆▆▆▆	Presentation as used at London City meeting on 21 July
12 October 2017	London Heliport	Airspace Change Process & pre-consultation engagement	▆▆▆▆▆	Presentation as used at London City meeting on 21 July
23 October 2017	GLA[2]	Airspace Change Process & pre-consultation engagement	▆▆▆▆▆	Meeting Note attached to this Appendix Presentation as used at London City meeting on 21 July
20 November 2017	Environment Agency	Airspace Change Process & pre-consultation engagement	▆▆▆▆	Minutes and Presentation attached to this Appendix

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[2] Greater London Authority
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22 November 2017	HCNF	Airspace Change Update	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_meeting_notes_22_Nov_2017.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Airspace_Update_Nov_17.pdf
24 January 2018	HCNF	Airspace Consultation	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Meeting_Notes_24_Jan_2018.pdf Presentation:
14 March 2018	HCNF	Airspace Consultation Update & Airspace Change Process (presented by CAA)	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_meeting_notes_14_Mar_2018.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/CAA_HCNF_CAP_1616_Airspace_Design_Mar_2018.pdf
16 May 2018	HCNF	Airspace Consultation: Next Steps	See minutes	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Meeting_Notes_16_May_2018.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_Airspace_Consultation_Next_Steps_May_2018.pdf
1 June 2018	NATMAC	Draft Design Principles & request for feedback	███████ ███████	Presentation provided in Appendix 9
4 June 2018	DfT Airspace Working Group	Update on Design Principles progress	███████ ███████	Minutes attached to this Appendix
7 June 2018	HSPG Noise and Air Quality Workshop	Draft Design Principles & request for feedback	███████	Presentation provided in Appendix 9
7 June 2018	HCNF Working Groups 1&2	Draft Design Principles & request for feedback	███████ ███████	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_WG1_WG2_notes_07_June_2018.pdf Presentation: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_WG_Airspace_Design_Principles_Overview_June_18.pdf

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22 June 2018	Airline Working Group	Draft Design Principles & request for feedback	███████ ███████	Presentation provided in Appendix 9
26 June 2018	HCEB[3] Chair	Draft Design Principles & request for feedback	███████ ███████	Presentation provided in Appendix 9
2 July 2018	Joint Expansion Board	Draft Design Principles & request for feedback	███████	Presentation provided in Appendix 9
18 July 2018	HCNF	Airspace Update & Explanation of Design Principles Prioritisation	███████ ███████	Minutes: https://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_meeting_notes_18_July_2018.pdf
19 July 2018	NERG	Draft Design Principles & request for feedback	███████ ███████	Presentation provided in Appendix 9

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Contact Record

Meeting Details:

Date and time:	Wednesday 17 May, 2017 11:00-12:15
Meeting title/subject:	Heathrow's Airspace Change Consultation: Pre-engagement
Purpose:	Providing FASVIG with a summary of Heathrow's Airspace Change Programme, and signposting CON1
Meeting location:	Barclays House, Aylesbury
Meeting organiser/lead:	▮▮▮▮▮▮▮▮▮
Attendees:	5
Apologies:	0
Circulation:	

Attendance:

Name	Organisation	Position	Initials
▮▮▮▮▮▮	FASVIG	▮▮▮▮▮	▮▮
▮▮▮▮▮	FASVIG	▮▮▮▮▮	▮▮
▮▮▮▮▮▮▮	FASVIG	▮▮▮▮▮	▮▮
▮▮▮▮▮▮	HAL	▮▮▮▮▮▮▮ ▮▮▮	▮▮
▮▮▮▮▮	HAL	▮▮▮▮▮▮▮ ▮▮	▮▮

Minutes

| Item:	Description / Action Item / Notes	Owner	Deadline
1	▇ confirmed that IPA is being introduced to provide resilience, not extra capacity	-	-
2	▇ confirmed that it's unlikely HAL will introduce 2 routes in place of CPT since there's unlikely to be room	-	-
3	▇ asked why HAL isn't planning to introduce RNP arrivals to both runways. ▇ said HAL would need wider spacing than we currently have using ILS, and we don't have enough RNP-enabled aircraft	-	-
4	▇ confirmed that IPA routes are being designed for both westerly and easterly arrivals	-	-
5	▇ asked for the locations and dates of the consultation events, so that FASVIG can share them with their members. ▇ promised we would provide them once we have them	▇	1/9/17
6	▇ offered to share the FASVIG members list so we know which stakeholders are included, and will therefore be updated on HAL's plans via FASVIG	▇	-
7	▇ asked if he could share details of HAL's airspace change programme and consultation on the FASVIG website. ▇ said she would discuss with HAL Comms.	▇	1/6/17
8	FASVIG offered to share their "Airspace capacity modelling tool" with HAL. "We'd like to work with you, not against" ▇ commented that both HAL and FASVIG want a reduction in infringements and there is opportunity for this in a few areas around the zone. "We should work together to find an airspace design that works for HAL and for the GA Community" ▇ ▇ to email ▇ re obtaining FASVIG's airspace capacity modelling tool	▇	1/6/17
9	▇ confirmed that heliroutes close to LHR will need to change	-	-
10	▇ is attending NATMAC next Thursday and suggested a HAL representative might want to present there as part of our pre-consultation engagement. ▇ to discuss and contact ▇ if HAL would like a slot on the agenda	▇	25/5/17
Note taker:	▇		
Next Meeting:	N/A		

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Airspace Change

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Heathrow expansion – airspace change
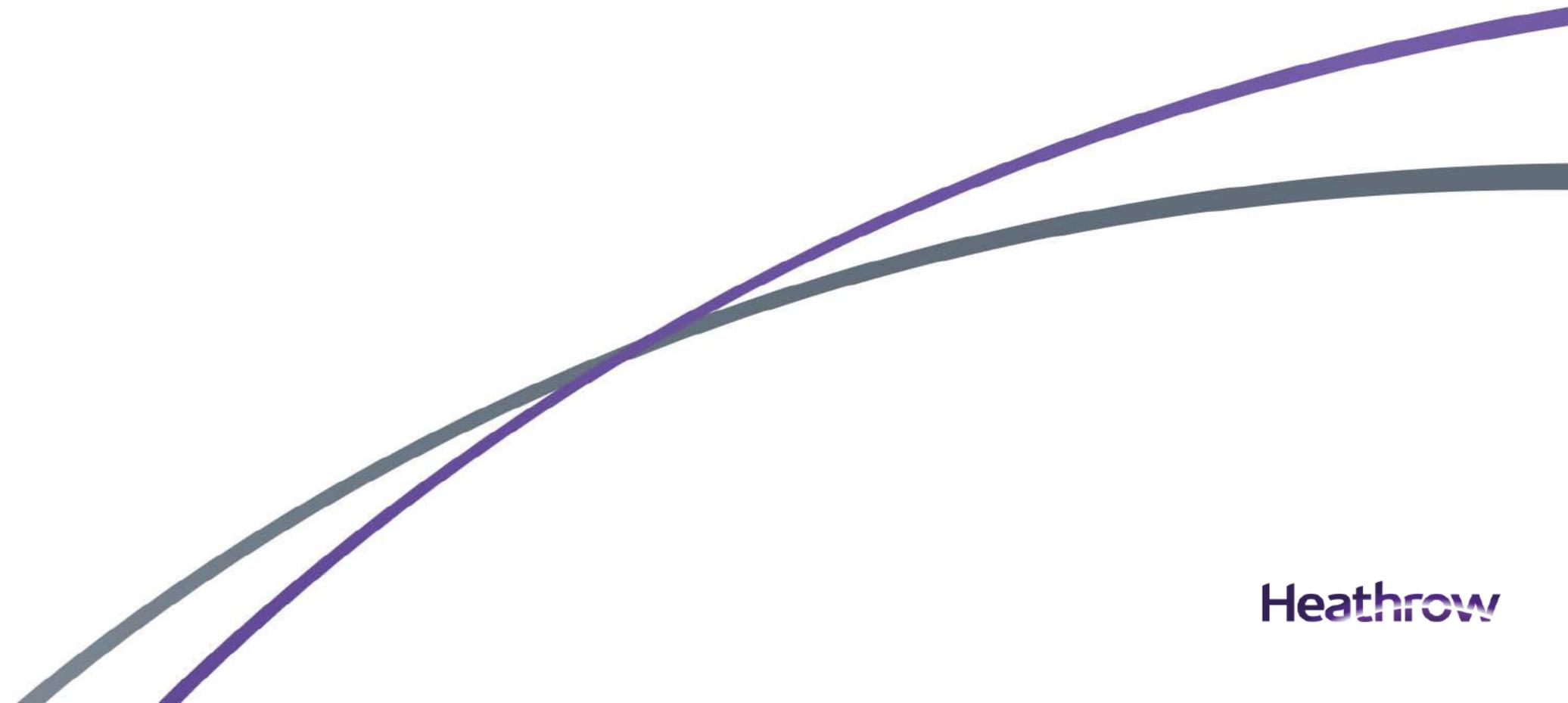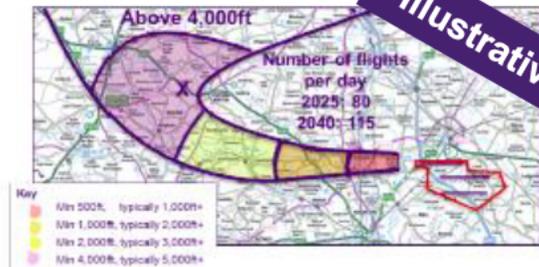
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Airspace Change Process (ACP) and Development Consent Order (DCO): two separate approvals for one 'good design' process
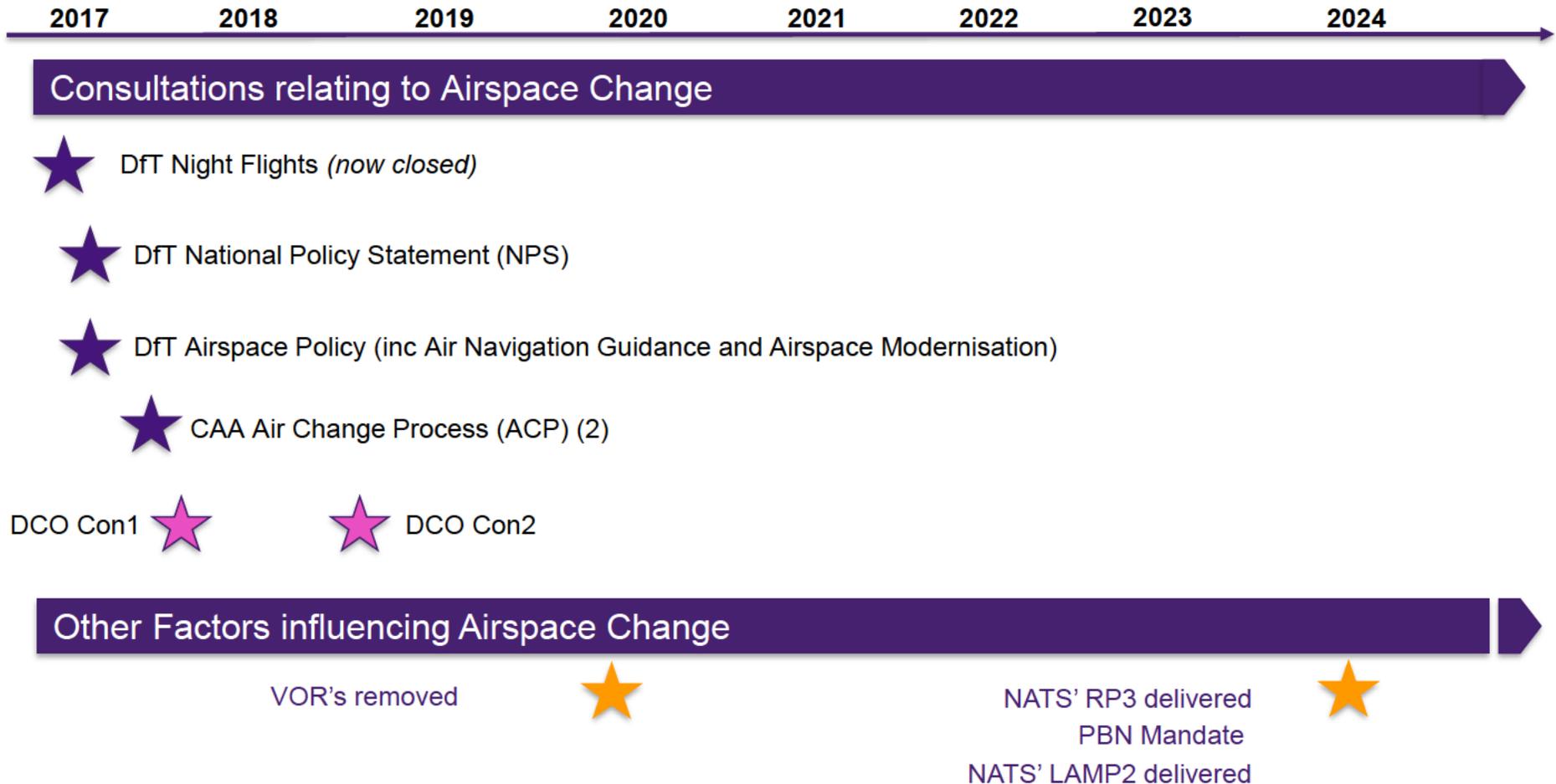
There are also a number of other consultations scheduled over the next 12 months

| 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |

Consultations relating to Airspace Change

★ DfT Night Flights *(now closed)*

★ DfT National Policy Statement (NPS)

★ DfT Airspace Policy (inc Air Navigation Guidance and Airspace Modernisation)

★ CAA Air Change Process (ACP) (2)

DCO Con1 ★   ★ DCO Con2

Other Factors influencing Airspace Change

VOR's removed   ★

NATS' RP3 delivered
PBN Mandate
NATS' LAMP2 delivered   ★

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Design process

- The Airspace Change Process (ACP) needs to be integrated with the Development Consent Order (DCO) process to ensure approvals are granted on both sides.

- The DCO application will require us to demonstrate likely noise impacts of the development, but the ACP sets out how we must develop the airspace for an expanded Heathrow through a staged process, demonstrating options analysis at each stage

Good airspace change design must:

- Devise options with input from those affected
- Have been developed through consultation - allowing sufficient time for consultation at key stages and take account of feedback
- Balance desire for early certainty vs. a transparent process that involves stakeholders from the outset

Good airspace change design will:

- Reduce the risk of later change
- Produce a optimal robust solution

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ACP: Three stage consultation

- To ensure we achieve "Good design" – we must ensure that all stakeholders get a chance to engage, input and influence the design from the earliest stage and as it matures.

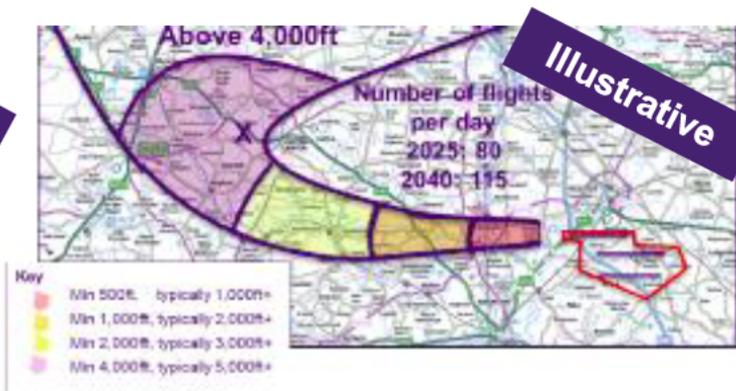- We are currently planning to undertake three stages of consultation:

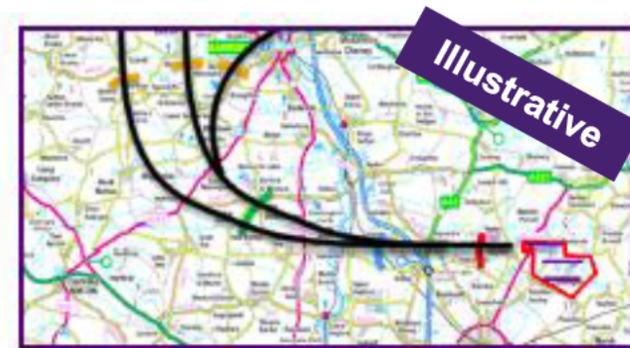### Stage 1
Design principles
(2017)
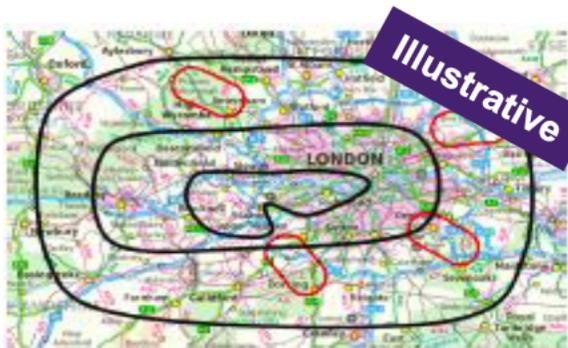
Stage 2
Design envelopes
(2018)

Stage 3
Flight path options
(TBC)

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Design principles consultation (Stage 1 - 2017)

- In this consultation we will identify a set of principles to help shape and underpin the design and structure of Heathrow's airspace.

- These principles will be based on the feedback received over the years from stakeholders along with Government policy.

- We'll be asking stakeholders whether they agree with the design principles and how they should be prioritised.

- *This set of principles will apply to all future airspace designs*

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Design envelopes (Stage 2 - 2018)

- A design envelope is the area in which a route/flight path may be positioned - it does not mean that flights will be spread across the extent of the envelope.

- It shows the extent of the geographical area where flight paths could be positioned within that zone/"envelope".

- For this consultation we will be seeking feedback on what local factors we should consider in helping us to determine where to position options for the route(s) within each of the design envelopes.

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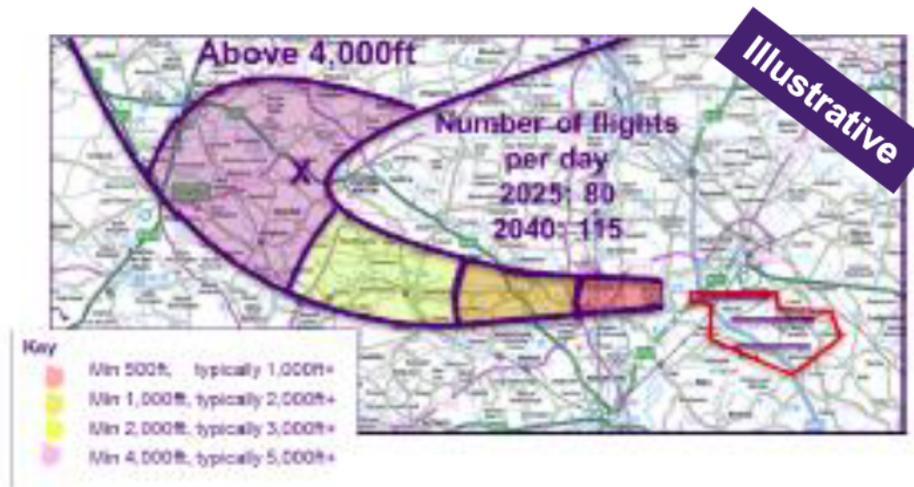
Flight path options (Stage 3 - TBC)

- Using the feedback gathered from the previous consultations – at stage 3 consultation we will presenting flight path options -"lines on the map" for each route.

- Following extensive analysis and evaluation of the data gathered throughout the different stages of the consultation, it will also:

  - Explain how we have formulated options through the design process
  - Present our preferred options and why these were selected
  - Provide details of why other flight path options were considered but are not preferred

- For this consultation we will be seeking feedback on these flight path options.
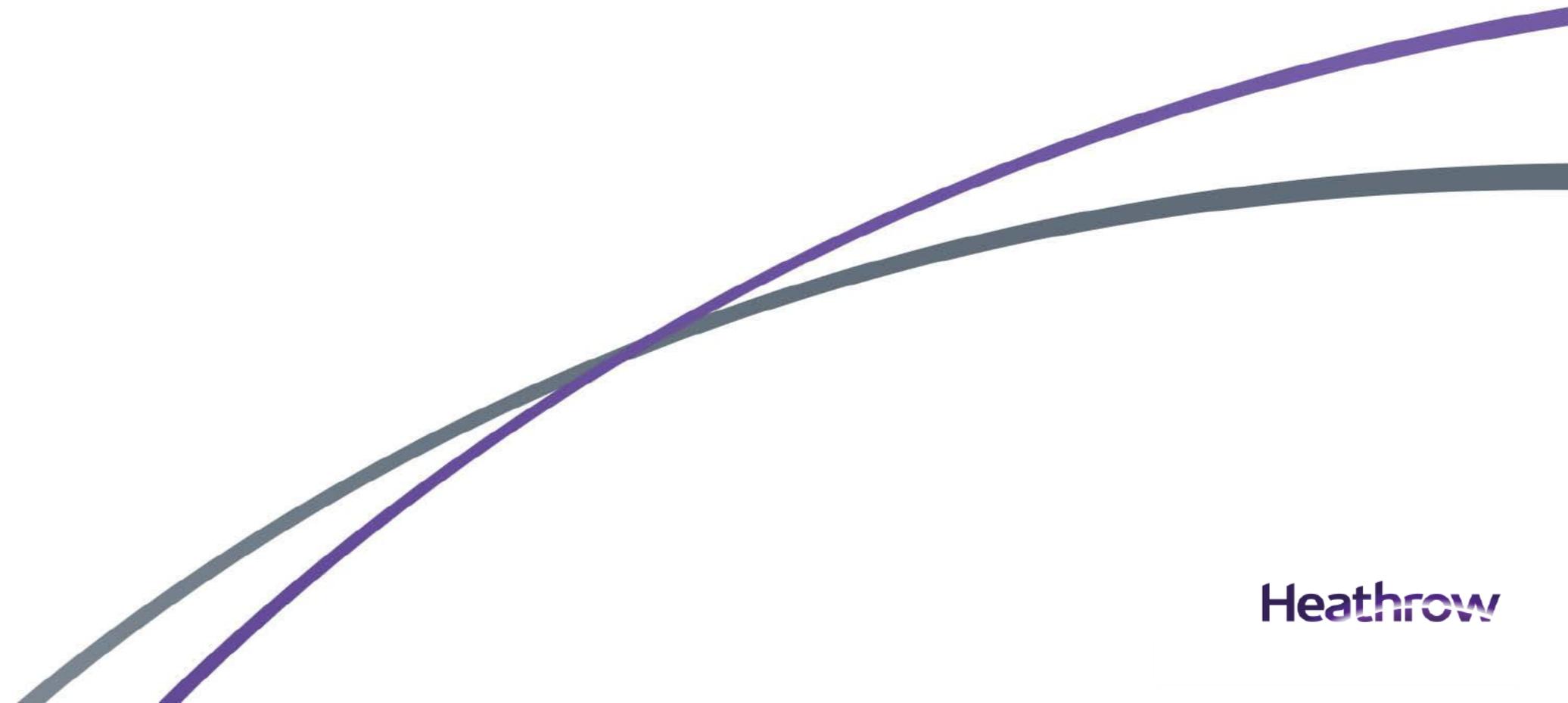

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Next steps

- Later this year we will be running a 12 week consultation on both DCO and airspace.

- We will be holding consultation events at numerous venues (locations to be confirmed) where we will be sharing more information.

- We would encourage you to respond to these consultations to have your say.

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Current operations – airspace change

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Why IPA?

- Today's aircraft have highly accurate navigation systems which means aircraft can fly a very precise route. This is known as Required Navigation Performance or RNP for short.

- If aircraft landing on the departures runway used RNP, there would no longer be the requirement as there is today for the diagonal spacing between arrivals on both runways (as illustrated below) – this is inefficient and reduces resilience.

- Using a procedure like RNP for TEAM arrivals, would allow Heathrow to operate the runways 'independently'. This is also known as Independent Parallel Approaches or IPA for short.
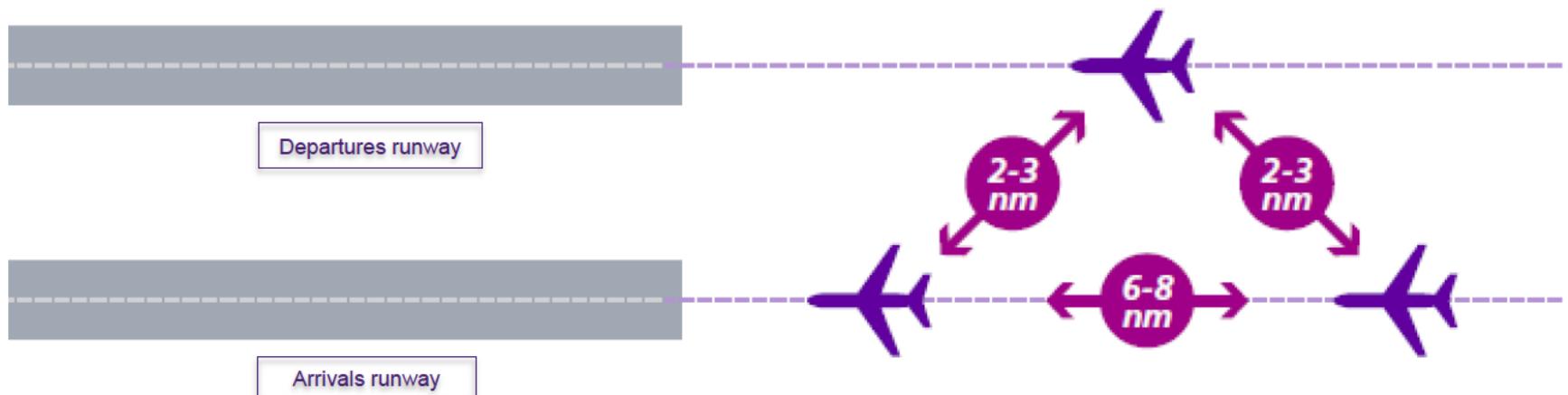
IPA using RNP – How would it work?

Aircraft landing on the *arrivals runway* would be directed by ATC on to the final approach known as the Instrument Landing System (ILS) exactly as they are today.

ILS
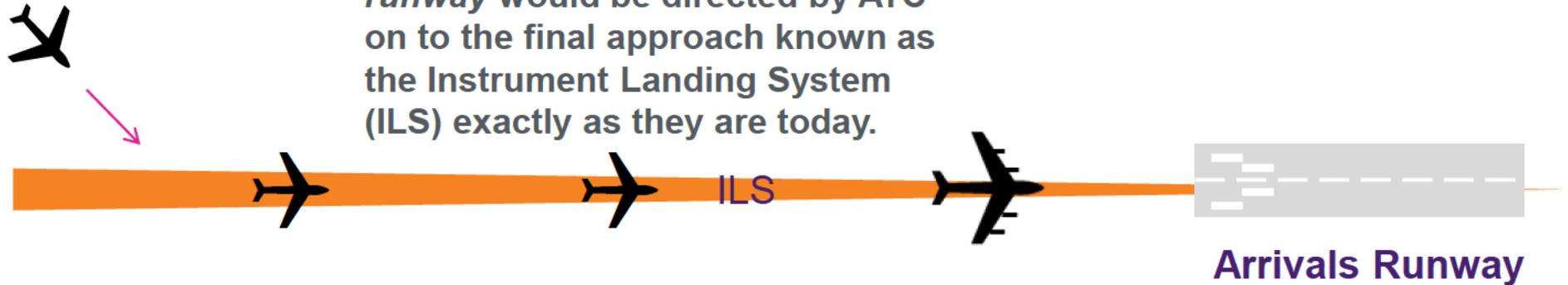
Arrivals Runway

The 'TEAM' arrivals on the *departures runway* would follow a fixed RNP procedure (from the holding stacks)

The TEAM arrivals would essentially be contained within a 'tunnel in space', ensuring that the two streams of arrivals remain separate.

Departures Runway

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What are the benefits of IPA?

- IPA **would not** change the rules for when or how many aircraft could be brought in on the departures runway (TEAM landers) but it would make TEAM much more efficient by:

  - **reducing** the time aircraft are held in a stack

  - **Increasing** resilience and reducing delays

  - **Improving** airfield punctuality by enabling an enhanced arrivals rate on the designated arrivals runway during the application of TEAM.

- It also offers the opportunity to **reduce** the number of arrivals that land out of alternation and provide the opportunity to reduce the amount of late runners that operate from the airport.

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Independent Parallel Approaches (IPA) & Compton (CPT) SID

- IPA & CPT have been identified as priority projects for current operations - scheduled for implementation in late 2019.

- We need to change the CPT departure route; this change is required by the CAA to make the route compliant to national standards.

- IPA has been identified as procedure to improve arrival efficiencies and to reduce delays (some IPA arrival routes will also be dependent on a new CPT departure so design of each needs to take account of the other).

- Therefore, we plan to consult on IPA and CPT at the same time as DCO/ACP Consultation 1 (later this year).

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IPA & CPT: consultation process

- Designs for IPA and CPT have to fit into the existing airspace system.

- This puts a practical limit on where the routes can go i.e. the design envelope.

- For IPA and CPT we will be consulting on the design envelopes at the same time as the design principles.

- After this consultation we will use the feedback on the design principles and design envelopes to determine where to position options for the 'lines on maps'/flight path options

- We then plan to consult on the flight path options in 2018.

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IPA & CPT: indicative ACP timeline

IPA & Compton ACP process

2017   **2018**   **2019**

Q1   Q2   Q3   Q4   Q1   Q2   Q3   Q4   Q1   Q2   Q3

IPA & CPT CON 1

Design Principles

Design envelopes

IPA & CPT CON 2

Flight path options

ACP submission following CON 2 (TBC)
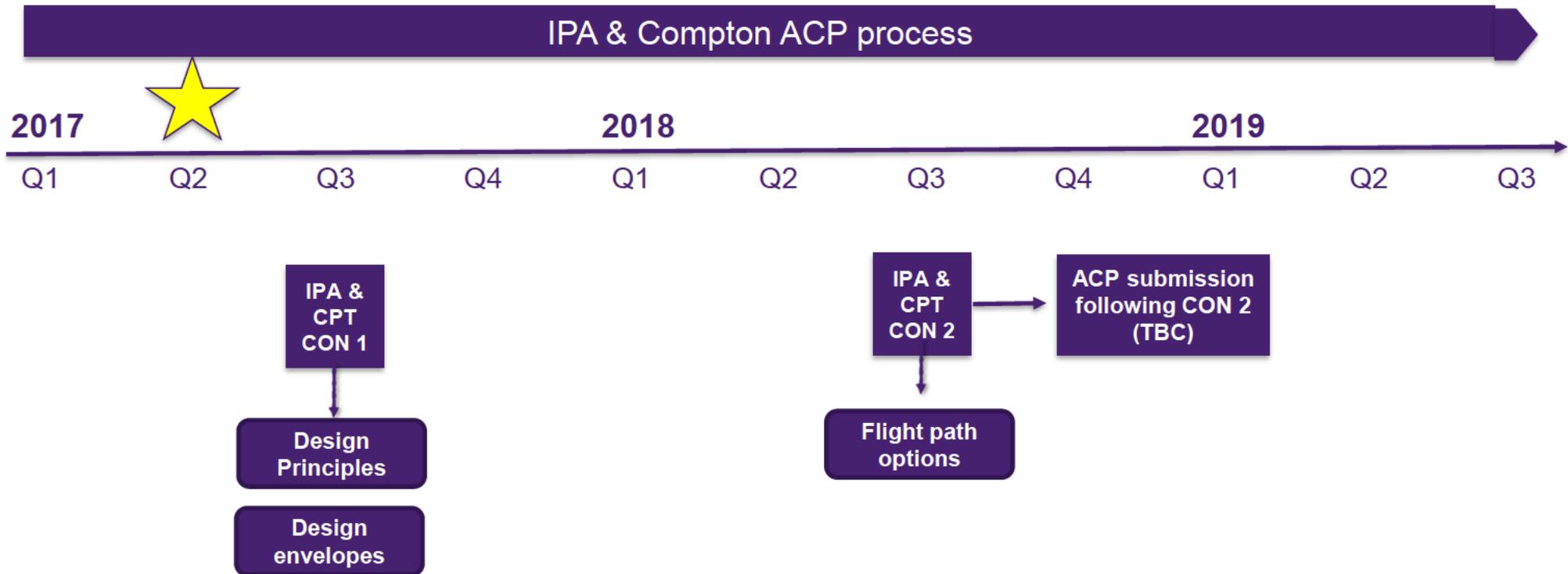
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Contact Record

Meeting Details:

Date and time:	Tuesday 23rd May, 10.30-12.30
Meeting title/subject:	HAL / Gatwick – Airspace Engagement Meeting
Purpose:	To engage and update HAL's Airspace plan and consultation timescales for DCO
Meeting location:	Destination Place, South Terminal, Gatwick Airport
Meeting organiser/lead:	███████████
Attendees:	HAL: ████████████████████████████████ ██████████████████████████ ████████████████████████ Gatwick: ████████████████████████████ ██████████████████████████████████ ████████████████████████████ ██████████████████ ██████████████████████ ███████████████
Apologies:	None
Circulation:	Those present

Attendance:

Name	Organisation	Position	Initials
████████████	HAL	██████████████████████ ██████████████	███
█████████████	HAL	██████████████████████	███
██████████	HAL	██████████████ ██████████	███
██████████████	Gatwick	██████████████████████ ██████████████	███
██████████████	Gatwick	██████████████████████ ██████████████████████ ████████████	███

GRIMSHAW Quod ARUP ATKINS JACOBS MOTT MACDONALD M amec foster wheeler **Heathrow** *Making every journey better*

Minutes

███████	Gatwick	██████████████ ██████████	██
█████████	Gatwick	████████	██
█████████	Gatwick	█████████████ ██	██
████████	Gatwick	███	█

Minutes

Item:	Type*	Description / Action Item / Notes	Owner	Deadline
1	V	■ – open discussion, pick up issues		
	H	■ – agree with purpose of meeting. Airspace is shared by all – co located. LHR presentation shared with airlines, community on 2R and 3R changes, now sharing with LGW. London City Airport and Luton Airport lined up. Stansted yet to respond. Engaged with Northolt from very early on		
2	N	■ – like to understand the Expansion Programme		
	N	■ – going through Airspace Change process / Airspace at LHR today explained. Opportunity on capacity, full aspiration		
3	H	■ – maintain efficiency principle		
	N	■ – introduce respite / release as part of NPS. Work further on reduce separation on departure and how it impact LHR		
4	N	■ – view of local community?		
	N	■ – LHR community supportive less from airlines		
5	N	Airspace change need to go through DCO planning process (video played).		
	N	3-4 years planning but doesn't give us permission for airspace change.		
6	H	Early consultation engagement with community started to help us get to a 'Good' airspace change planning, to understand their desire to help with the airspace design.		
7	H	DCO approval require environmental statement		
8	N	■ – stressed that everyone thinks they will be impacted by the principles but not the case		
9	V	LGW – communities' desire will differ from East and West. Is there a role within the Community Noise Forum that drives this.		
10	H	■ – CON1 – give as many options as possible. CON2 is different….		
11	V	■ – Understood the reason for engagement with LGW		

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Minutes

12	H	■ – Preferred options at high level shared with the communities. Always have options, park and revisit where necessary.		
	H	■ – Criteria on options with different components considered.		
	N	■ – what are the desired criteria? LGW's view is minimise noise…		
	N	■ – working on desired criteria		
	N	■ – how much attached with criteria – airlines/communities. What is the weighting?		
	N	■ – we don't use weighting. We use experts for option analysis		
	H	■ – LGW will be the first airport LHR will engage on optioneering		
	H/V	■ – As airport community, we need to come together to make this work. ■ agrees		
13	V	■ – Airspace change is also for future airport expansion whether it is LGW's 2nd runway or Birmingham		
14	N	■ – DCO and ACP process alignment . Reminder for airlines of numerous consultations taking place in coming years		
15	N	■ – is LHR planning to respond to NATS RP3?		
	N	■ – ■ is responsible		
	N	■ – Airspace Governance and Co-ordination		
	N	■ – Airport Chief Execs would be sitting together to discuss (FAS Deployment Steering Group)		
	N	■ – Right group		
16	H	■ – Design principles (engage with people, bigger than DfT public consultation)		
	N	■ – Q3 what date?		
	N	■ – no date but deferred to post general election		
	N	■ – how long is consultation		
	H	■ – 12 weeks		

Minutes

17	N	▮ – Stacks…		
	N	▮ – looking at routine stacking		
18	N	▮ – Design Process overview – talked about components, stacks.		
19	N	▮ – 2R projects currently. Parallel approaches. IPA video played.		
20	H	▮ – August consultation will share design envelopes at the same time as design principles		
21	N	▮ – is this capacity or within the 480		
	N	▮ – we don't have the capability to raise 480 cap		
22	N	▮ – are you thinking about single route or multiple routes		
	N	▮ – depends on approach. Purely conventional at the moment. Compatible with design envelopes		
23	N	▮ – airlines expects airports to engage with one another.		
	N	▮ – Can say to CAA TMA expansion would benefit LGW engaging with LHR		
	N	▮ – Mutual benefit conversations taking place		
	V	▮ – Agree we do it once and do it right		
24	V	▮ – Weighting of principles quite important. Safety. The sooner it is considered and transparent the better. Different priorities noise, community.		
	H	▮ – Put LGW on list (tested with DfT)		
25	V	▮ – Share with LGW community		
	V	▮ – conceptual thinking. How we share some of the work. Beneficial to LGW on departures Use for governance		
	H	▮ – happy to share respite info		
	V	▮ – steeper approach info would be good		
26	N	▮ – NATS partnership with LHR. DfT asking NATS taking a lead on airspace change		
	H	▮ – Fundamental conversation with regulator. Traffic services deliver an output. Government and regulator should take owner. Airports should voice the joint concern		

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27	H	▮ – How do we as a company make a decision for the welfare of the airport. Joint airport voice is missing at the moment.		
28	V	▮ – Critical path in delivering. Worry a series of issues ie. LAMP, Luton.		
29	H	▮ – Good to think it through, how we can pull together an airport consultation group		
	H	▮ – Best work with regulators is meeting together in a room with other airports. Not to create another working group.		
	N	▮ – New resilience group created is a start		
30	N	▮ – Design principles – test with ▮ in the first instance. ▮ to join where possible.		
	N	▮ – Community buy in / airlines requirement.		
		Note taker:	▮ (HAL)	
		Next Meeting:	TBC	

* (A=Action, H = HAL Commitment, V= Stakeholder view, N = general notes)

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Airspace Change

Heathrow Future Airspace.

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Heathrow Airspace Change

1. Airspace change overview ████████████

    a) Strategic case

    b) DCO/ Airspace Change process integration and timescales

    c) UK policy landscape

2. Airspace change program ████████████

    a) 3R: approach for consultation and submission

    b) 2R: priority projects

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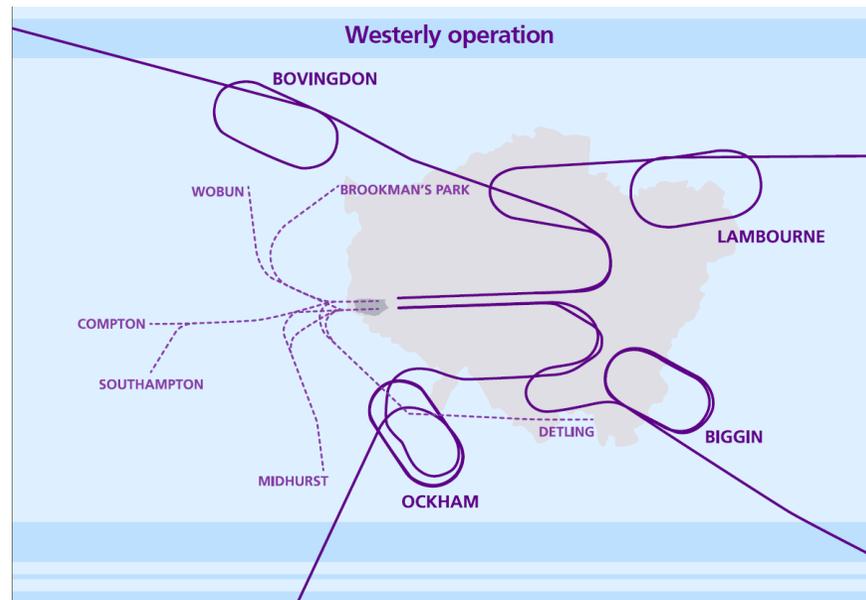*Making every journey better*

Heathrow Airspace Change

1. Airspace change overview ████████████

   a) Strategic case

   b) DCO/ Airspace Change process integration and timescales

   c) UK policy landscape

2. Airspace change program ██████████

   a) 3R: approach for consultation and submission

   b) 2R: priority projects

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Airspace: today

- 1960's airspace design
- Conventional ground based navigation procedures
- Operating at 98% capacity
- Constraints lead to sub optimal performance

Susceptible to impacts from:
- Local Weather
- EU regulations
- SE UK airspace congestion
- Airline market forces – routing bias
- N Atlantic / Far East traffic influences

Westerly operation

BOVINGDON

WOBUN

BROOKMAN'S PARK

LAMBOURNE

COMPTON

SOUTHAMPTON
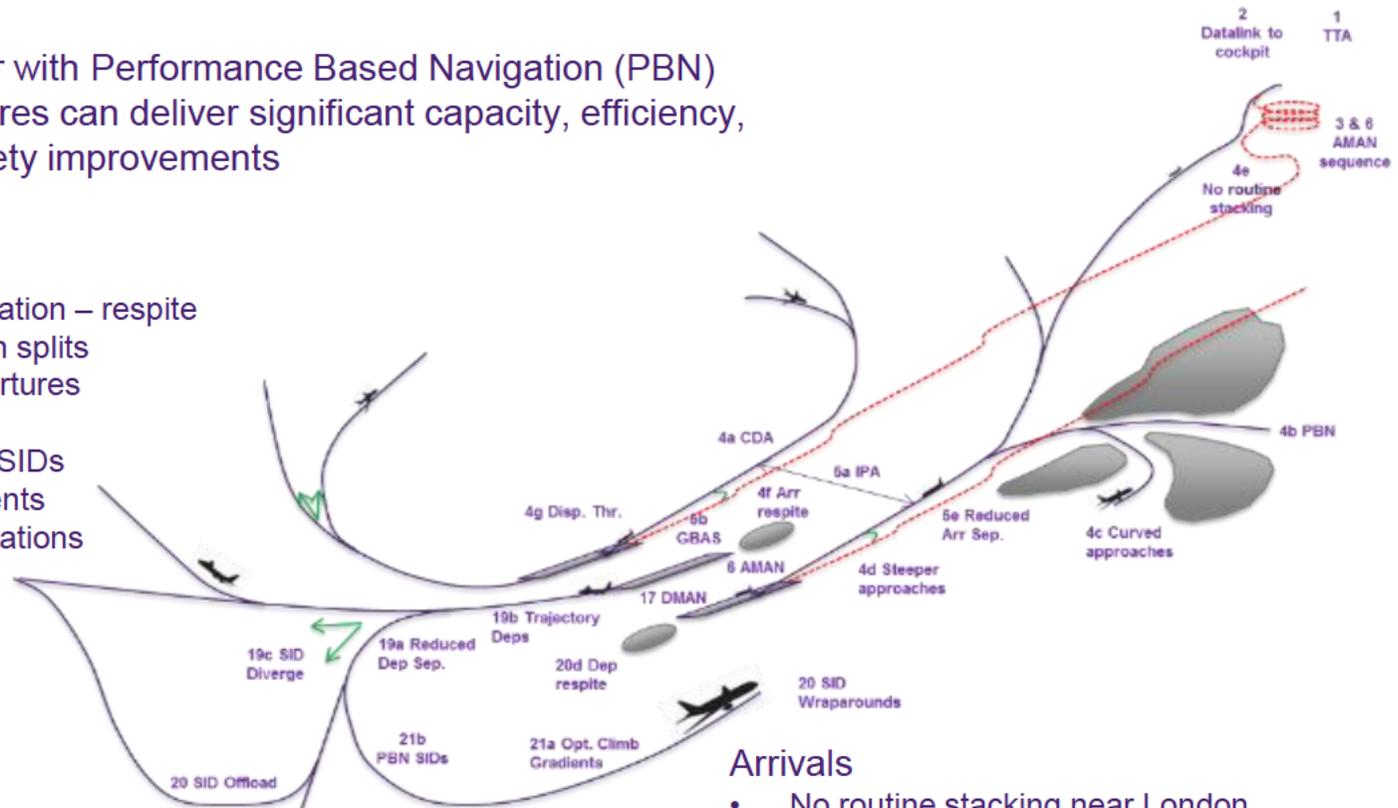
DETLING

BIGGIN

MIDHURST

OCKHAM

But we have 2 big opportunities:

- Need to change Heathrow's airspace to accommodate a 3 runway system
- Future Airspace Strategy (FAS) – Airspace Modernisation

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Airspace: tomorrow

New airspace, together with Performance Based Navigation (PBN)
and optimised procedures can deliver significant capacity, efficiency,
environmental and safety improvements

Departures
- Runway / Route alternation – respite
- Diverging SIDs – 1 min splits
- Trajectory based departures
- Reduced separations
- Wraparound / Offload SIDs
- Increased climb gradients
- Continuous climb operations

Requires
- DfT / CAA / NATS alignment
- Collaboration with other airports
- Engagement and Consultation
- Airspace modernisation of the London TMA

Arrivals
- No routine stacking near London
- Improved Continuous Descent Approaches
- Steeper approaches
- Curved Approaches
- Independent parallel approaches
- Reduced separations
- Displaced thresholds
- Runway / Route alternation – respite

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Expansion: Understanding the DCO planning process (Video)

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"Good" Airspace Design

ACP Approval

DCO Approval

ONE GOOD DESIGN PROCESS

Consultation 1
- Design Principles*
- Design Components*

08/2017

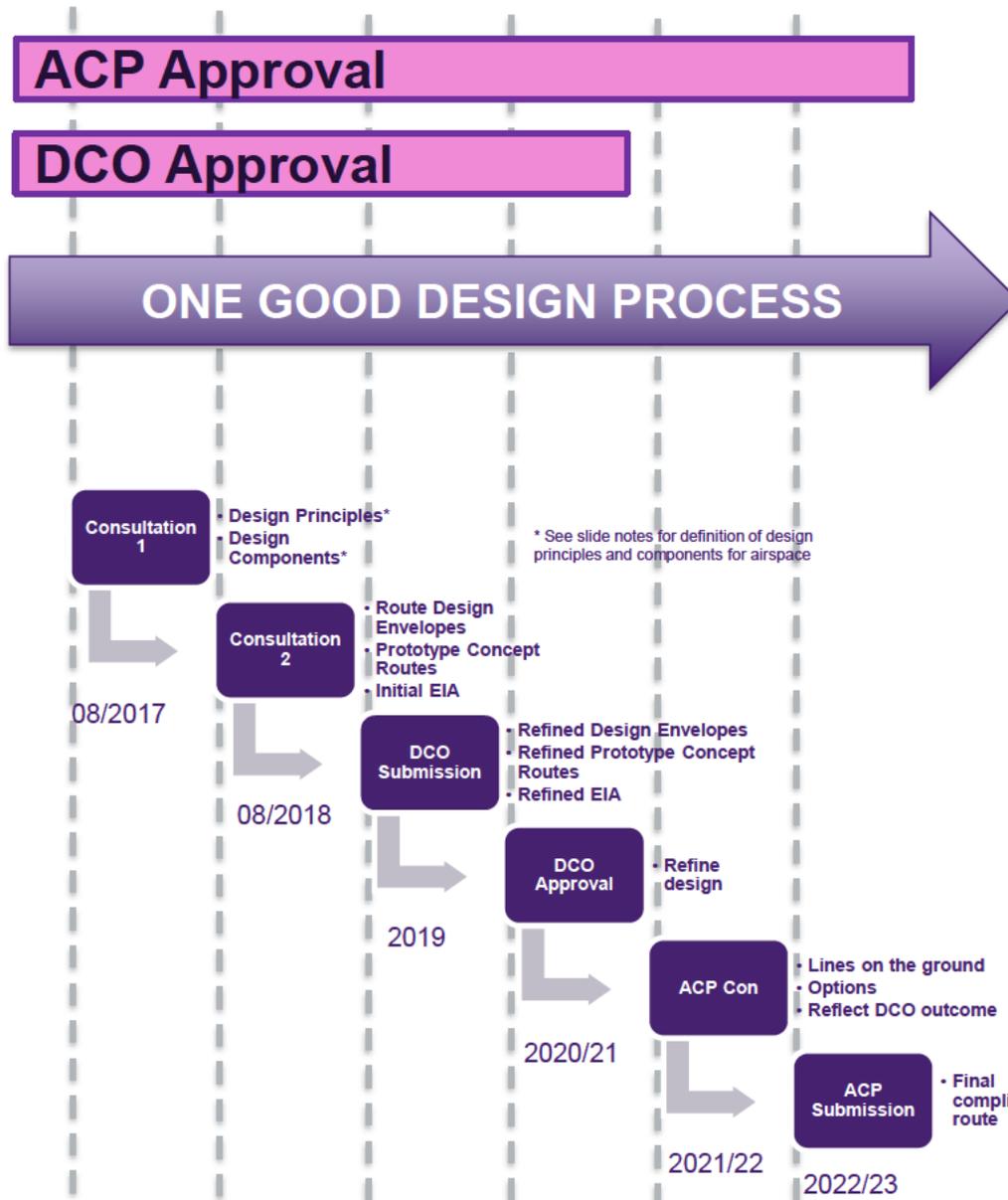**Consultation 2**
- Route Design Envelopes
- Prototype Concept Routes
- Initial EIA

08/2018

* See slide notes for definition of design principles and components for airspace

DCO Submission
- Refined Design Envelopes
- Refined Prototype Concept Routes
- Refined EIA

2019

DCO Approval
- Refine design

2020/21

ACP Con
- Lines on the ground
- Options
- Reflect DCO outcome

2021/22

ACP Submission
- Final compliant route

2022/23

- Airspace Change Proposal (ACP) and DCO approvals run in parallel

- **ACP process finalises the design** - this is recognised in the NPS (para 5.49) <u>but needs to be further emphasised</u>

- The final design will be dependent on many stakeholders including NATS and neighbouring airports with whom HAL may have to collaborate

<u>A good airspace design</u> must:

- Allow sufficient time for consultation at key stages

- Demonstrate response to feedback

- Seek, and act on, balanced feedback

- Balance desire for certainty v a transparent process that is robust to challenge

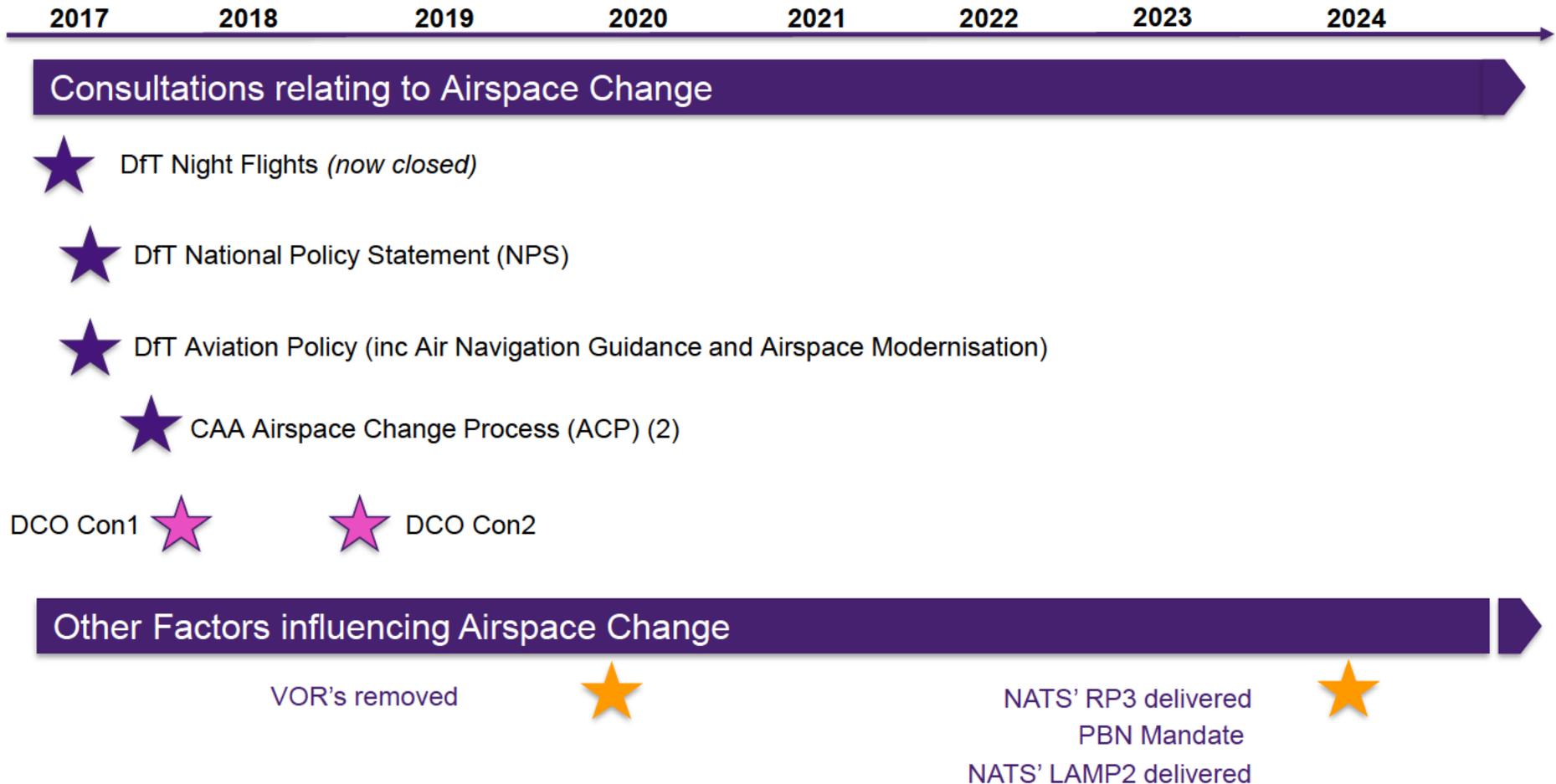<u>A good airspace design</u> will:

- Reduce the risk of change post DCO

- Reduces risk of successful challenge to ACP decision

- Produce a **demonstrably** optimal solution

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DCO and ACP Process Alignment

The table below summarises the alignment between the DCO and ACP processes and the level of detail made available to communities at each stage.

Stage	Timeline	Airspace detail available for communities
DCO1 and 1st Airspace Consultation	Q3-2017	• Potential airspace design principles. • Airspace design components (curved approach, steeper climbs). • Consultation thresholds and engagement methods.
DCO2 and 2nd Airspace Consultation	2018	• Route design envelopes • Worst case impacts for each area of the envelopes. • Initial Environmental Impact Assessments for each option.
DCO Submission	2019	• Narrower design envelopes and refined route prototypes • Final Environmental Impact Report.
ACP Consultation (3rd Airspace Consultation)	Post 2020	• The full airspace design story (all options considered). • Route configurations, lines on the ground and noise contours. • Noise, emissions & air quality metrics for the preferred options.
ACP Submission	2022-2024	• Safety case, operational feasibility and regulatory compliance.

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UK policy landscape: consultations scheduled over the next 12 months

| 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |

Consultations relating to Airspace Change

★ DfT Night Flights *(now closed)*

★ DfT National Policy Statement (NPS)

★ DfT Aviation Policy (inc Air Navigation Guidance and Airspace Modernisation)

★ CAA Airspace Change Process (ACP) (2)

DCO Con1 ★   ★ DCO Con2

Other Factors influencing Airspace Change

VOR's removed   ★

NATS' RP3 delivered   ★
PBN Mandate
NATS' LAMP2 delivered

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Airspace Governance and Coordination

There are three strands to the airspace governance structure:

1. HAL & CAA engagement as part of the new Airspace Change Process.

2. HAL, DfT & CAA coordination on R3 airspace issues, risks and dependencies.

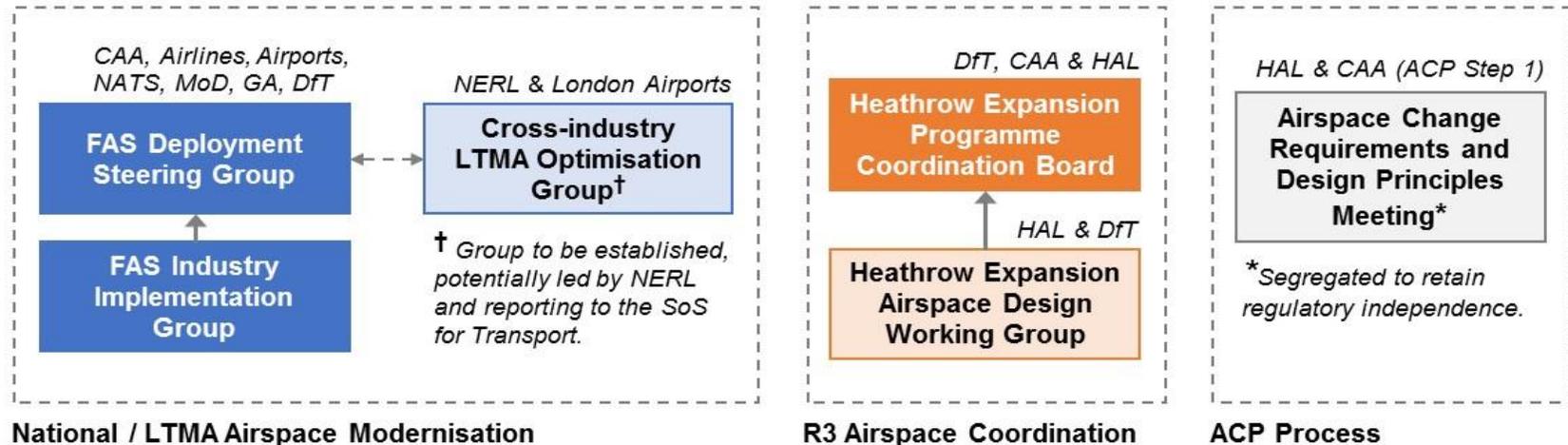3. HAL participation with NATS & the other London Airports on LTMA optimisation.

Chart 1: Illustration of the airspace governance and coordination arrangements

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Heathrow Airspace Change

1. Airspace change overview ███████████

   a) Strategic case

   b) DCO/ Airspace Change process integration and timescales

   c) UK policy landscape

2. Airspace change program ████████

   a) 3R: approach for consultation and submission

   b) 2R: priority projects

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ACP: Three stage consultation

- To achieve "Good design", we must ensure that all stakeholders get a chance to engage, input and influence the design from the earliest stage, and as it matures

- We are currently planning to undertake three stages of consultation which correlate with the new ACP process (CAP 1520)
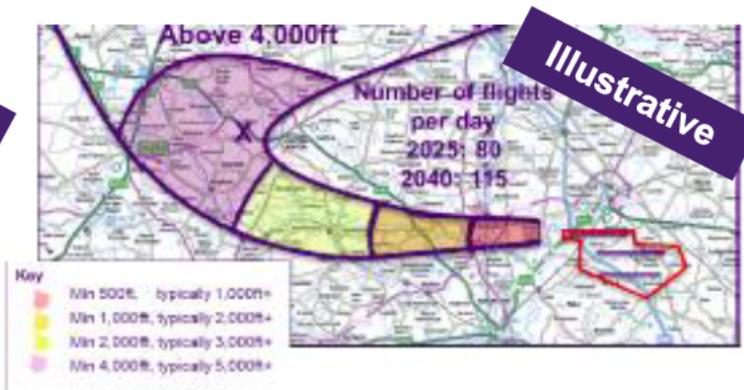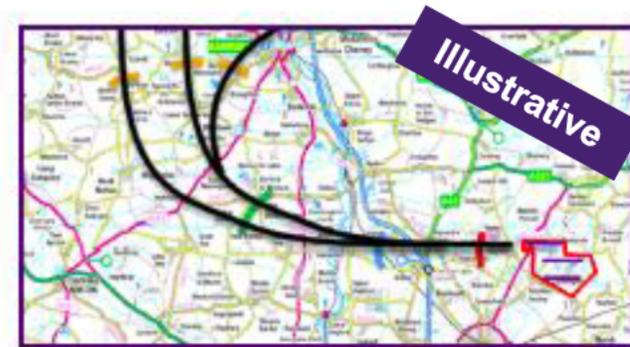
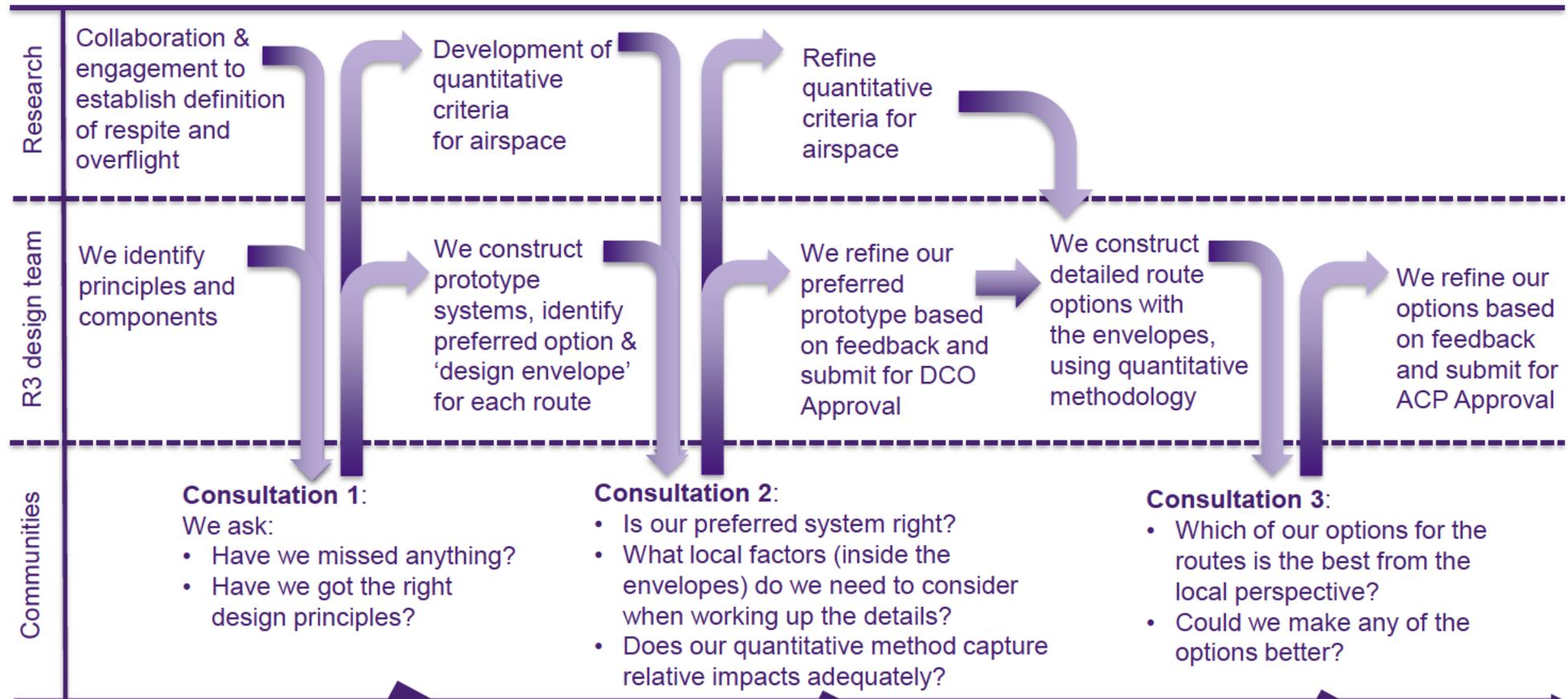| Stage 1	Stage 2	Stage 3
Design principles	Design envelopes	Flight path options

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R3 Airspace Design Process: overview

R3 Airspace Design Process

Research

Collaboration & engagement to establish definition of respite and overflight

Development of quantitative criteria for airspace

Refine quantitative criteria for airspace

R3 design team

We identify principles and components

We construct prototype systems, identify preferred option & 'design envelope' for each route

We refine our preferred prototype based on feedback and submit for DCO Approval

We construct detailed route options with the envelopes, using quantitative methodology

We refine our options based on feedback and submit for ACP Approval

Communities

Consultation 1:
We ask:
- Have we missed anything?
- Have we got the right design principles?

Consultation 2:
- Is our preferred system right?
- What local factors (inside the envelopes) do we need to consider when working up the details?
- Does our quantitative method capture relative impacts adequately?

Consultation 3:
- Which of our options for the routes is the best from the local perspective?
- Could we make any of the options better?

time

You are here

Illustrative

Illustrative

Illustrative

Designs for ACP consultation
(Technical details for aviation community)

Aviation stakeholders are to be engaged throughout this process alongside communities.

Full route and airspace specifications will be provided for ACP consultation (This is the final Airspace change consultation to enable the airport to progress to submission to the CAA of the intended design) .
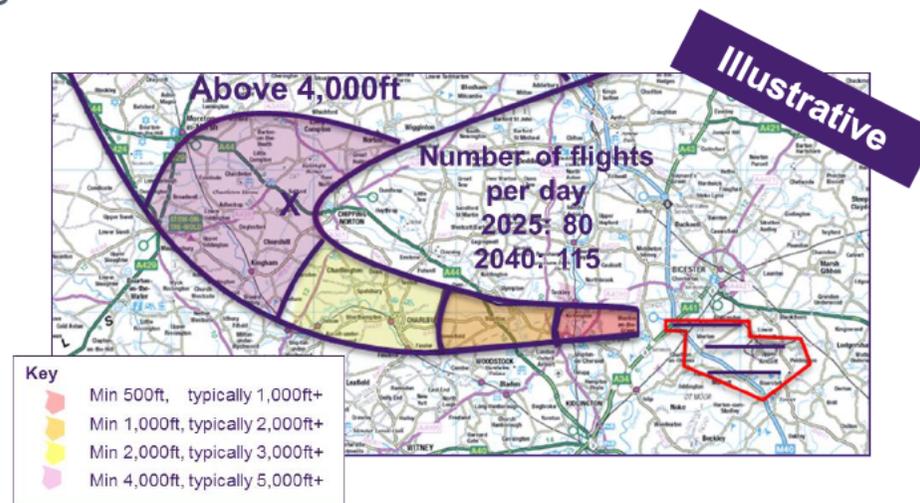
Effective engagement should mean 'no surprises'.
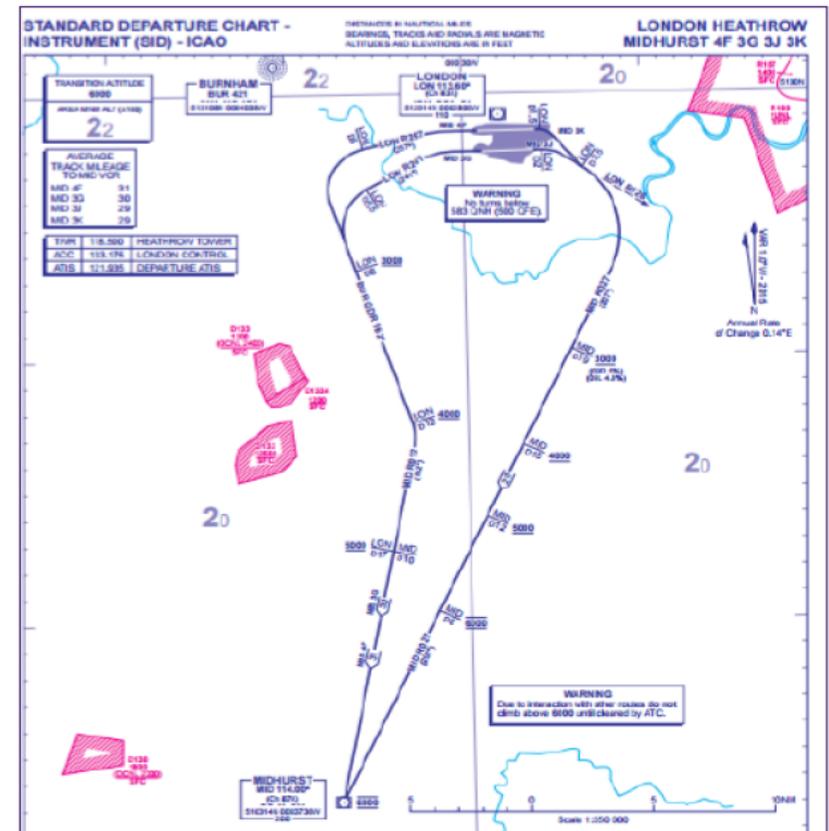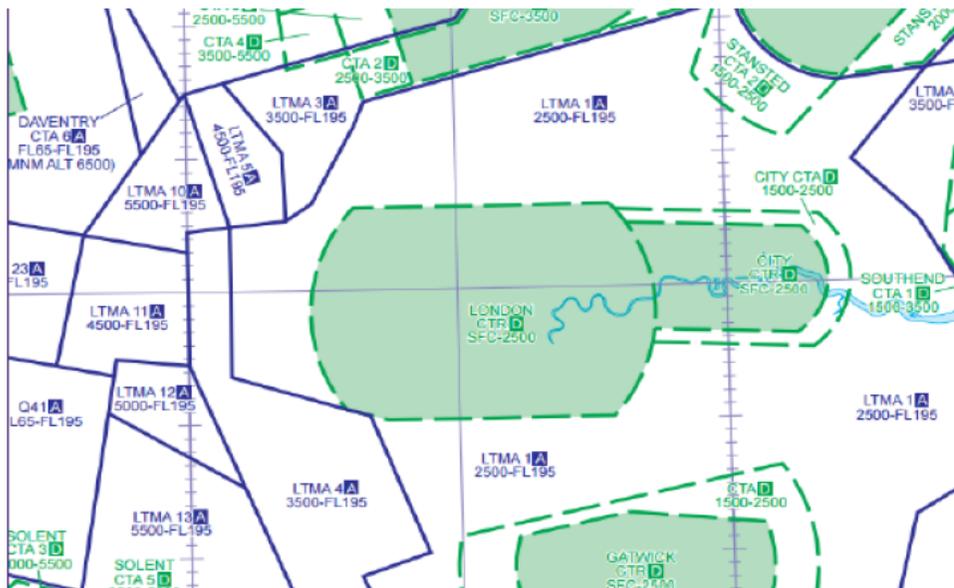
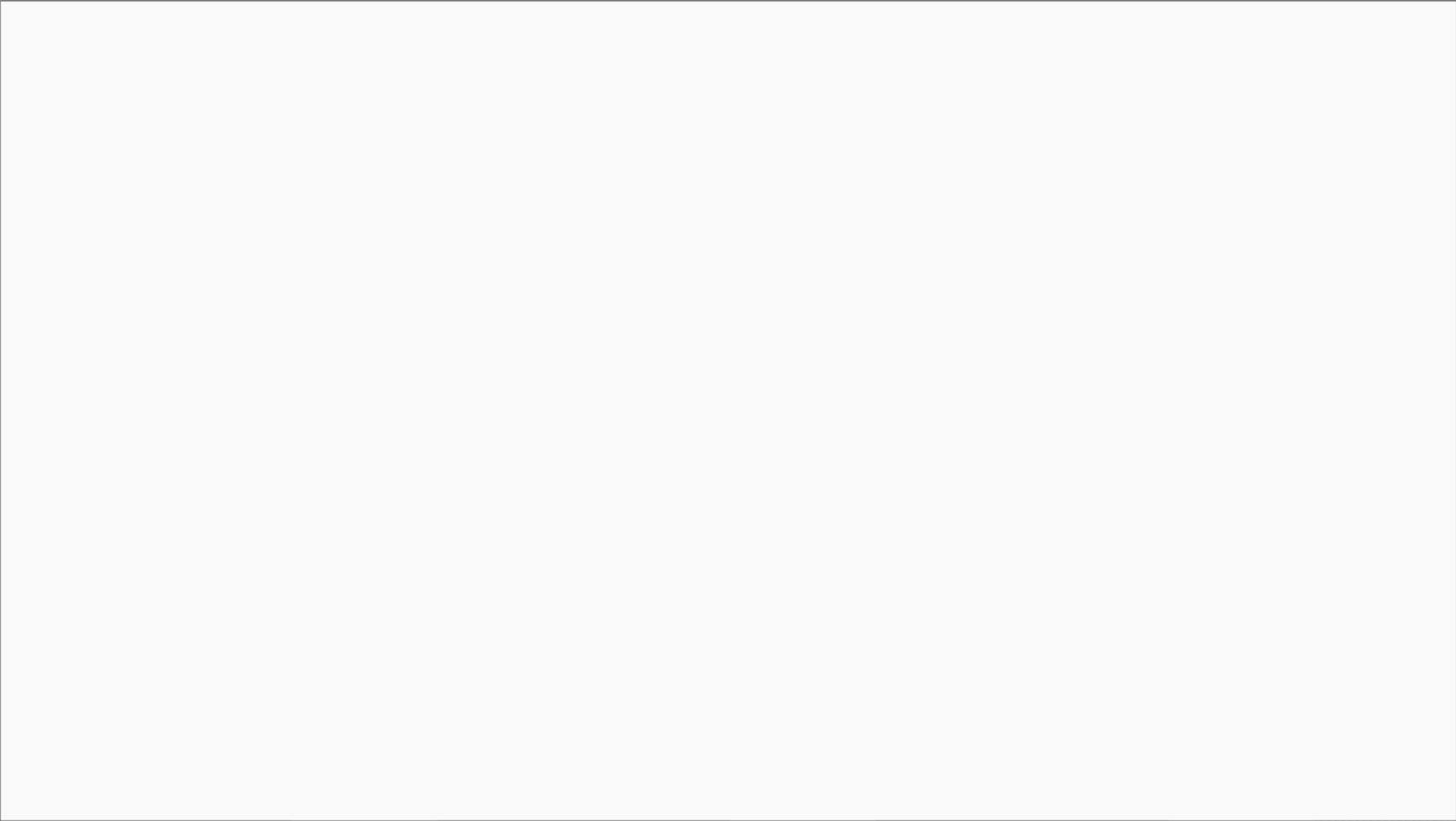**Heathrow**
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Heathrow Airspace Change

1. Airspace change overview ███████████

   a) Strategic case

   b) DCO/ Airspace Change process integration and timescales

   c) UK policy landscape

2. Airspace change program ██████████

   a) 3R: approach for consultation and submission

   b) 2R: priority projects

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IPA and a new CPT SID have been identified as priority 2R projects, scheduled for implementation in late 2019
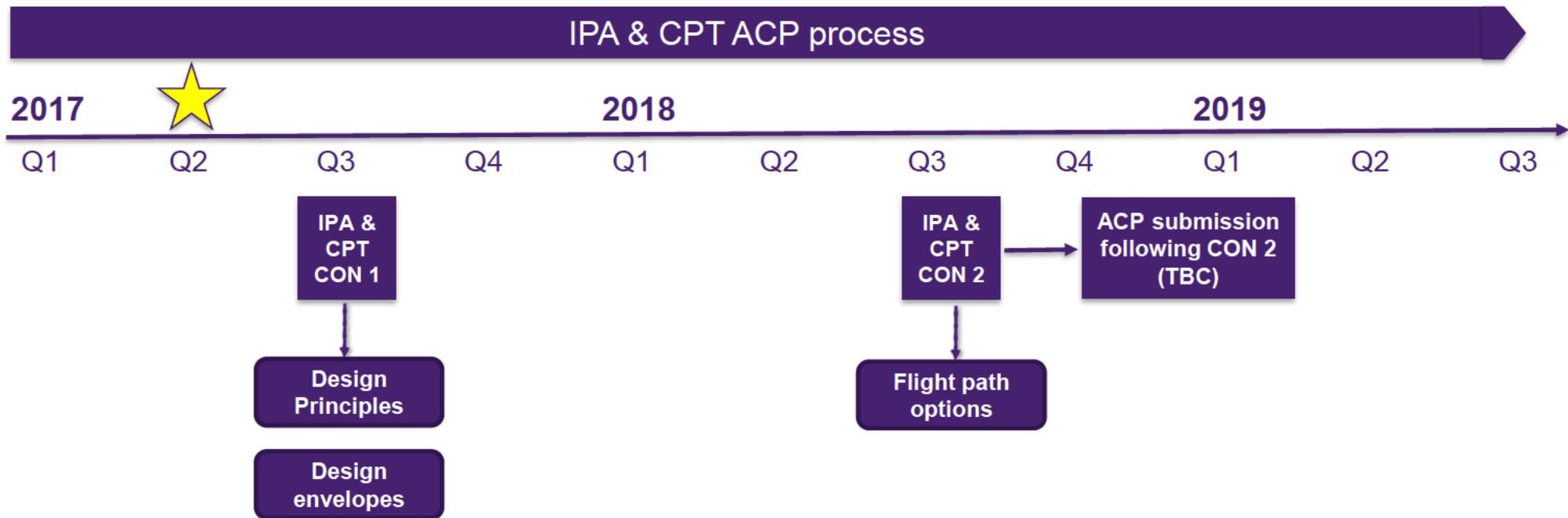
- We have made a commitment to the airlines and community to implement Independent Parallel Approaches (IPA)

- We also need to change the CPT SID route to enable IPA; this route change is needed regardless of IPA because it cannot be flown accurately by todays fleet

- Design envelopes for these priority projects will be consulted on separately, at the same time as CON1

- The design envelopes are prototypes that show the technical limits of where routes can be positioned

- The design envelope is limited by factors such as the position of neighbouring routes, current technology in the cockpit, current operations/systems at the Air Traffic Control centres and current airspace design rules

Illustrative

Above 4,000ft

Number of flights per day
2025: 80
2040: 115

Key

- Min 500ft, typically 1,000ft+
- Min 1,000ft, typically 2,000ft+
- Min 2,000ft, typically 3,000ft+
- Min 4,000ft, typically 5,000ft+

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IPA Video

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IPA & CPT: indicative ACP timeline

IPA & CPT ACP process

2017		2018						2019		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

IPA & CPT CON 1 → Design Principles

Design envelopes

IPA & CPT CON 2 → Flight path options

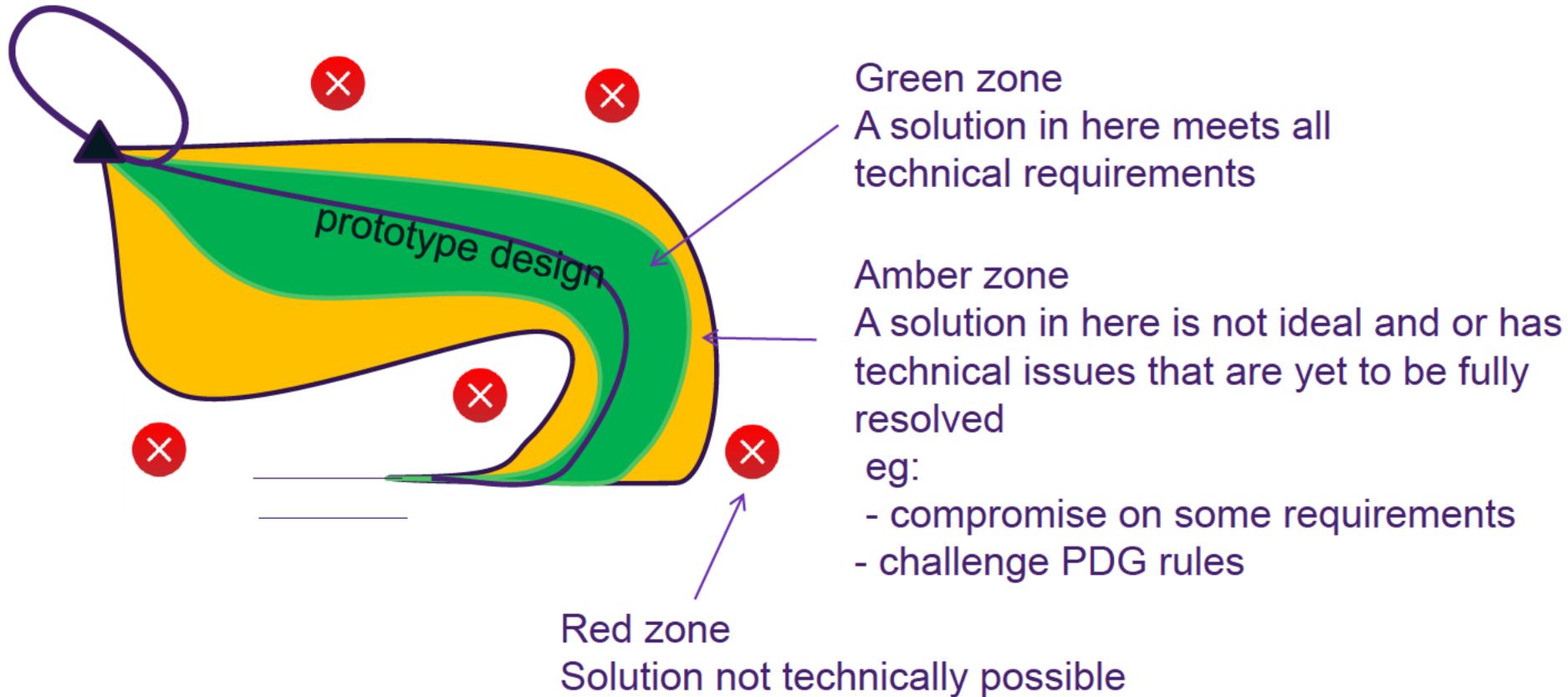ACP submission following CON 2 (TBC)

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Background

The airspace change process can be characterised by a series of questions that drill down towards the final airspace solution

We are here

Question	Status
Is a design technically possible?	NATS has established this through prototyping
What is the design envelope for each route?	NATS to establish design envelopes prior to consultation 1
What are the options for where we ideally position the routes within watch design envelope	HAL to determine these, taking on board consultation 1
What changes are required to make each option PANS Ops compliant/flyable?	NATS PDG to generate complaint options for consultation 2 + NAT organise concept test flights and assure flyability
What is the preferred option?	HAL to determine taking on board consultation 2
What are the required MATS II procedures?	NATS to establish through development SIM
Is the whole system safe to implement ?	NATS to establish through validation SIM

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Establishing a Route Design Envelope

prototype design

Green zone
A solution in here meets all technical requirements

Amber zone
A solution in here is not ideal and or has technical issues that are yet to be fully resolved
 eg:
 - compromise on some requirements
 - challenge PDG rules

Red zone
Solution not technically possible

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Update on Environmental Assessment for IPA and a new CPT SID

- Proportionate environmental assessment will be undertaken in compliance with CAA airspace design guidance (draft CAP 1520). Scope of the assessment to be agreed with CAA

- For Tier 1 airspace changes, CAA expects a quantitative assessment of noise, CO_2 emissions, local air quality (below 1000 ft), tranquility and biodiversity. Effects to be monetised using WebTAG

- The environmental assessment will be based on reasonable worst case operating conditions, and will seek to identify likely significant effects based on Government policy, published criteria and guidance

- It will be issued for public consultation at DCO2 (~Aug 2018)

- Scoping activities are currently underway for inputs to the environmental assessment

Airspace Change: synopsis

- There is a strategic business case for airspace change: 3R and 2R

- Delivering future airspace requires:
  - DfT / CAA / NATS alignment
  - Collaboration with other airports
  - Engagement and consultation
  - Airspace modernisation of the London TMA

- Airline engagement is crucial:
  - Current engagement activities
  - Workshops – technical input (pilots, flight performance)
  - Responding to UK policy consultations
  - We need your ongoing input / help in the process.

Questions?

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Contact Record

Meeting Details:

Date and time:	24/05/2017 10:30
Meeting title/subject:	Heathrow DCO Briefing With Denham Aerodrome
Purpose:	To inform Denham Aerodrome, a local airspace stakeholder, of the upcoming DCO process along with a briefing on Independent Parallel Approaches and Compton 09R SID
Meeting location:	Heli Air Premises, Denham
Meeting organiser/lead:	████████████
Attendees:	████████████ (HAL) ████████ (Denham)
Apologies:	N/S
Circulation:	

Attendance:

Name	Organisation	Position	Initials
████████	Denham Aerodrome	██████████████	██
██████████████	Heathrow Airport Ltd	███████████████ ███████	██
█████████████	Heathrow Airport Ltd	████████████████████ ████████	██

GRIMSHAW   Quod   ARUP   ATKINS   JACOBS   MOTT MACDONALD   M   amec foster wheeler   Heathrow
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Minutes

Item:	Description / Action Item / Notes	Owner	Deadline
1	▆ went through the presentation on the DCO process and showed the video. The DCO process is not about specific airspace change. CON1 is not mandatory and HAL are doing this voluntarily. Airspace design principles will be included in DCO1 but will not contain any specific route information, more to do with what is important to people – noise, emissions etc. ▆ queried the acronym 2R and 3R. ▆ explained that this is 2 runway (existing ops) and 3 runway (which will be 3rd runway and future ops) DCO CON2 is the mandatory consultation which will consider design envelopes – swathes of geographical areas which may see a flight path.		
2	▆ showed which consultations are coming up and made reference to the Night Flight consultation which had recently closed. ▆ asked What this consultation was about and was it to do with increasing night flights? ▆ said that because we are a designated aerodrome and are restricted on night flights, this consultation was looking at how better to manage flights during the night period with a bid to reduce.		
3	▆ said that the upcoming consultations will be about starting with a blank page instead of building upon and adding to 2R procedures. ▆ asked how feasible this will be owing to other airports and airfields in close proximity to LHR. ▆ said that this is why wea re engaging at such an early stage with all key stakeholders to find a best fit. Early engagement has commenced with Northolt and the design process will be as transparent as possible to ensure all are aware of the plans.		
4	Full public consultation will be carried out with events around the area TBA. ▆ made it clear that all images shown in the presentation were representative. Design envelopes will be developed to enable all impacted stakeholders to explain to us why they shouldn't be overflown – impact to business etc and the common theme throughout the presentation was encouraging Denham to respond to each consultation. This would enable HAL to consider a broad range of stakeholders.		

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Minutes

5	IPA – ■ explained about runway alternation on Westerly operations. IPA consultation will take place with CPT09 during CON1. ■ asked whether this will affect STARs as this may affect Denham and Northolt instrument arrivals. ■ referenced the early engagement, particularly with Northolt, to find feasible options. One workshop has already been carried out. ■ encouraged continued engagement so HAL can understand any changes in operations at Denham that may affect future plans.		
6	Denham's location means that traffic arriving and departing must be less than 1500ft. ■ asked why this restriction was in place when aircraft from LHR are not that low. ■ said that the size and shape of the CTR will be reviewed as a part of the airspace redesign. ■ is encouraged that HAL is taking the time to redesign all procedures and making use of new technology instead of just adding on to the existing.		
7	■ ended the meeting again with a plea for Denham to make appropriate representations to each consultation.		

Note taker:	■■■■■
Next Meeting:	N/A

Contact Record

Meeting Details:

Date and time:	25th May 2017 1500
Meeting title/subject:	NATMAC
Purpose:	R3 DCO1 Brief
Meeting location:	CAA House, Kingsway, Holborn
Meeting organiser/lead:	CAA
Attendees:	See below
Apologies:	
Circulation:	

Attendance:

Name	Organisation
▬▬▬▬▬▬▬	CAA
▬▬▬▬▬▬	CAA
▬▬▬▬▬▬	ISP Infra
▬▬▬▬▬▬▬	CAA
▬▬▬▬▬	CAA
▬▬▬▬▬▬▬	FASVIG
▬▬▬▬	IOM
▬▬▬▬▬▬	GATCO
▬▬▬▬▬▬▬▬	AOG
▬▬▬▬▬▬▬▬	AOA
▬▬▬▬▬▬▬▬	HCGB
▬▬▬▬▬▬	BHPA
▬▬▬▬▬▬▬	BHA
▬▬▬▬▬▬▬	BGA
▬▬▬▬▬▬▬	AOPA

Contact Record

███████████████	GAA
████████████	UK FSC
████████████	PPL/IR
█████████	HCAP
████████████	BBAC
█████████	BPA
████████████████████	DAATM
█████████████	Navy Command
█████████████████████	MAA
█████████	NATS
███████████	NATS
████████████	UKAB
██████████	CAA
█████████	CAA

Comments received

1. CAA IT wouldn't play the DCO1 or IPA video so ███████████ presented using only the DCO1 process timeline slides
2. ███████████ said HAL will need to consider 'Smart' airspace or the FUA concept in support 'Integration not segregation'. The point being that if additional airspace is required for certain times of day or to support routes which may be switched off for respite, the airspace could also be switched off to grant access to other Airspace Users when not required.
3. NATMAC expressed their desire to see Steeper Approaches to all runways at Heathrow
4. The question was asked if the IPA concept would work in an R3 environment. HAL confirmed that was the working assumption but stressed that the 2R IPA routes may not be the same as the R3 IPA routes.
5. ███████████ from the ███████████████████████ contact details to be a ████████████████████████████████████

Contact Record

Meeting Details:

Date and time:	Wednesday, 21st June 2017 at 10:00 – 16:00
Meeting title/subject:	Future Airspace Strategy Industry Implementation Group (FASIIG)
Purpose:	Industry group to update and discuss future airspace strategy and issues
Meeting location:	Blue Sky Suite, Hyatt Place Hotel, Bath Road
Meeting organiser/lead:	███████████ NATS
Attendees:	See below
Apologies:	Not known
Circulation:	

Attendance:

Organisation	Name
Air Navigation Solutions	██████████
BA	████████
BA and FASIIG Co-Chair	██████
CAA	███████
CAA	█████
CAA	██████████
DfT	██████
ERAA	█████████
FASVIG	███████
Fly Virgin	███████
Flybe	███████
Gatwick Airport	█████████
Heathrow - AOC	███████
Heathrow Airport	█████████
Heathrow Airport	██████
Heathrow Airport	█████████
Heathrow Airport	███████
Jet2	██████
Luton Airport	████████
Manchester Airport	███████
MOD - Northolt	█████████████
MOD - Northolt	███████████
Monarch	███████
Southampton Airport	███████
Stansted Airport	████████
TSC	█████████
FAS Consultant	███████
NATS	███████████
NATS FAS Comms	████████
NATS	██████e
NATS	███████
NATS	████████
NATS	███████

Minutes

Item:	Type*	Description / Action Item / Notes	Owner	Deadline

1		**DfT feedback to the Airspace Policy Consultation Response -** ▉▉▉▉▉▉▉
		• Outcome of general election – there will be a new aviation minister yet to be appointed
		• Consultation closed 25th May, good responses received from communities and local authorities (800+). Working through responses - key themes:
		  ○ Secretary of State - strong support. Concern on matrix and criteria, communities felt Secretary of State role should be appeal function
		  ○ Tier 2 and Tier 3 should be included in change process
		  ○ Compensation - broad view more clarity needed. Shouldn't be cause of reduction for aircraft noise
		  ○ Information requirement on tier 3 - provide more info to communities eg. Costs
		  ○ Tier 1,2,3 - concerns raised what does each tier mean? Work to be done on commentaries for each tier raised - use different words
		  ○ Option analysis - what is the process for red tag?
		  ○ Aviation growth vs environment - common view that there should be a genuine balance. No aviation growth unless there is an offset to environmental gain
		NEXT STEPS - continue to work on responses. Go to new minister with revised proposal. Draft the innovation guidance due to be published in the Autumn
		
		DfT pulling the framework for Tier 2 including criteria (including Airspace Change), Tier 3 will be determined by CAA on the process for airspace change
		
		Questions: what's the % split on ICAN.
		▉▉Concern on compensation, industry concern about option analysis (how it might work). No clear view of concentration vs dispursal
		LHR - Airspace change knowledge improving shown by the communities
		
		Influencing the committee with support. Can do but need to wait until we know who the new chair is		

Transport Select Committee - use the TSC as channel to write to the chair. Draft letter for FASIIG to use

**Consultation on Draft Airspace Design Guidance - ███
███ (get slides)**
Published the draft new guidance for consultation on 31st March 2017, closes on 30th June 2017
CAP 1389 principles on new process / CAP 1465 changes based on evidence of analysis CAP1389

CAP1520 - Draft airspace design guidance
CAP 1521
CAP 1522

Change responses limited to one response per email via the portal unless it goes to trial. FASIIG's view CAA need to engage with the group on how the portal should work rather than instructing the group this is the decision
CAA inviting FASIIG to share the portal plan. It will be live this time next year. Work through with the industry on the design

FAS Facilitation Fund (FFF) in RP3 - ██████████

Heathrow Expansion / Airspace Change Process and Development Consent Order (DCO) - ████████████

██ stressed this is our current thinking and subject to change post general election.

2 processes are standalone but aligned in timescale
Aligning DCO Con 1 to Airspace Change Process in Con 1 - both voluntary but we like to show CAA that we are engaging with the public

Design principles take forward in any future airspace change we do

DCO Con 2 in a year's time and it is mandatory where we should have design envelopes that should give us room to manoeuvre - number of flights, flight type, altitude where aircrafts will be at. Work to be done after Con 2

Question: - Is it up to 7000 feet. ██ - work on 10,000
Questions - ██ mentioned June in Con 1, then later in the year. Why the delay. ██ - due to NPS, general election

Minutes

<table>
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NEXT STEPS
Run a 12 week consultation (not statutory) - locations TBC
█ urge the group to attend and respond

Need to understand what the airlines and communities
what

Current ops - airspace change (video played) sharing IPA
introduction on Westerlies
Consultation required for both IPA/CPT and Expansion
Design team working at present to identify what is required
in the envelopes

Question: Combined two designs. Is it within the process?
█ - don't have the time as too close, time constraints. CAA
approved of the approach that we do both designs
together. Ran past Community Noise Forum

**NERL Airspace Plan and London Airspace Management
Programme (LAMP) Update -** ███████

NERL RP2 Investment Plan Update - ███ ███

FASIIG Response to CAP1520 Consultation - ████
███████████

█ - DCO consultation - outcome likely to be noise envelope
where Airspace change process will need to sit within that

Noise measurement (LHR) - what is the matrix? █ we
don't know and each airport is different

FAS Deployment Plan on FASIIG website

Next FASIIG - 20th September 2017

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</table>

	Note taker:	███████████████████████ (HAL)
	Next Meeting:	20th September 2017

(A=Action, H = HAL Commitment, V= Stakeholder view)

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Contact Record

Meeting Details:

Date and time:	Thursday, 22 June 2017 at 13:30 – 14:30
Meeting title/subject:	HAL / Luton – Airspace Engagement Meeting
Purpose:	To engage and update HAL's Airspace plan and consultation timescales for DCO
Meeting location:	Building 104 (formerly Tbi House), Airport Approach Road, Luton Airport LU2 9NQ
Meeting organiser/lead:	██████████████████████████████ – HAL)
Attendees:	HAL: ████████████████████████ ██████████████████████████ ████████████████████ Luton Airport: ███████████████████████ ██████████████████
Apologies:	None
Circulation:	Those present

Attendance:

Name	Organisation	Position	Initials
█████████████	Luton Airport	██████████████████	███
█████████████	Luton Airport	██████████████████	███
█████████████	HAL	████████████████ ██████	███
█████████████	HAL	███████████████ █████	███
█████████	HAL	██████████████████ ████████	███

GRIMSHAW Quod ARUP ATKINS JACOBS MOTT MACDONALD M amec foster wheeler **Heathrow** *Making every journey better*

Minutes

* (A=Action, H = HAL Commitment, V= Stakeholder view, N = general note)

Item:	Type*	Description / Action Item / Notes	Owner	Deadline
1	N	■■ - explained purpose of meeting – to share HAL's plan / work to date on airspace		
2	V	■■ - raised some concerns that third runway wasn't mentioned in the Queen's speech		
3	N	■■ - not surprised and LHR knew. LHR commitments are still there		
4	N	■■ - ■■■■■■■ mentioned that Luton get occasional complaints from 74s from LHR		
5	N	■■ – Complaints received from 16,000 feet.		
6	H	■■ – Airspace tomorrow working with other airports ie. Luton, talk about the same things for airspace change across aviation		
7	V	■■ – what happens to Northolt?		
8	H	■■ – continue to operate as is. No cap on military movement, no place on increase. LHR working with Northolt. MoD fully engage with them		
9	H	Airspace Governance and Co-ordination process being set up.		
10	N	NPS consultation closed, DfT now working on the analysis		
11	N	DfT to brief the new aviation minister so publication delay expected. There will be some changes to the policy		
12	N	■■ – At FASIIG yesterday, CAA stated that they are reviewing the replication policy, his view is that it is more of reinstating it rather reviewing		
13	N	■■ - PBN Mandate		
14	N	■■ – ACP & DCO plan – not designed to run together but have same touch points		
15	H	Consultation on DCO and ACP process later this year. It is voluntary but LHR want to be seen to engage with the local authorities and communities. Want to show them these are LHR airspace change process and seek their views/ agreement		
16	H	■■ – DCO is to show what land we are likely to take eg. M25 to give people idea what land use is required		
17	H	Generate some noise envelope (a range of matrix) for airspace change design		

Minutes

18	H	■ – Keep DCO and Airspace Change Process in the same time line to hit the community at the same time to avoid confusion		
19	H	■ – devise a gateway for the letterbox		
20	N	■ – had a feeling from FASIIG yesterday that thing are going backwards and not forwards – government need to lead on this. Waiting on clarity of process and policy is proving a challenge from CAA		
21	N	■ – IPA video played		
22	N	Easier to introduce IPA on Westerlies than Easterlies.		
23	N	Issue with Compton, first turn complication. Luton turn at 500 feet, LHR may do the same but need to run past with CAA		
24	N	■ – asked if they need to do anything for Compton to assist. ■ – no not at the moment as routes don't conflict		
25	H	■ – Design principles and envelopes would be around later in 2017. Draft design envelopes for IPA explained (arrivals from Bovingdon stack to 27R)		
26	V N	■ – what's your confidence with CAA on timescale ■ – CAA not advising		
27	N	■ – CAA mentioned 108 ACP in the pipeline currently. Recruiting in progress due to demand		
28	N	■ – LHR trying to keep track in the programme, CAA not align with us		
29	N	■ – CAA state that they will need to prioritise the ACP		
30	N	■ – CAA and DfT not keen on airports engaging with one another which is surprising to us		
31	N	Good to get the early conversation to understand what airspace work and doesn't work other (airports)		
32	N	■ – Biggin Hill has an airspace change. LHR said no to their timescale. Query gone back to CAA		
		Note taker:	■■■■■■ (HAL)	
		Next Meeting:	TBC	

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Airspace Change

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Background

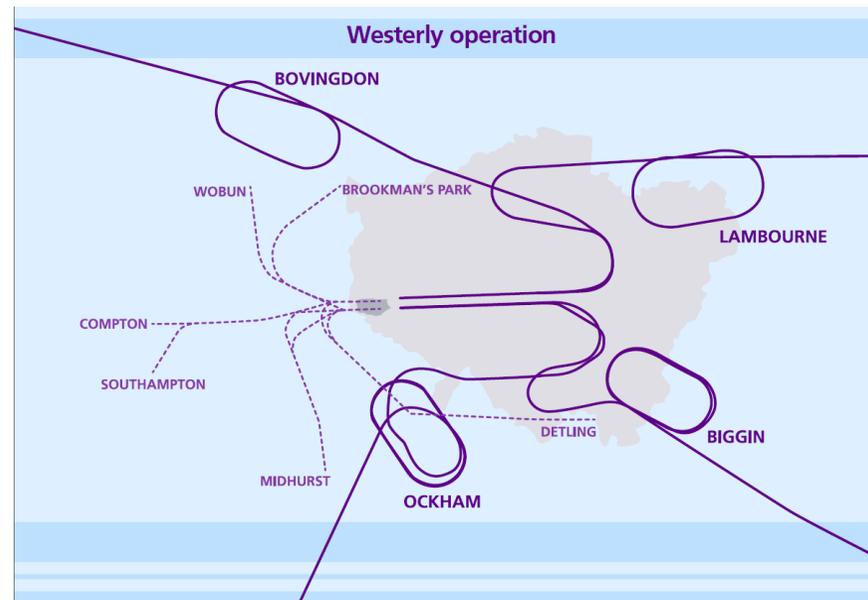# Airspace: today

- 1960's airspace design
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Susceptible to impacts from:
- Local Weather
- EU regulations
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- Airline market forces – routing bias
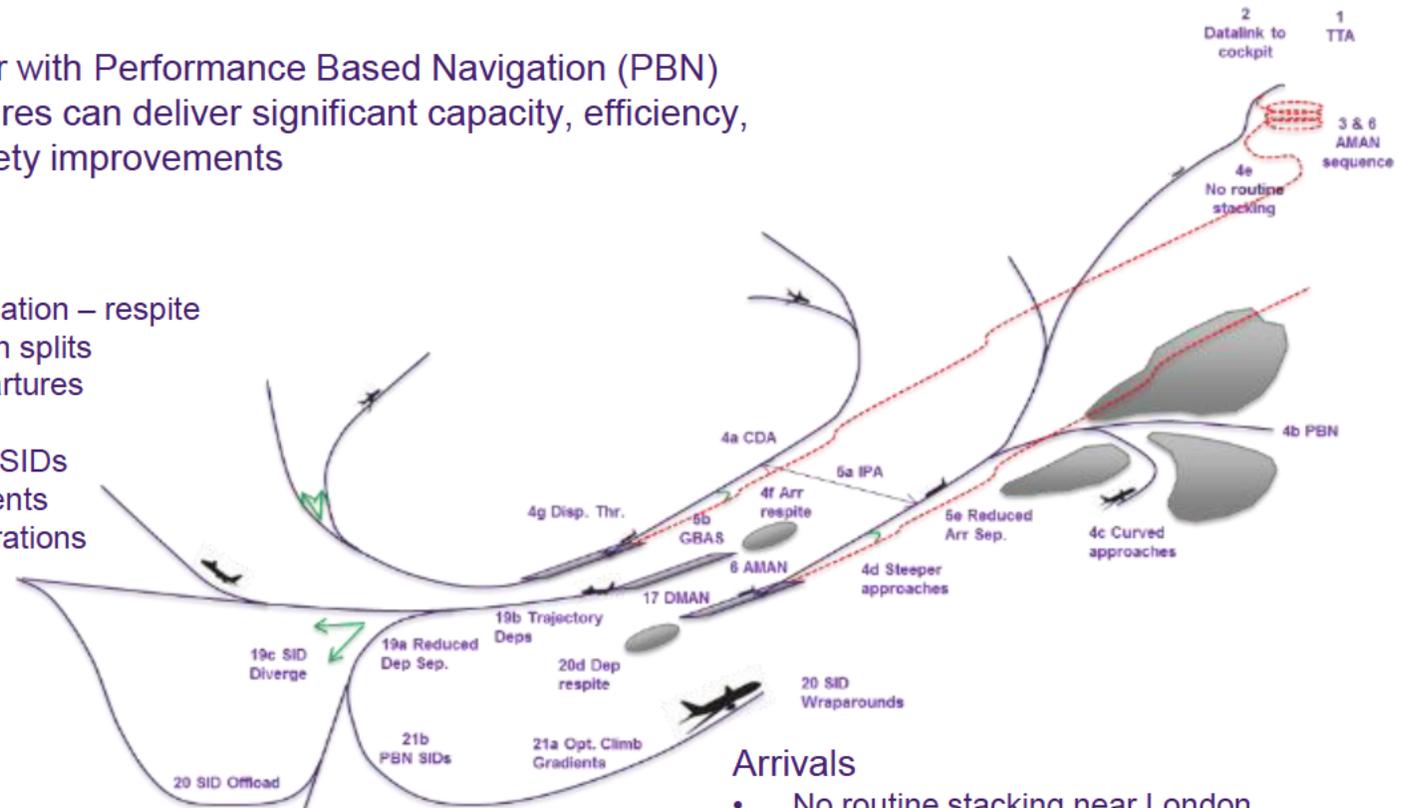- N Atlantic / Far East traffic influences

Westerly operation

BOVINGDON
WOBUN
BROOKMAN'S PARK
LAMBOURNE
COMPTON
SOUTHAMPTON
DETLING
BIGGIN
MIDHURST
OCKHAM

But we have 2 big opportunities:

- Need to change Heathrow's airspace to accommodate a 3 runway system
- Future Airspace Strategy (FAS) – Airspace Modernisation

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Airspace: tomorrow

New airspace, together with Performance Based Navigation (PBN) and optimised procedures can deliver significant capacity, efficiency, environmental and safety improvements

Departures
- Runway / Route alternation – respite
- Diverging SIDs – 1 min splits
- Trajectory based departures
- Reduced separations
- Wraparound / Offload SIDs
- Increased climb gradients
- Continuous climb operations

Requires
- DfT / CAA / NATS alignment
- Collaboration with other airports
- Engagement and Consultation
- Airspace modernisation of the London TMA

Diagram labels:
- 2 Datalink to cockpit
- 1 TTA
- 3 & 6 AMAN sequence
- 4e No routine stacking
- 4b PBN
- 4a CDA
- 5a IPA
- 4c Curved approaches
- 4g Disp. Thr.
- 4f Arr respite
- 5e Reduced Arr Sep.
- 5b GBAS
- 6 AMAN
- 4d Steeper approaches
- 17 DMAN
- 19b Trajectory Deps
- 19c SID Diverge
- 19a Reduced Dep Sep.
- 20d Dep respite
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Airspace Governance and Coordination

There are three strands to the airspace governance structure:

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2. HAL, DfT & CAA coordination on R3 airspace issues, risks and dependencies.

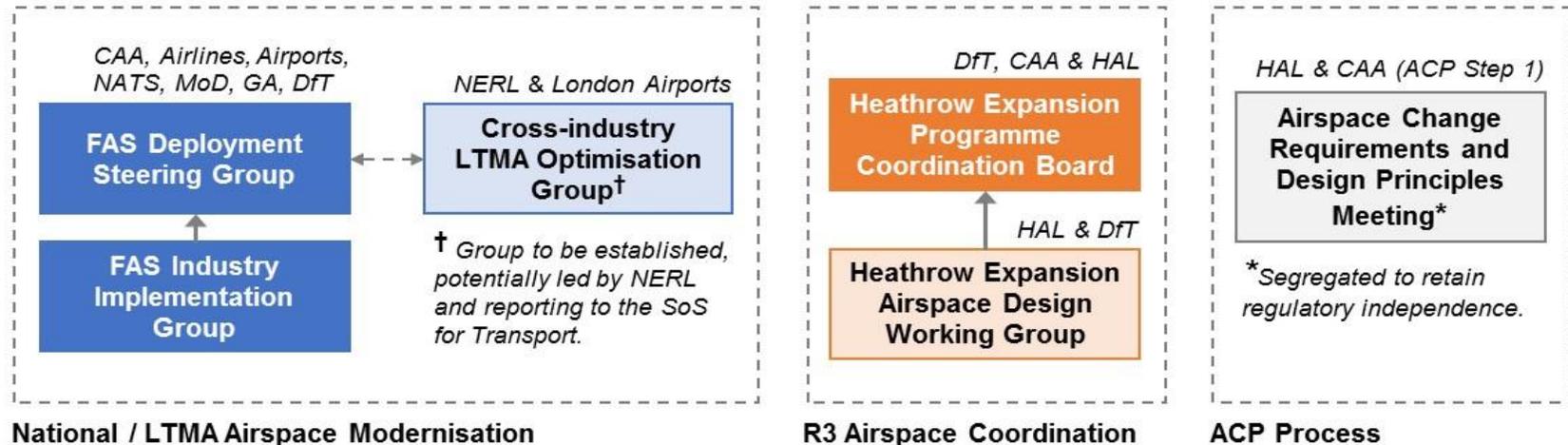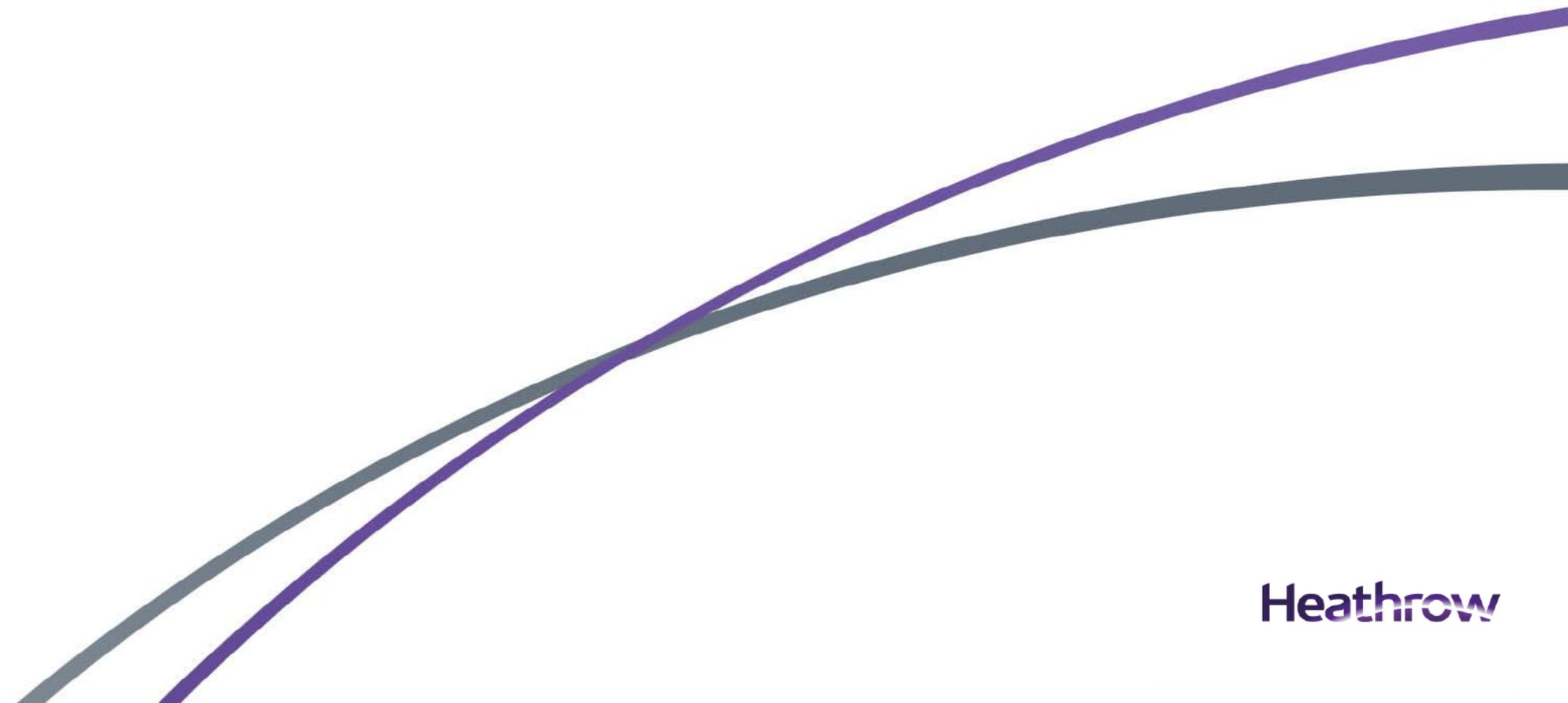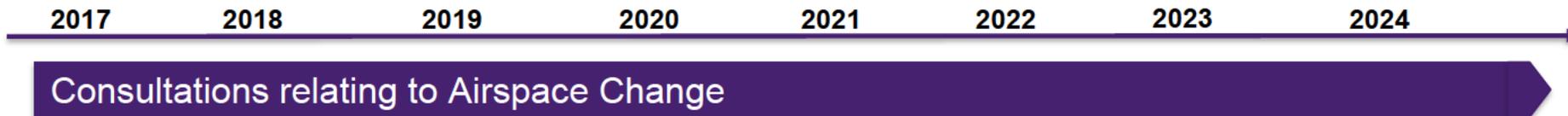3. HAL participation with NATS & the other London Airports on LTMA optimisation.

Chart 1: Illustration of the airspace governance and coordination arrangements

Heathrow expansion – airspace change

UK policy landscape: consultations scheduled over the next 12 months

2017 **2018** **2019** **2020** **2021** **2022** **2023** **2024**

Consultations relating to Airspace Change

★ DfT Night Flights *(closed)*

★ DfT National Policy Statement (NPS) *(closed)*

★ DfT Aviation Policy (inc Air Navigation Guidance and Airspace Modernisation) *(closed)*

★ CAA Airspace Change Process (ACP) (2)

Other Factors influencing Airspace Change

VOR's removed ★

★ NATS' RP3 delivered
PBN Mandate
NATS' LAMP2 delivered

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ACP and DCO: two separate approvals for one 'good design' process

ACP: Three stage consultation

- To achieve "Good design", we must ensure that all stakeholders get a chance to engage, input and influence the design from the earliest stage, and as it matures

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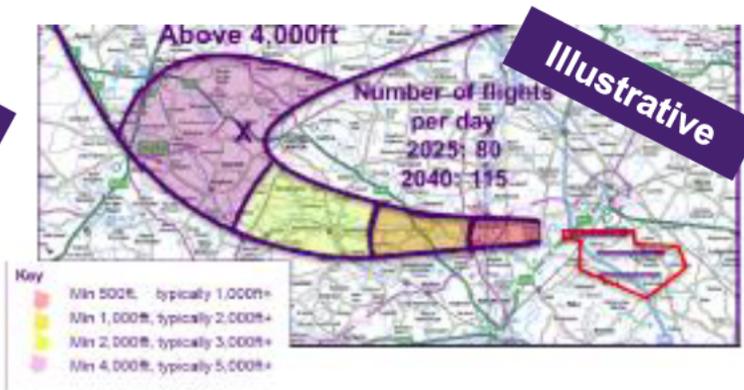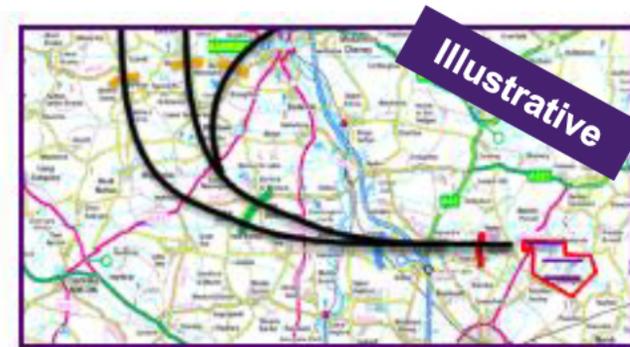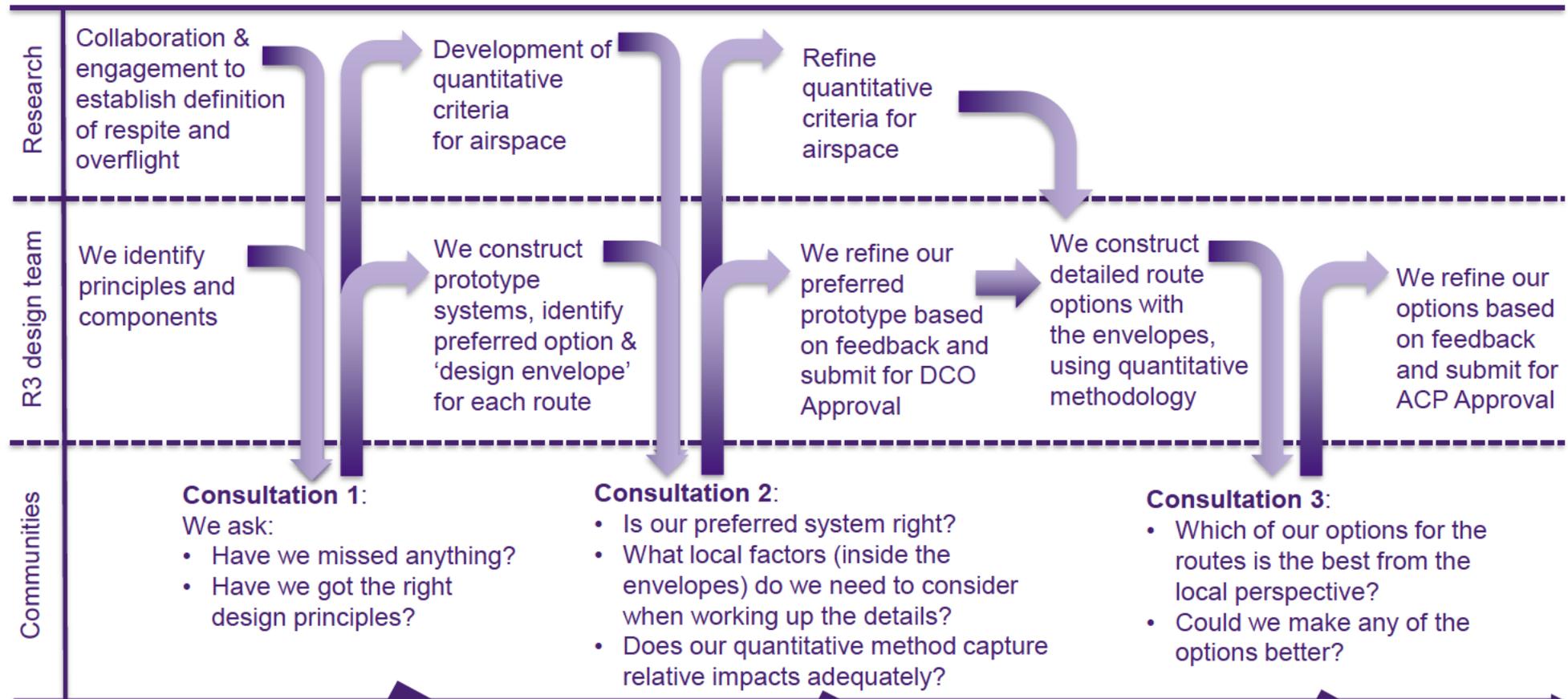
Stage 1
Design principles

Stage 2
Design envelopes

Stage 3
Flight path options

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R3 Airspace Design Process: overview

R3 Airspace Design Process

Research

Collaboration & engagement to establish definition of respite and overflight

Development of quantitative criteria for airspace

Refine quantitative criteria for airspace

R3 design team

We identify principles and components

We construct prototype systems, identify preferred option & 'design envelope' for each route

We refine our preferred prototype based on feedback and submit for DCO Approval

We construct detailed route options with the envelopes, using quantitative methodology

We refine our options based on feedback and submit for ACP Approval

Communities

Consultation 1:
We ask:
- Have we missed anything?
- Have we got the right design principles?

Consultation 2:
- Is our preferred system right?
- What local factors (inside the envelopes) do we need to consider when working up the details?
- Does our quantitative method capture relative impacts adequately?

Consultation 3:
- Which of our options for the routes is the best from the local perspective?
- Could we make any of the options better?

You are here

time

Illustrative

Illustrative

Illustrative
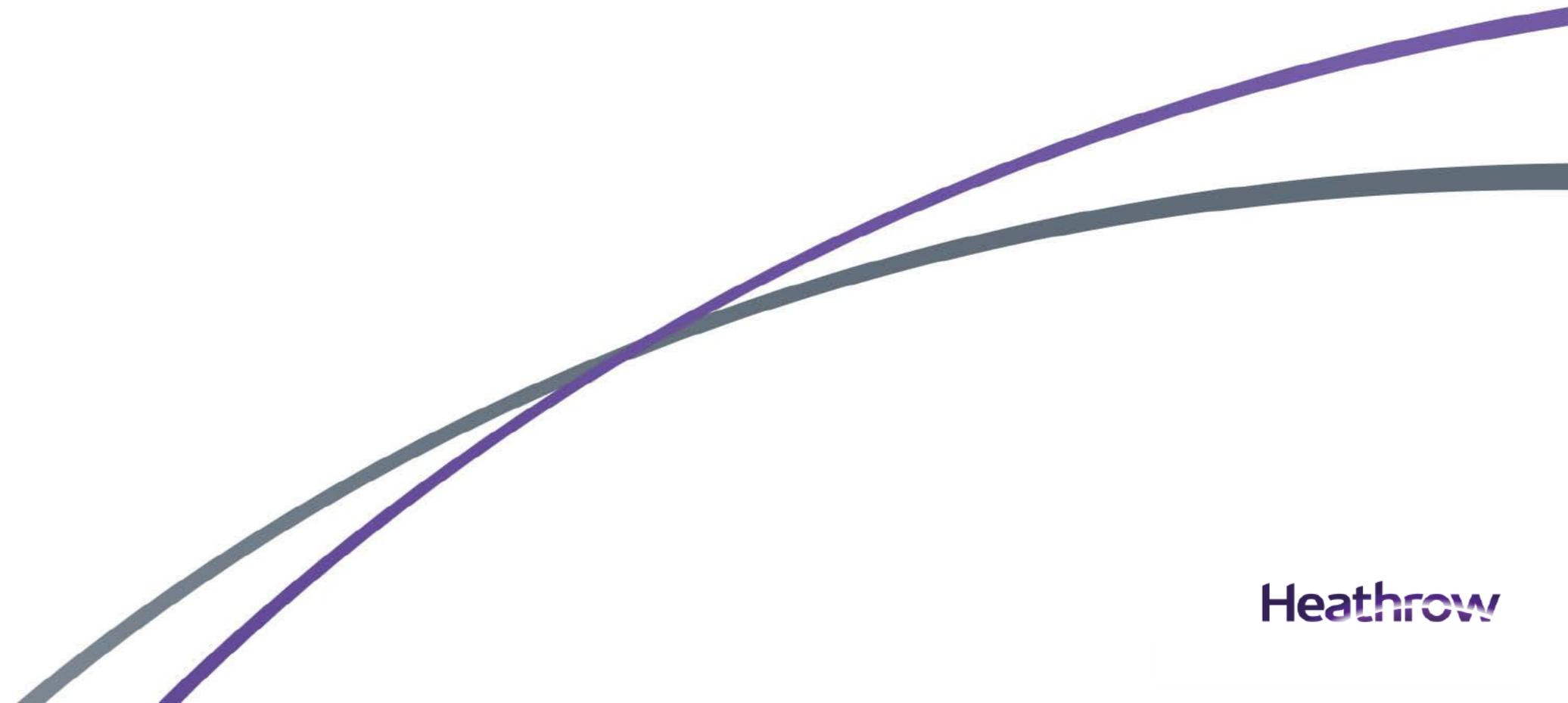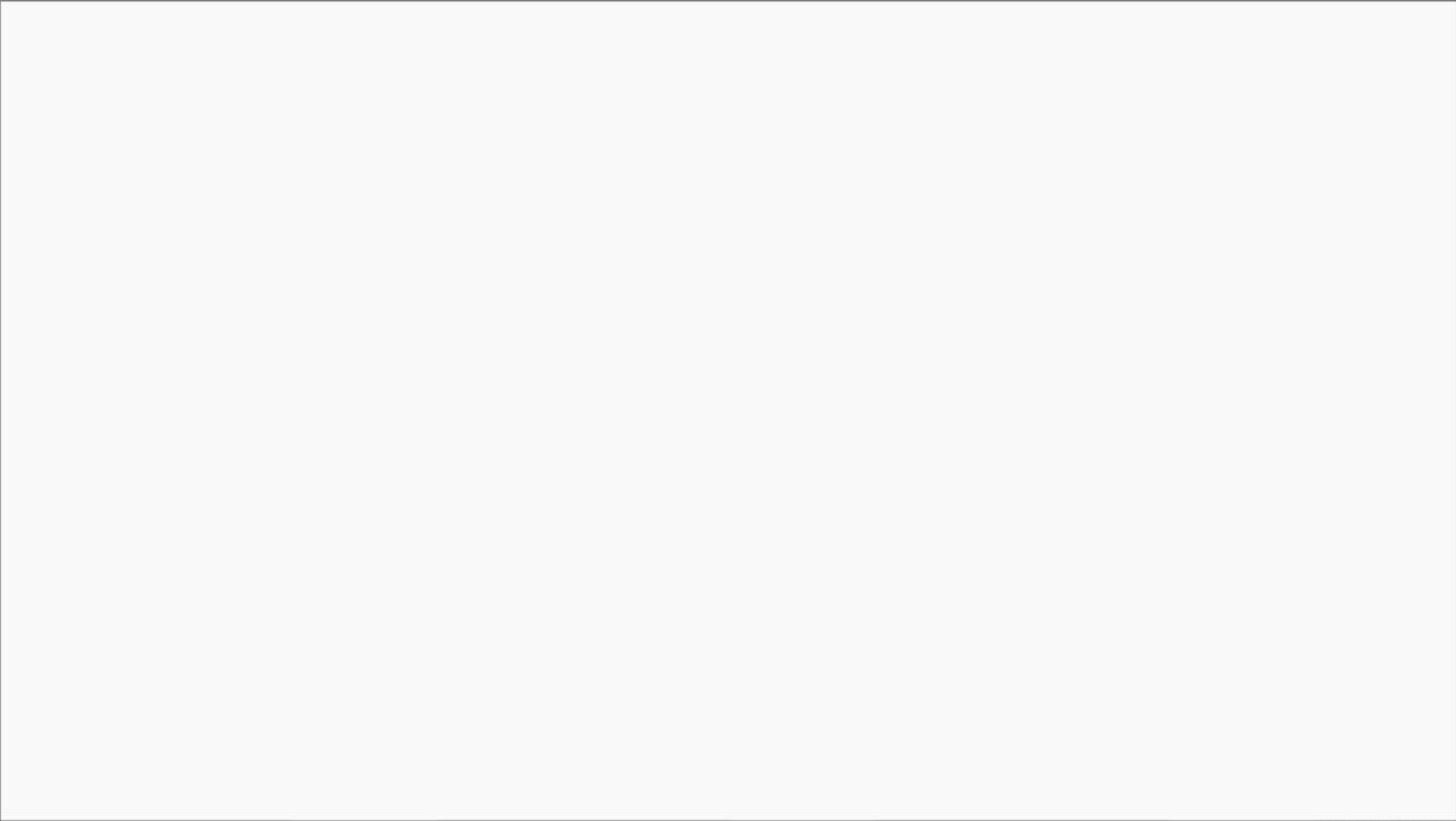
Next steps

- Later this year we plan to run a 12 week consultation on both DCO and airspace

- We will be holding consultations events at numerous venues (locations to be confirmed) where we will be sharing more information

- We would encourage you to response to these consultations to have your say

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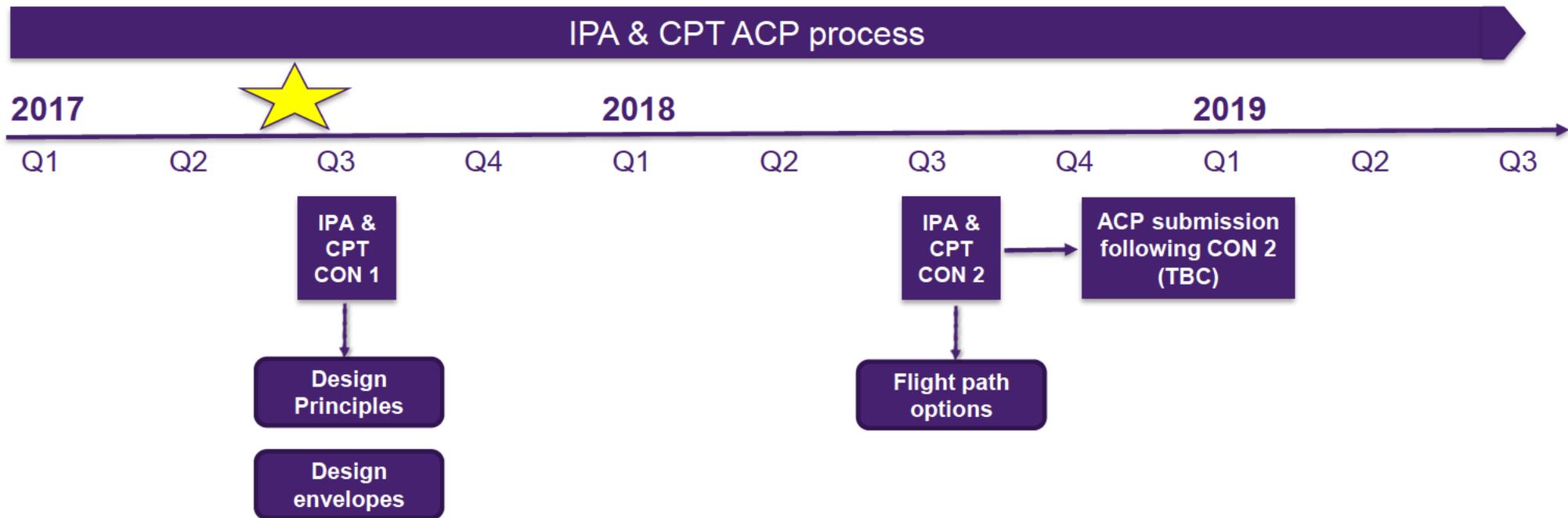# Current operations – airspace change

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IPA Video

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Independent Parallel Approaches (IPA) & Compton (CPT) SID

- IPA & CPT have been identified as priority projects for current operations - scheduled for implementation in late 2019

- We also need to change the CPT departure route; this change is required by the CAA to make the route compliant to their standards.

- Some of the IPA arrival routes are close to the CPT departure, and so design of each needs to take account of the other.

- Therefore, we plan to consult on IPA and CPT at the same time as ACP Consultation 1 (later this year).

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IPA & CPT: consultation process

- Unlike the 3R design which is starting from a blank sheet, IPA and CPT have to fit into the existing airspace system

- This puts a practical limit on where the route can go, ie the design envelope.

- Therefore, unlike for an three runway Heathrow we can consult on design envelopes at the same time as the design principles in the first consultation later this year.

- After this consultation we will use the feedback on the design principles and feedback on the specific design envelopes to determine where to position options for the 'lines on maps'

- We then plan to consult on these options in 2018

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IPA & CPT: indicative ACP timeline

IPA & CPT ACP process

2017 **2018** **2019**

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3

IPA & CPT CON 1

Design Principles

Design envelopes

IPA & CPT CON 2

Flight path options

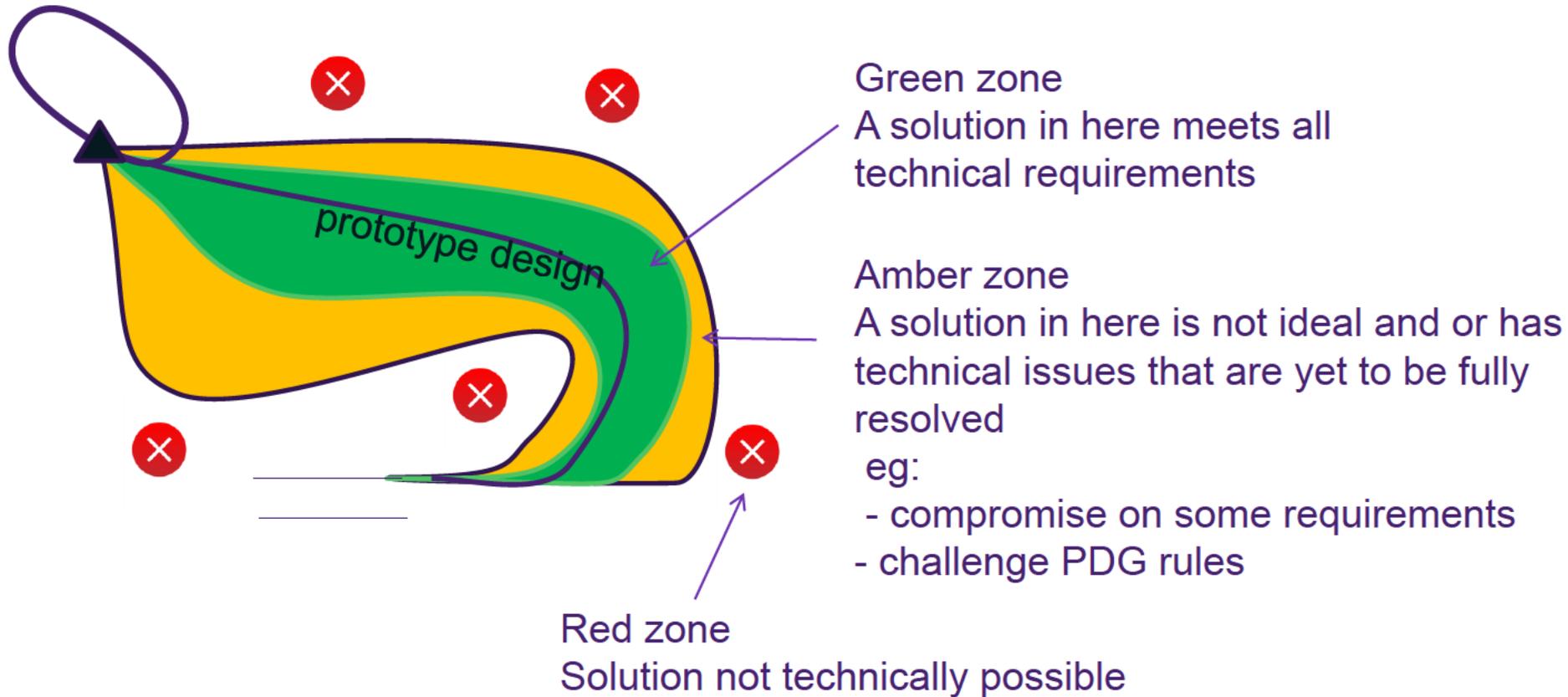ACP submission following CON 2 (TBC)

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IPA/CPT Background

The airspace change process can be characterised by a series of questions that drill down towards the final airspace solution
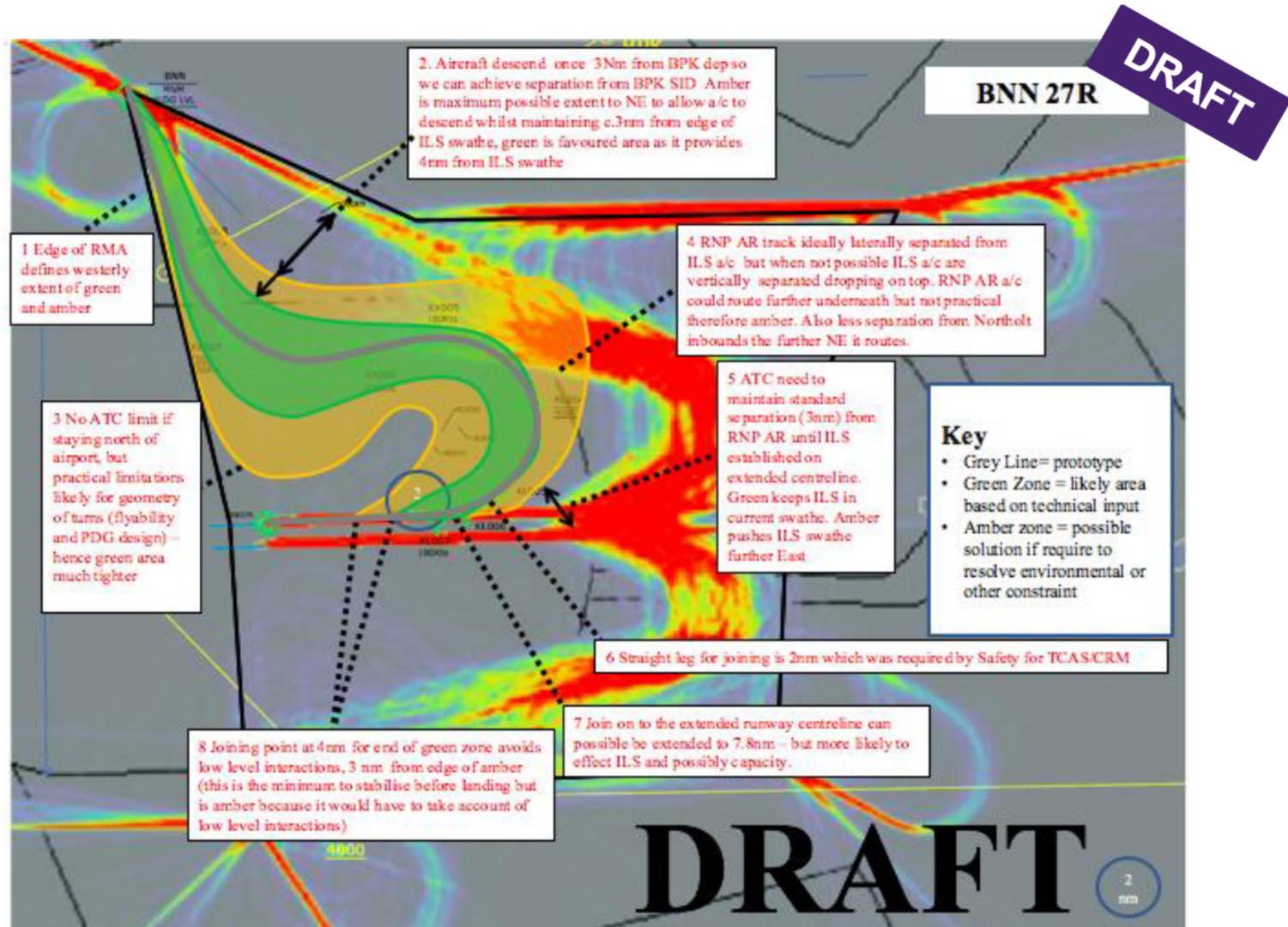
We are here

| Question	Status
Is a design technically possible?	NATS has established this through prototyping
What is the design envelope for each route?	NATS to establish design envelopes prior to consultation 1
What are the options for where we ideally position the routes within watch design envelope	HAL to determine these, taking on board consultation 1
What changes are required to make each option PANS Ops compliant/flyable?	NATS PDG to generate complaint options for consultation 2 + NAT organise concept test flights and assure flyability
What is the preferred option?	HAL to determine taking on board consultation 2
What are the required MATS II procedures?	NATS to establish through development SIM
Is the whole system safe to implement ?	NATS to establish through validation SIM

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Establishing a Route Design Envelope

prototype design

Green zone
A solution in here meets all technical requirements

Amber zone
A solution in here is not ideal and or has technical issues that are yet to be fully resolved
 eg:
 - compromise on some requirements
 - challenge PDG rules

Red zone
Solution not technically possible

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Design Envelopes for IPA: arrivals from Bovingdon stack to 27R

Design Envelopes for a new easterly CPT SID
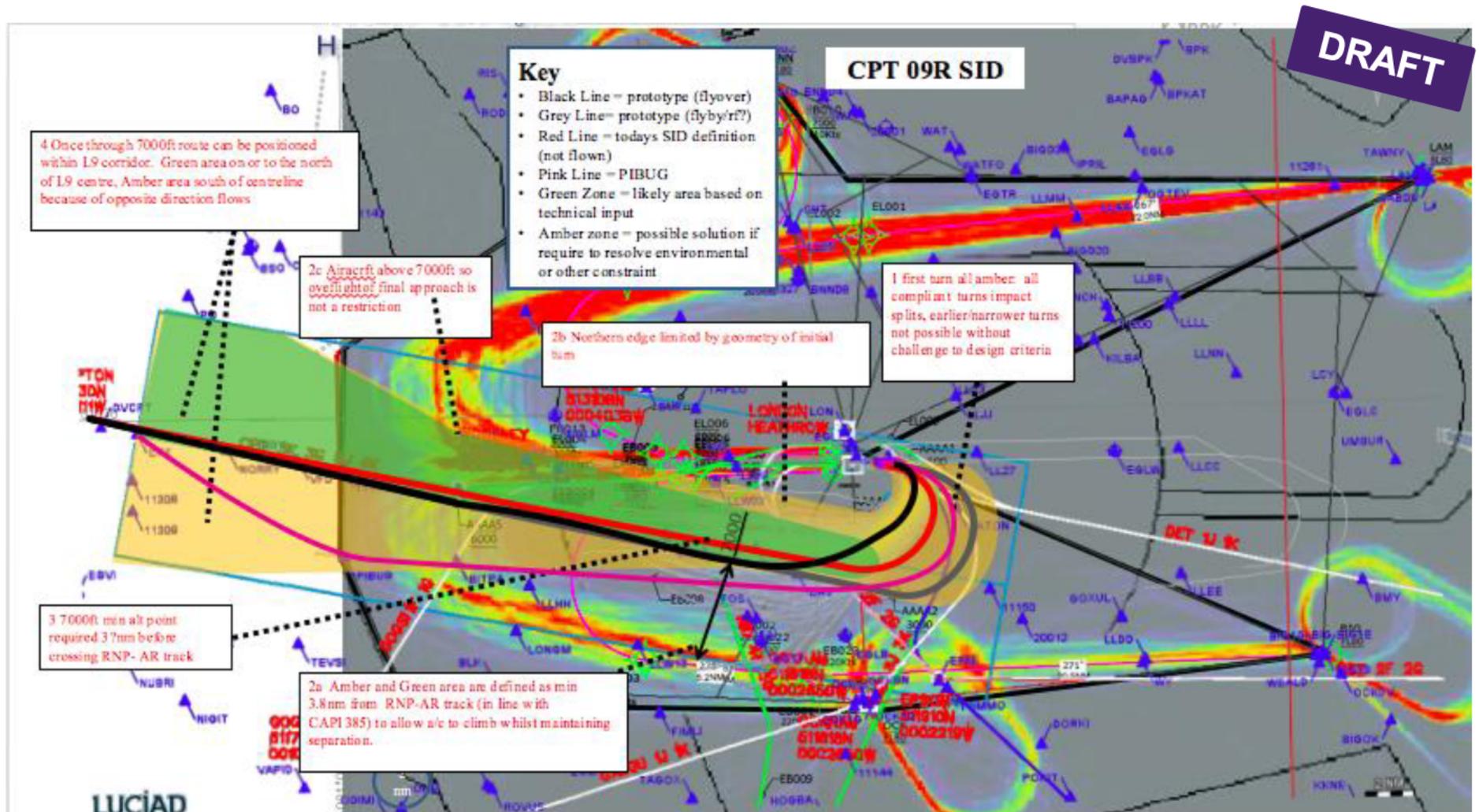
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Contact Record

Meeting Details:

Date and time:	Wednesday, 5th July 2017 at 14:30 – 15:30
Meeting title/subject:	HAL / Stansted – Airspace Engagement Meeting
Purpose:	To engage with STN and update HAL's Airspace plan and consultation timelines for DCO
Meeting location:	Enterprise House, Stansted Airport
Meeting organiser/lead:	██████████
Attendees:	See below list
Apologies:	None
Circulation:	

Attendance:

Name	Organisation	Position	Initials
████████	Heathrow Airport	███████████ ████	██
██████████	Heathrow Airport	█████████████ ███	██
███████	Heathrow Airport	██████████ ████	██
██████████	Stansted Airport	███████████	██
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█████████	Stansted Airport	███████████ ████	██
███████████	Stansted Airport		██

GRIMSHAW Quod ARUP ATKINS JACOBS MOTT MACDONALD M amec foster wheeler **Heathrow** *Making every journey better*

Minutes

Item:	Type*	Description / Action Item / Notes	Owner	Deadline
1		▉ explained the purpose of today is to give STN an overview of our Expansion plans. ▉ – It's a broader engagement programme and this is part of it. We are talking both the 2R and 3R plans ▉ – Airspace change is not just for LHR but other airports there is a need forboarder collaboration on changes and learnings ▉ – We have some standard slides which we shared with other airports. Airspace today: Opportunities - Change LHR's airspace to accommodate a 3rd runway system and Airspace Modernisation Airspace tomorrow: Type of things we look to be doing for 3R: list of things to improve airspace design with departures / arrivals Requirements to work with DfT, CAA and NATS, collaborate with other airports, engagement and consultations, Airspace modernisation of the London TMA Airspace Governance and Co-ordination explained – 1. HAL & CAA engagement as part of the new Airspace Change Process Engagement with DfT, CAA (FAS Deployment SG, FASIIG, Cross Industry LTMA Optimisation Group.		
2		UK Policy Landscape - Consultation relating to Airspace Change timelines over next 12 months shared including other factors influencing Airspace Change ie. VOR's removed		
3		▉ - NPS designation likely to be in the first half of next year (delayed due to the general election) 2nd consultation later in that year (2018) DCO approval should be in 2021 given the above ▉ - VORs – working with CAA at the moment to progress on a plan to withdraw based on policy change enabling use of RNAV overlays for fixed period. If this progresses successfully it will be rolled out across the UK. ▉ – Will this be announced by CAA?		

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Minutes

		■ – likely to be announced via FASIIG ■ – Discussion on what does the PCP mandate means of compliance required? STN in same position as HAL with regards to this.		
4		ACP and DCO ■ explained LHR is running two processes and is working out how the two processes align, and is engaging PINS on this. There is a three step consultation for airspace and two step for DCO. Con 1 would be Airspace Design principles Con 2 Airspace Design Envelopes DCO Submission 2019 DCO Decision 2020 – 2021 ACP consultation (3) would be after the DCO decision. ■ – Community will want to know how many flights or noise will affect them. Area of consultation scoped. ■ – Advised STN that a meeting had been held with ■■■■■■■■ re letter boxes to plug into the Network for LAMP. LHR asked NATS to caveat it this with the fact that the position of these may well change later on as it is too early to provide any certainty. ■ – We should have better knowledge of where the letter boxes are when we work on the design envelopes STN asked what the NATS role is in the Future Heathrow Airspace programme ■ – Clarified that this consists of a team of 6 NATS secondees are managed by LHR , alongside other independent consultants, who are also working on the Airspace Change programme		
5		R3 Airspace Design Process – Overview ■ - Where we are at present, data gathering to feed into the design and bring to Con1 and Con2		
7		■ – Next Steps will be a 12 week consultation later this year on both DCO and airspace. Number of consultation venues to be determined. ■ encourage STN to respond accordingly		

Minutes

8		IPA video played		
		LHR currently using TEAM operation and looking to change to IPA. Benefit: less flights out of alternation, improved resilience and improved punctuality		
		▉ – if the arrivals traffic is separated, we can maintain the designated arrival stream with standard separation, reducing the number of aircraft that land out of alternation.		
		▉ - so it's not just allowing early flights to land. ▉ - No		
		Phase 1 operation of IPA will be on the same basis as to, landing no more RNP (AR) flights than the voluntary 6 per hour today.		
		▉ – IPA looking at Westerlies / Easterlies. . Specific issue with 09 Compton which has 180degree turn south bound for transatlantic flights. It is currently a non-viable SID and needs to be addressed for IPA		
		▉ – 2R Change process was originally linked with 3R Expansion consultation but now recently delinked the two. We are reviewing the implications of this and are unable to advise timescale on design envelope		
		▉ – what tier will it be ▉ – Tier 1		
		▉ – Design envelope can be constraint for communities ▉ – IPA and CPT consultation later this year but could be ahead of DCO Con 1 ▉ – IPA is a joint project with NATS to be implemented by end of 2019		
		IPA/CPT Background – Establishing a Route Design Envelope explained by ▉ Green zones are the prototype design – solution meets all technical requirements Design Envelopes for IPA: Arrivals from Bovingdon stack to 27R and for a new easterly CPT SID		
9		Q&A		
		▉ – Where does Government sit with RNP(AR)?		

Minutes

		■ – Discussions with DfT, are not about decision making but be more on policies if we go for the Optioning Appraisals ■ – is HAL in dialogue with ICAO with regards IPA ■ looking for UK base variation. IPA is an extension of policy not new ■ – is IPA a change related to LAMP ■ – no association to LAMP at all, it is wholly a resilience measure for the existing runway arrangements, although we may wish to apply it to future design. ■ – RP3 is a risk for a lot of airports which has been flagged with DfT ■ – procedure design is a challenge which ■ agreed and deemed to slow the projects we are working on due to the necessary engagement required now.		
10		■ aware that Luton and Gatwick have lower level changes they wish to accelerate ahead of LAMP. An opportunity to meet with Southeast airports to discuss low level changes and opportunities. DfT confirmed they do not want to get involved but LHR can go ahead with meeting Suggestion: Explore terms of reference, identify independent or joint chair. Funding could be from FASIIG ■ – Are there other existing forums that could engage eg. ■■■■■■■■ ■ – ■ role is more for resilience and not Airspace Change ■ / ■ – agree with the meeting to draft TOR ■ – chair independently ■ – maybe a role for the CAA CAA clarified they would not be involved		
	A,H	■ – We will set up a meeting before the end of Summer once all airport engagements are completed		
		Note taker:	■■■■■■■■■■■■■■■■■ (HAL)	
		Next Meeting:		

(A=Action, H = HAL Commitment, V= Stakeholder view)

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Airspace Change

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Background

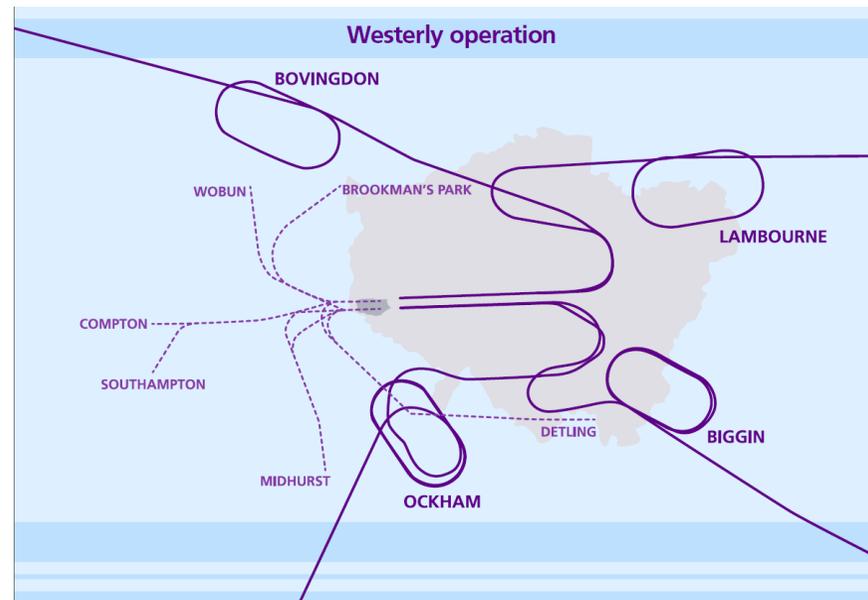# Airspace: today

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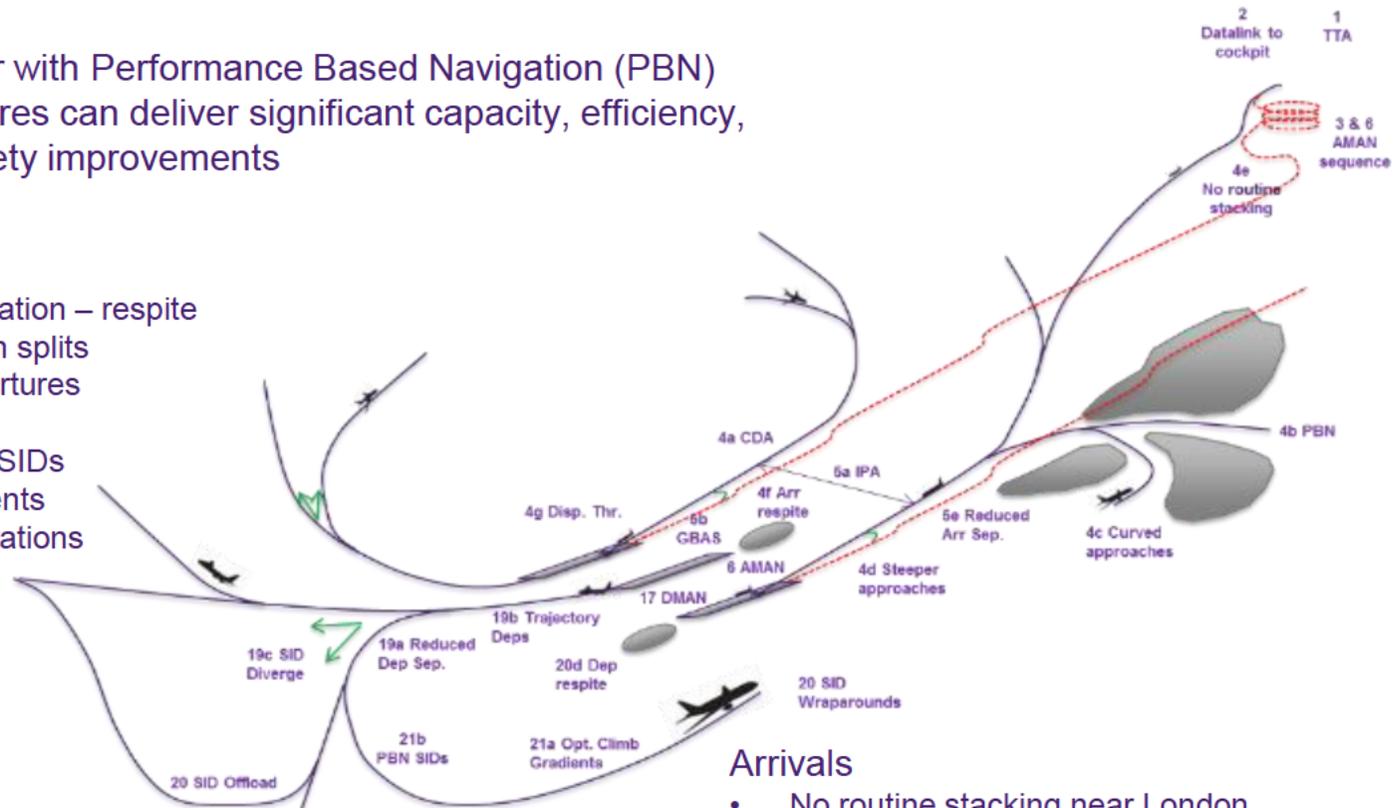*Making every journey better*

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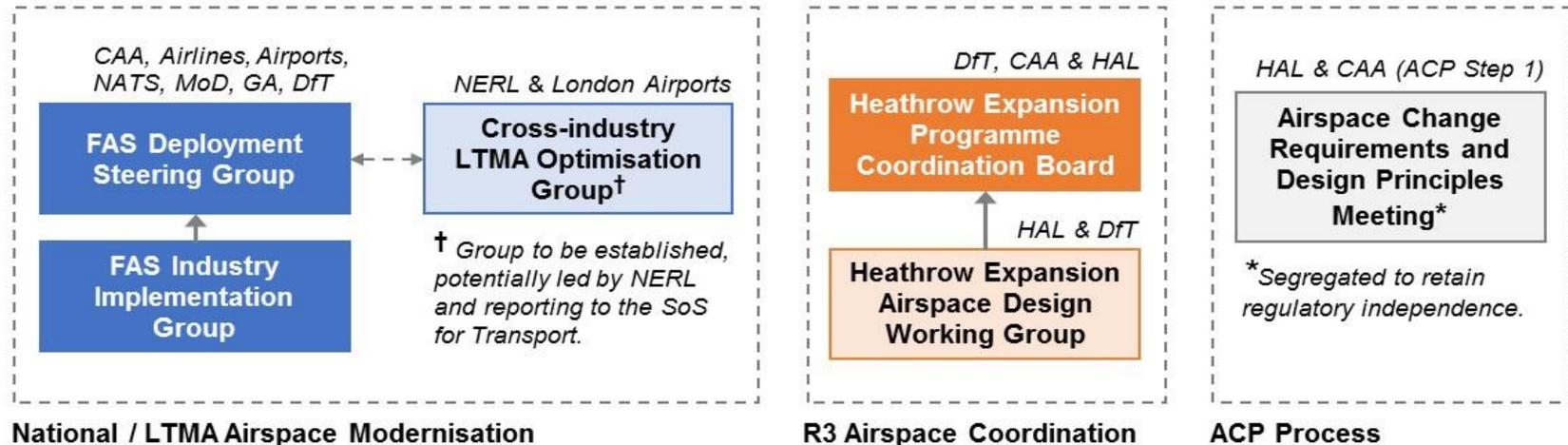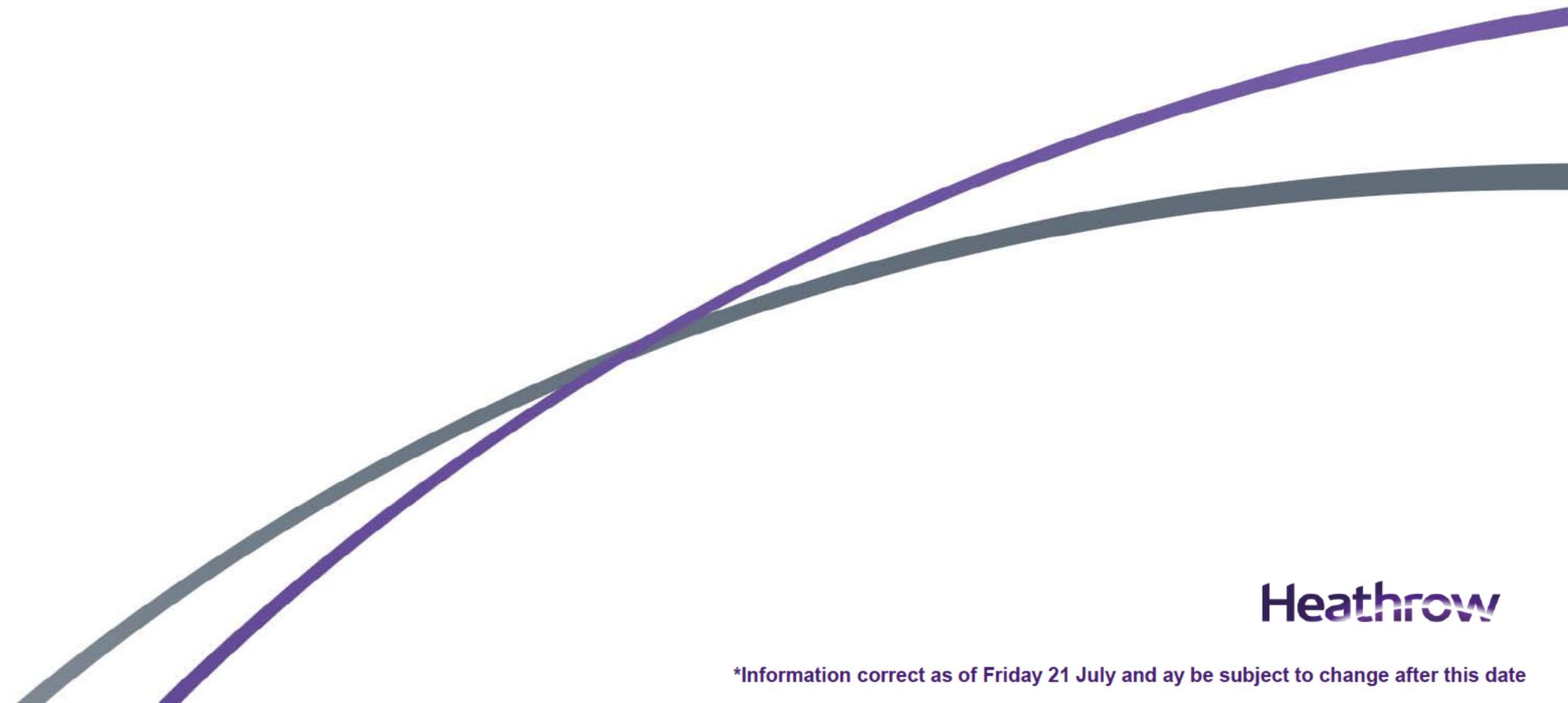

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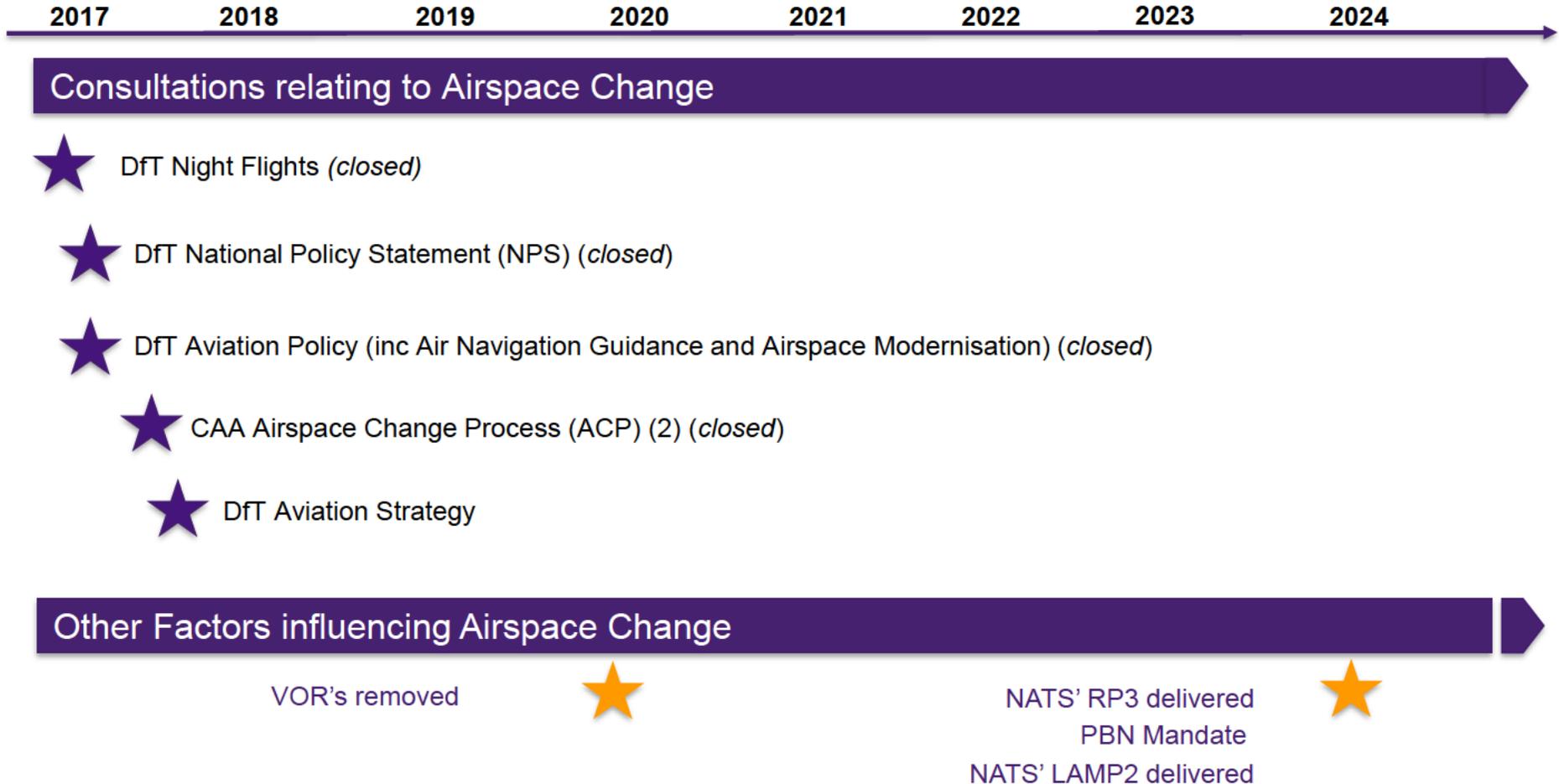
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Heathrow expansion – airspace change

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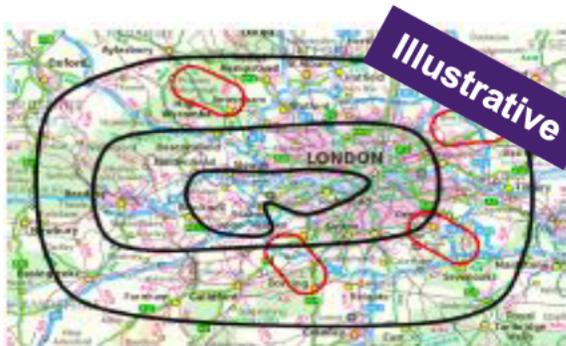

HAL's Current Expansion Programme

2017 — Q1 Q2 Q3 Q4 | **2018** — Q1 Q2 Q3 Q4 | **2019** — Q1 Q2 Q3 Q4 | **2020** — Q1 Q2 Q3 | **2021** — Q4 Q1 Q2 Q3

DCO Process
- DCO CON1
- DCO CON2
- DCO Submission
- DCO Decision

ACP Process
- ACP CON1 → Design Principles → *Illustrative*
- ACP CON2 → Design Envelopes → *Illustrative*
- ACP CON3 date TBD → Flightpath Options → *Illustrative*
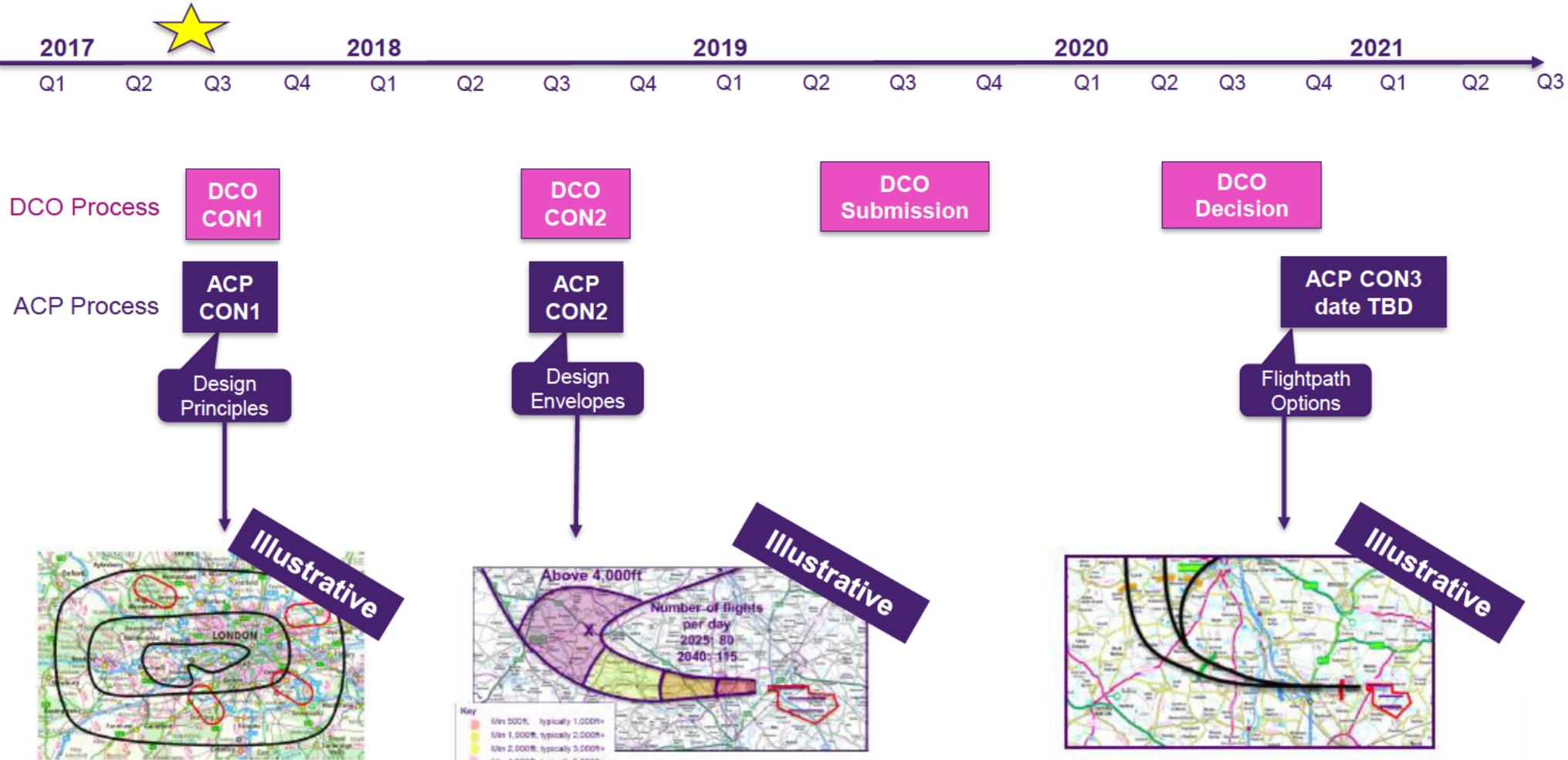
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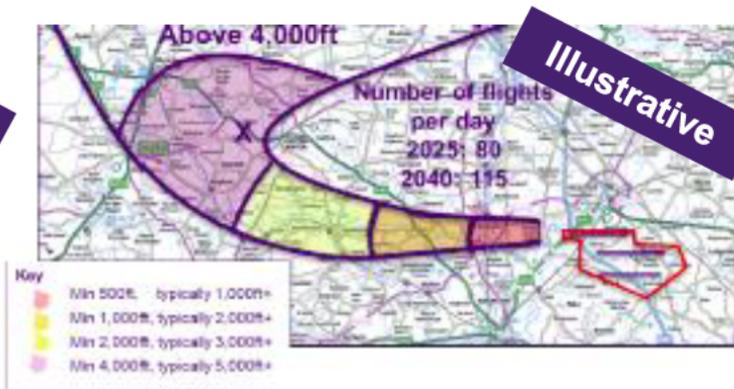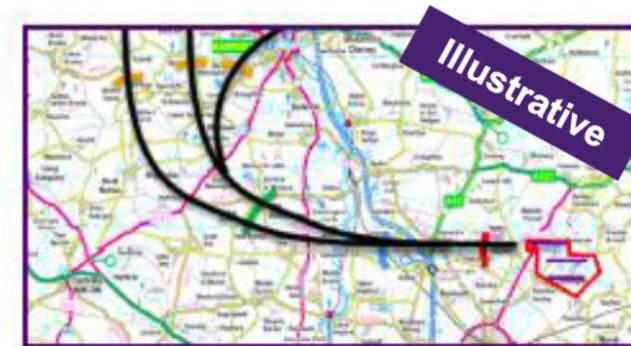
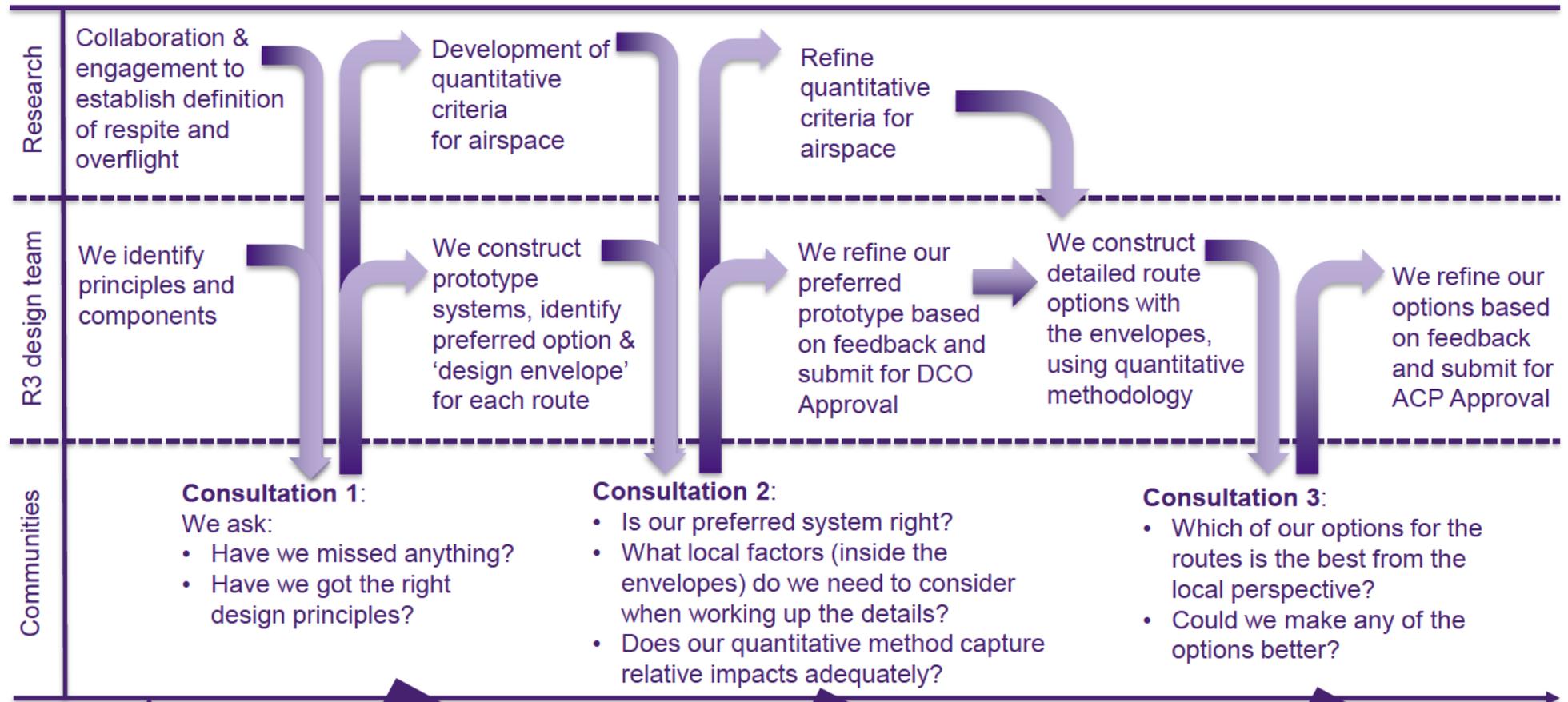### Stage 1
Design principles

Stage 2
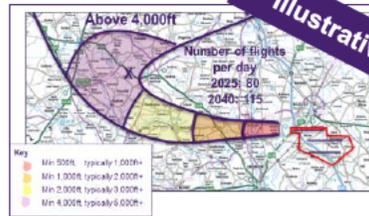Design envelopes

Stage 3
Flight path options

Heathrow

R3 Airspace Design Process: overview

R3 Airspace Design Process

Research

Collaboration & engagement to establish definition of respite and overflight

Development of quantitative criteria for airspace

Refine quantitative criteria for airspace

R3 design team

We identify principles and components

We construct prototype systems, identify preferred option & 'design envelope' for each route

We refine our preferred prototype based on feedback and submit for DCO Approval

We construct detailed route options with the envelopes, using quantitative methodology

We refine our options based on feedback and submit for ACP Approval

Communities

Consultation 1:
We ask:
- Have we missed anything?
- Have we got the right design principles?

Consultation 2:
- Is our preferred system right?
- What local factors (inside the envelopes) do we need to consider when working up the details?
- Does our quantitative method capture relative impacts adequately?

Consultation 3:
- Which of our options for the routes is the best from the local perspective?
- Could we make any of the options better?

You are here

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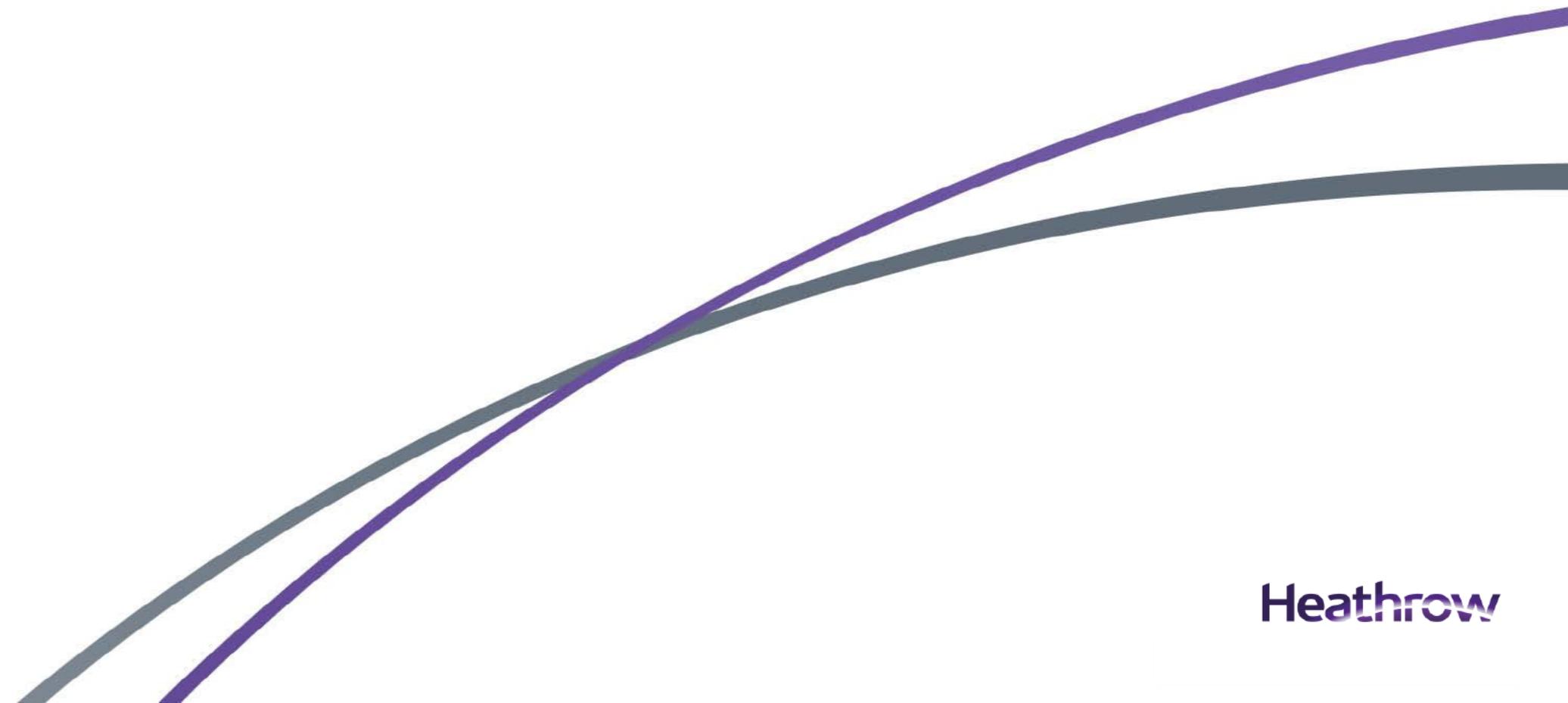*Illustrative*

Illustrative

time

*Information correct as of Friday 21 July and may be subject to change after this date
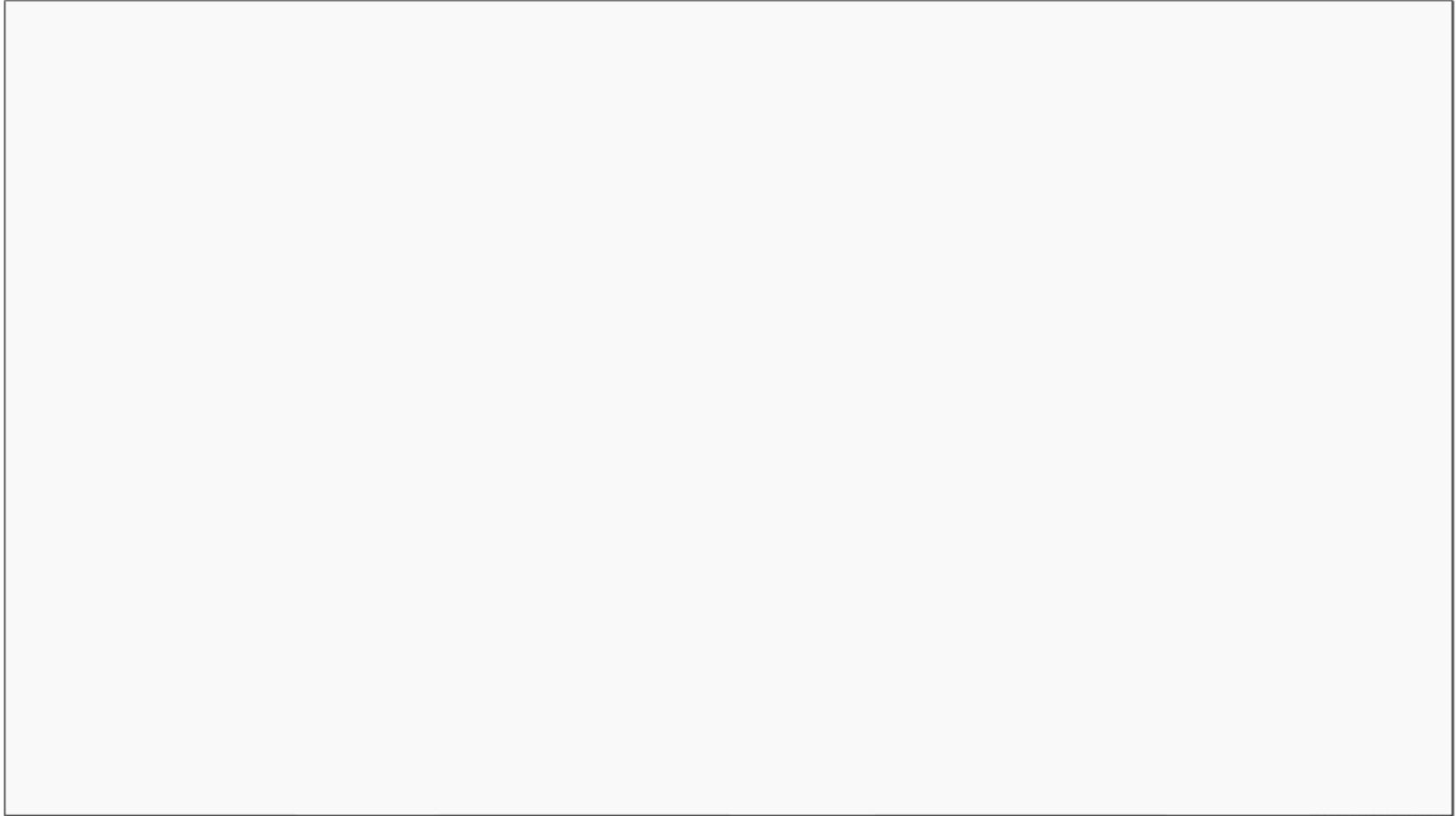
Next steps

- Later this year we plan to run a 12 week consultation on both DCO and airspace

- We will be holding consultations events at numerous venues (locations to be confirmed) where we will be sharing more information

- We would encourage you to response to these consultations to have your say

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Current operations – airspace change

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IPA Video

Independent Parallel Approaches (IPA) & Compton (CPT) SID

- IPA & CPT have been identified as priority projects for current operations - scheduled for implementation in late 2019

- We also need to change the CPT departure route; this change is required by the CAA to make the route compliant to their standards.

- Some of the IPA arrival routes are close to the CPT departure, and so design of each needs to take account of the other.

- Therefore, we plan to consult on IPA and CPT at the same time as ACP Consultation 1 (later this year).

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IPA & CPT: consultation process

- Unlike the 3R design which is starting from a blank sheet, IPA and CPT have to fit into the existing airspace system

- This puts a practical limit on where the route can go, ie the design envelope.

- Therefore, unlike for an three runway Heathrow we can consult on design envelopes at the same time as the design principles in the first consultation later this year.

- After this consultation we will use the feedback on the design principles and feedback on the specific design envelopes to determine where to position options for the 'lines on maps'

- We then plan to consult on these options in 2018

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IPA & CPT: indicative ACP timeline

IPA & CPT ACP process

2017		2018					2019		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

IPA & CPT CON 1

Design Principles

Design envelopes

IPA & CPT CON 2

ACP submission following CON 2 (TBC)

Flight path options

Heathrow

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IPA/CPT Background

The airspace change process can be characterised by a series of questions that drill down towards the final airspace solution

We are here

Question	Status
Is a design technically possible?	NATS has established this through prototyping
What is the design envelope for each route?	NATS to establish design envelopes prior to consultation 1
What are the options for where we ideally position the routes within watch design envelope	HAL to determine these, taking on board consultation 1
What changes are required to make each option PANS Ops compliant/flyable?	NATS PDG to generate complaint options for consultation 2 + NAT organise concept test flights and assure flyability
What is the preferred option?	HAL to determine taking on board consultation 2
What are the required MATS II procedures?	NATS to establish through development SIM
Is the whole system safe to implement ?	NATS to establish through validation SIM

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Establishing a Route Design Envelope

prototype design

Green zone
A solution in here meets all technical requirements

Amber zone
A solution in here is not ideal and or has technical issues that are yet to be fully resolved
 eg:
 - compromise on some requirements
 - challenge PDG rules

Red zone
Solution not technically possible

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Heathrow

Time: 13.00-14.00hrs, 31 Aug 2017
Place: LHR Compass Centre

Attendees:

- ██████████████████████
  ■ ██████████████████████████
  ■ ████████ █████████████████████████████ ████████████████
  ■ █████████████████████████████████████

Agenda:
1.) Intros
2.) Updates:
   a. Heathrow 2R and 3R airspace change process ██
   b. R3 DCO process ████████
   c. LHR NAP process ████
   d. Public Health England ██
   e. Noise health effects/ research (all)
   f. Ongoing engagement (all)
3.) AoB

Matters Noted:

- ██ provided a briefing on Heathrow's planned airspace change programme and how the approval process for 3R will integrate with the DCO approval process.
   a. ██ requested a copy of the ppt slides for his records. ACTION ██
- ██ briefed ██ on Heathrow's plans for the R3 DCO approval process. This included the methodology being development for noise assessment given that flight track locations will not be confirmed until after the DCO process. Also Heathrow's assurance processes including the Noise Expert Review Group. ██ expressed interest in Heathrow's planned review of WebTAG.
   a. ██ agreed to share with ██ any recommendations resulting from the WebTAG review. ACTION ██
- ██ briefed ██ on the process and timescales for update of Heathrow's Noise Action Plan.
- ██ is undertaking a literature review of noise and wider determinants of health. The findings are expected to be available early to mid 2018.

To: ██████████████████████████████

Subject: RE: 22/09 Historic England engagement notes

Time: 10.00-12.00hrs, Fri 22 Sept 2017
Place: LHR Compass Centre

Attendees:

███████████████████████████████████
███████████████████████████
███
████████████████████████████████
██████████████████████████████████

Agenda:
1.) Intros
2.) Heathrow 2R and 3R airspace change process ██
3.) Heathrow Noise Action Plan Process ██
4.) Heathrow monthly meeting with Historic England ████████
5.) AoB

Matters Noted:

- ██ provided a briefing on the role and scope of Historic England. That is, statutory advisers on national developments policies (NPSs); Regional Plans (eg London Plan), District Plans and infrastructure development projects.
- From a noise perspective, Historic England are most interested in the potential impacts of infrastructure developments on the sound character and ambience at their heritage assets.
- ██ provided a briefing on Heathrow's planned airspace change programme and how the approval process for 3R will integrate with the DCO approval process.
    a. ██ requested a copy of the ppt slides for his records. ACTION ██
- Historic England expressed interest in the proposed airspace design principles, and undertook to respond to the forthcoming Heathrow consultation.
- ██ provided a briefing on Heathrow's Noise Action Plan process, including timescales for consultation and Plan finalisation.

To: ██████████████
Cc: ██████████████
Subject: RE: BIGGIN HILL WED and FARNBOROUGH THU

From: ██████████████
Sent: 27 September 2017 14:21
To: ██
██████████████████████ ██████████████
Cc: ██
Subject: RE: BIGGIN HILL WED and FARNBOROUGH THU

████████

Outcome of Biggin meeting today was an action for us to provide the LTMA secretariat details to Biggin – ████ – they
want to take part, Action for us to let them know of progress of the VOR policy work post the Nov workshop.
They were supportive of modernisation.
So first action on me second on ████████

I think I have shared the slides with you please save them in the Comms bit as I can't – don't have the permissions –
will be using the same slides tomorrow.

█

To:
Cc:
Subject: RE: Farnborough

Hi All

So another good engagement session with Farnborough – 3 of them in the room – ███████████████████
████████

I went through the slides and between ██████ and I we briefed them – they were supportive – although on the basis of their current ACP – warned us of the issues consultation brings….especially over the large area concerned. The only action was for me to forward details of the LTMA group which I will do. Their traffic is up 6% this year.

It's a lovely airfield!

█

Time: 14.00-15.03hrs, Mon 23 Oct 2017
Place: GLA, City Hall, London Bridge

Attendees:

Greater London Authority
- ██████████████████████
- ████████████████

Transport for London
- ██████████████████████
- █████████████████

Heathrow
- ████████████████████████████████████
- ██████████████████████
- ██████████████████████████
- █████████████████████████

Airspace Change Matters Noted:

1. ██ and ██ provided a briefing on Heathrow's planned airspace change programme and how the approval process for 3R will integrate with the DCO approval process.
   a. GLA requested a copy of the ppt slides for their records. ACTION ██

2. ██ provided an overview of noise management at LHR, together with the programme for Noise Action Plan 2019-2023 development.
   a. DfT TfL undertook to respond to the forthcoming Heathrow NAP consultation.

3. ██ gave an update on LHR noise complaint stats.

4. Matters noted during discussion. GLA/ TfL queried:
   a. Whether LHR is considering reviewing its 2R noise insulation schemes following the publication of SONA 2014.
   b. If there is no R3, will we still need to redesign airspace ?
   c. Whether we expect to achieve clarity on community priorities from the design principles consultation.
   d. The extent of our DCO1 airspace consultation, including the approach taken for different noise affected 'zones'.
   e. Whether NOx emissions will be assessed as part of the increased climb gradient trials (2018 Detling trial)

DfT TfL undertook to respond to the forthcoming Heathrow DCO1 consultation.

To: ████████████

Subject: RE: Notes from Airspace Engagement with Environment Agency

Time: 11.00-12.00hrs, Mon 20 Nov 2017
Place: LHR Compass Centre

Attendees:

Environment Agency
█ ████████████

Heathrow
█ ██
█ ██

Agenda:
1.) Intros
2.) Heathrow 2R and 3R airspace change process ████████
3.) Heathrow Noise Action Plan Process ██
4.) AoB

Matters Noted:

- █ provided a briefing on the role and scope of Environment Agency
- █ provided a briefing on Heathrow's planned airspace change programme and how the approval process for 3R will integrate with the DCO approval process.
- █ provided a briefing on Heathrow's planned airspace change programme for current 2R operations, focusing on IPA and Compton.
- █ offered a brief overview of Heathrow's noise action plan process.
- █ undertook to respond to the forthcoming Heathrow consultations.

████████ ████████████
Heathrow Expansion

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

████████████████
w: heathrow.com t: twitter.com/heathrowairport
a: heathrow.com/apps

AIRSPACE CONSULTATION OVERVIEW

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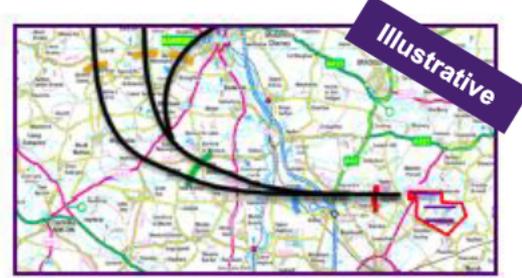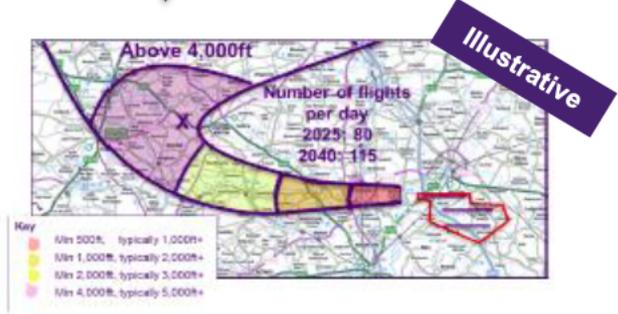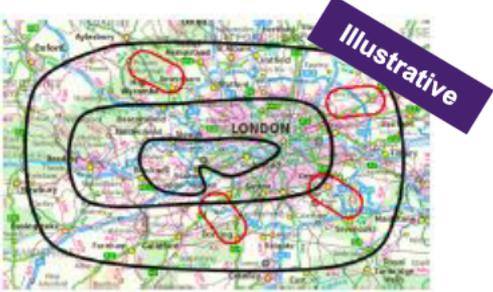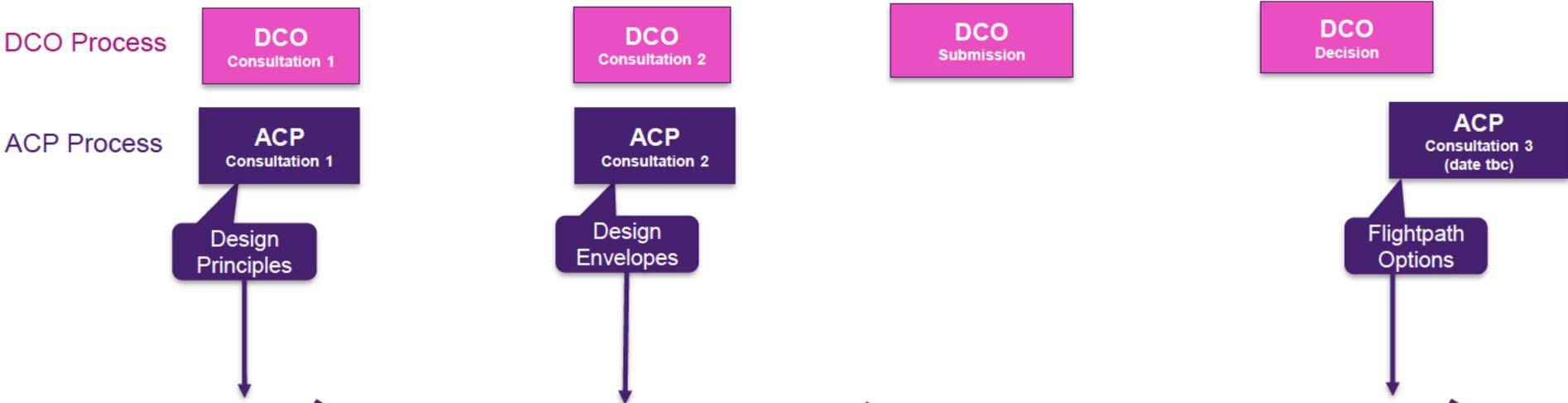
HEATHROW'S CONSULTATIONS

Next year we will start our public consultations on expansion at Heathrow to inform our application for our *Development Consent Order (DCO)* and third runway **airspace changes**. This will involve two consultations – one on the *physical designs and mitigation*, another on **principles around designs for future airspace.**

Expansion

DCO (2 stage consultation)

- Consultation 1

- Consultation 2

Airspace change (3 stage consultation)

- Consultation 1 – 'Design principles'

- Consultation 2 - 'Design envelopes'

- Consultation 3 - 'Flight path options'
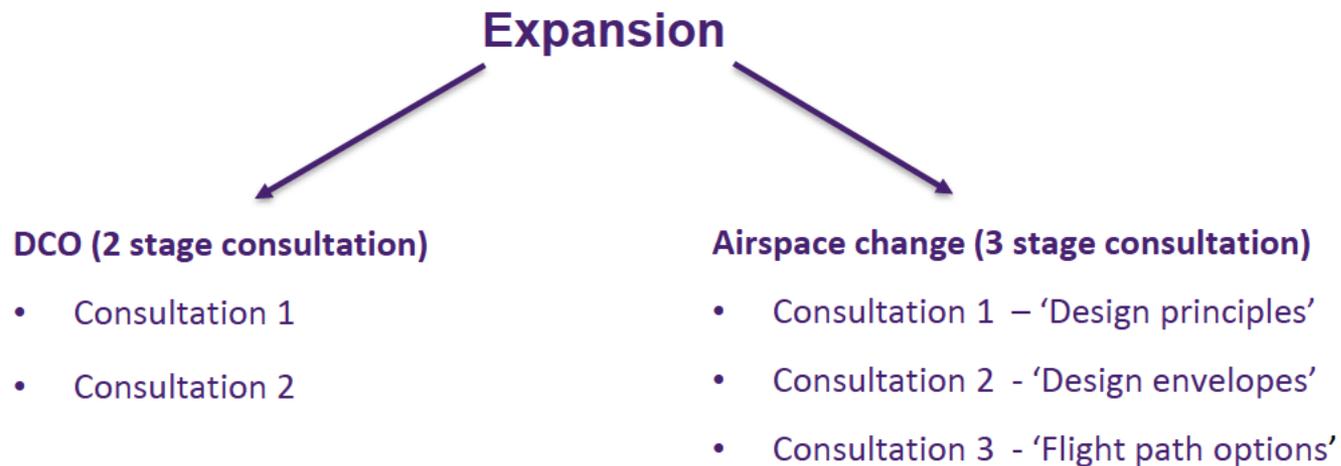
Unlike the approval to build the physical infrastructure for an expanded airport which will be granted via the Development Consent Order (DCO), changes to airspace are generally approved by the CAA, following their Airspace Change Process (ACP).

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ACP AND DCO: THE PROCESSES ARE SEPARATE BUT WILL RUN IN PARALLEL

Heathrow's Indicative Expansion Programme

2017	2018				2019				2020				2021		
Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

DCO Process

- **DCO** Consultation 1
- **DCO** Consultation 2
- **DCO** Submission
- **DCO** Decision

ACP Process

- **ACP** Consultation 1 → Design Principles
- **ACP** Consultation 2 → Design Envelopes
- **ACP** Consultation 3 (date tbc) → Flightpath Options

Illustrative

Above 4,000ft

Number of flights per day
2025: 80
2040: 115

Key
Min 500ft, typically 1,000ft+
Min 1,000ft, typically 2,000ft+
Min 2,000ft, typically 3,000ft+
Min 4,000ft, typically 5,000ft+

Illustrative

Illustrative

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EXPANSION: AIRSPACE CHANGES

- There will be three stages of consultation for changes related to airspace for expansion of the airport.

- This is to ensure that all stakeholders get a chance to engage, input and influence the design from the earliest stage of the process.

- With expansion, we are essentially starting with a blank piece of paper for how to design our future airspace.
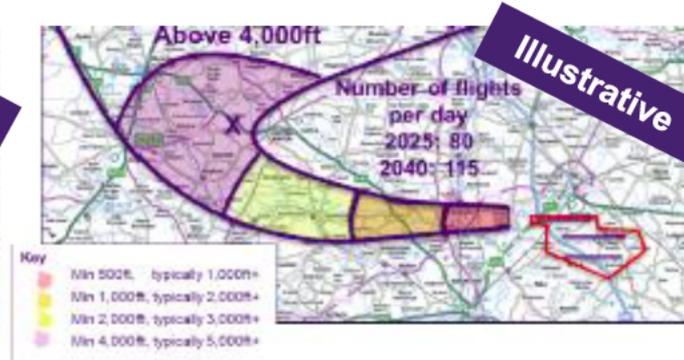
Stage 1
Design principles

Stage 2
Design envelopes

Stage 3
Flight path options

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DESIGN PRINCIPLES CONSULTATION (STAGE 1)

- In this consultation we will identify a set of principles to help shape and underpin the design and structure of Heathrow's airspace.

- These principles will be based on the feedback we've received over the years from stakeholders along with Government policy.

- We'll be asking stakeholders whether they agree with them and how they should be prioritised.

- **This set of principles will apply to all future airspace designs**

Illustrative

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DESIGN ENVELOPES (STAGE 2)

- A design envelop is the area in which a route/flight path may be positioned - it does not mean that flights will be spread across the extent of the envelope.

- It shows the extent of the geographical area where flight paths could be positioned within that zone/"envelope".

- For this consultation we will be seeking feedback on what local factors we should consider in helping us to determine where to position options for the route(s) within each of the design envelope.

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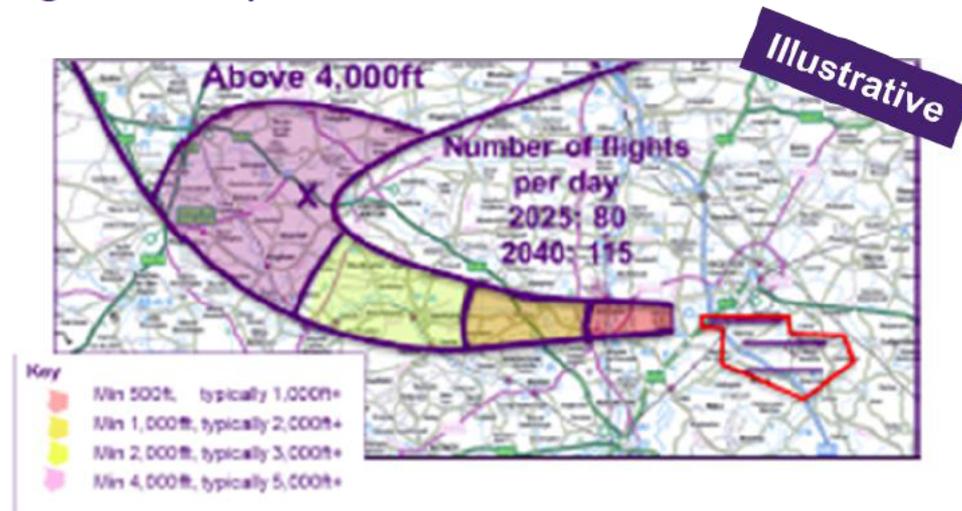
FLIGHT PATH OPTIONS (STAGE 3)

- Using the feedback gathered from the previous consultations – at this stage 3 consultation we will presenting flight path options -"lines on the map" for each route.

- Following extensive analysis and evaluation of the data gathered throughout the different stages of the consultation, it will also:

  - Explain how we have formulated options through the design process
  - Present our preferred options and why these were selected
  - Provide details of why other flight path options were considered but are not preferred

- For this consultation we will be seeking feedback on these flight path options

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NEXT STEPS

- Early next year we will be running a 12 week consultation on both DCO and expansion airspace

- We will be holding consultations events at numerous venues (locations to be confirmed) where we will be sharing more information

- We would encourage you to response to these consultations to have your say

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TWO RUNWAYS – AIRSPACE CHANGE

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TWO RUNWAY CHANGES OVERVIEW

We will be consulting on two changes to how some flights use our current two runways. These changes are:

- The introduction of Independent Parallel Approaches (IPA)
- The redesign of the Compton departure route on easterly operations

- Because the changes to IPA & Compton have to fit into our existing constrained airspace, we're limited to the changes we can make and where these routes can go.

- Therefore we will be carrying out a two-stage consultation:

- 'Design envelopes' consultation
- 'Flight path options' consultation

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INDEPENDENT PARALLEL APPROACHES

- Heathrow is operating at 98% capacity. This means that any disruption can have a knock-on effect to the punctuality of flights.

- Because of this, we are always looking for new ways to improve how the airport operates by adopting new techniques to increase the overall efficiency and resilience of flights in and out of Heathrow.

- Independent Parallel Approaches (IPA) have been identified as a way to make the arrivals that we land on the departure runway (approx. 5-6%) more efficient.

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CURRENT ARRIVALS IN INEFFICIENCIES

- When arrival delays build up, aircraft can temporarily land on the departures runway to alleviate these delays.

- When this happens, the spacing between aircraft on the landing runway has to be increased.

- This is because, for safety reasons, a diagonal spacing of two to three nautical miles is required between aircraft landing on arrivals runway and aircraft landing on the departures runway.

- This requirement for increased spacing then has a knock-on effect of reducing the number of aircraft that can land on the arrivals runway - meaning arrivals are inefficient.

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LANDING ON THE DEPARTURES RUNWAY USING IPA

Current operations: <u>Increased spacing</u> on the arrivals runway when an aircraft is landed on the departures runway

<u>**Current operations**</u> - Landing on the arrivals runway

<u>**Current operations**</u> – landing on the departure runway
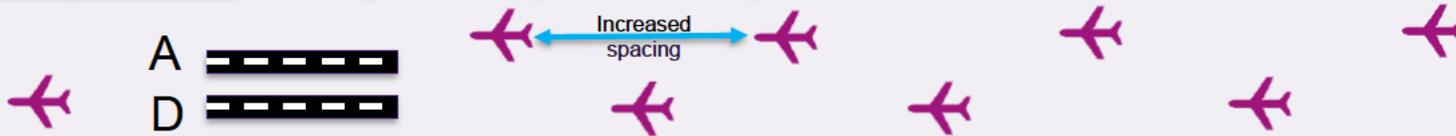
Increased spacing

<u>**Future operations**</u> - **Independent parallel approaches (IPA)** (No increased spacing required)

Future operations: Increased spacing is <u>no longer required</u> with the introduction of IPA, therefore making the arrivals process more efficient

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THE COMPTON ROUTE (EASTERLY OPERATIONS)

- Long-standing issues with the Compton route on easterly operations with aircraft not staying within the prescribed departure route.

- This is because the route is located close to an arrivals holding stack to the south the airport aircraft (see next slide).

- This means NATS air traffic controllers are having to keep departing flights safely separated from the stream of arrivals making their way from this stack to the airport, and aircraft in the stack itself.

- To reduce the need for this to happen we are looking to redesign the route.

- The CAA has also requested that we look to redesign it for these reasons.

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THE COMPTON ROUTE (EASTERLY OPERATIONS)
(RED = ARRIVALS, GREEN = DEPARTURES)

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Heathrow Expansion Programme Coordination Board

04/06/18 Airspace Working Group, Meeting Record

Version 1.0, June 2018

This document summarises the outcomes and actions from the Airspace Working Group (AWG) of the Heathrow Expansion Programme Coordination Board (PCB) that met on June 4th 2018.

Theme	Meeting outcomes and actions
1. Airspace Update for the July 9th Programme Coordination Board	a) The AWG members agreed to submit a short paper to the July 9th PCB that expresses the urgent need for State-level governance to deliver a new route network in the London Terminal Area in the timelines envisaged. b) The latest version of the paper was circulated to all AWG members for review. ▮▮▮▮▮▮ from HAL agreed to present the paper at the July 9th PCB and provide feedback to the AWG. **Action 1: Provide feedback on the Airspace Governance paper for the July PCB.**
2. NATS Feasibility Study Report	a) The AWG discussed the final report from NATS that assesses the Feasibility of Airspace Modernisation in the South of the UK. NATS conducted the assessment to establish whether there is sufficient airspace capacity to meet airports demands, what the interdependencies between the changes are, and to produce a roadmap for their delivery. b) The draft report was submitted to the Secretary of State in May 2018. The Secretary of State has now requested that the CAA conduct assurance on the report, both to assess the overall findings and deployment plan, and the technical concepts proposed by NATS for future airspace design. c) The Secretary of State has also asked NATS to undertake some further work on the report, focusing on the timelines and approach to deploying concurrent and/or sequential airspace changes and the implications for aircraft noise below 7000ft. d) AWG members were sceptical about the approach proposed in the report to deliver multiple, co-dependent airspace changes at the same time. Further work is being conducted through the FASI South Programme Board and LTMA Airports Working Group to examine a sequential approach to developing and deploying airspace changes, working to a common timeline.
3. Further Engagement on Heathrow Expansion Design Principles	a) HAL briefed the AWG on the further engagement activities undertaken to develop design principles for the expansion airspace change. Stage 1 of the CAA Airspace Change Process (CAP 1616) involves the development of design principles for submission to the CAA at the 'Define' Gateway. The development of design principles should provide a framework against which airspace design options are evaluated. a) The airspace consultation in Q1-2018 provided a broad range of feedback on some key airspace design principles that were proposed by HAL. Since then HAL has been gathering further feedback from a range of established stakeholder forums to test, challenge and refine the principles.

Draft, confidential

		b)	The further engagement has generated an extensive list of potential principles that is being condensed and prioritised through ongoing dialogue with stakeholders.
4.	Airspace Modernisation Communications	a)	The DfT briefed AWG members on their plans to deliver more communications about airspace modernisation to the industry, local communities and the Public.
		b)	HAL encouraged the DfT to engage with the Sky's the Limit Campaign via NATS and strengthen some of the material created as part of the Campaign in 2017.
		c)	The AWG recognised that the CAA are not in a position to coordinate communications on airspace modernisation due their role in validating and approving airspace changes. It is therefore important that the DfT play a leading role in the communications required to support airspace modernisation.

Table 1: Main outcomes and actions of the June 4th 2018 AWG

Next meeting

The next meeting of the AWG is scheduled for July 2nd at DfT Great Minster House.