London Luton Airport Operations Ltd

Design Principles – FASI-S

Version 2.0
3 June 2019

London
Luton
Airport

LLAOL FASI-S Design Principles

Contents

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Introduction

On 13 December 2018 London Luton Airport Operations Ltd (LLAOL) submitted a Statement of Need to the CAA, setting out its intention to undertake changes to its airspace in support of the broader airspace changes required from the Future Airspace Strategy Implementation South (FASI-S) modernisation programme. At the same time, the airport freeholder London Luton Airport Ltd (LLAL) is following a separate Development Consent Order (DCO) process, through which it intends to increase the annual passenger limit from 18m passengers/ year to 32m passengers/year by 2050.

It is expected that the airspace changes, as well as contributing to the overarching programme of change required to deliver the UK's airspace modernisation strategy, will enable further benefits to both the users and surrounding communities of Luton Airport including:

- reduction of airspace infringements
- continuous climb departures/continuous descent approaches
- exploring the ability to offer predictable noise respite and/ or relief
- exploring the ability to release some controlled airspace and offer greater access to other airspace users; and
- enable free flow departures, enhancing operational resilience.

FASI-S Programme

The Department for Transport notified aviation stakeholders via the Upgrading the UK airspace: Strategic Rationale, published in February 2017[1], that the controlled airspace in southern England used to support commercial air transport is capacity constrained, it has evolved over time and does not exploit modern navigation technology.

The FASI-S programme has been established by NATS and a number of key airports operating in southern England, including LLAOL, to coordinate a series of linked airspace change proposals that will modernise the overall airspace structure and route network.

LLAOL Aims

LLAOL is using the opportunity provided by the FASI-S programme to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival, enabling significant environmental benefits, whilst delivering the capacity required to service demand out to 2050.

CAP1616

In December 2017 the Civil Aviation Authority (CAA) published CAP1616 Airspace Design: Guidance on the regulatory process for changing airspace design including community engagement requirements. This document

1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/586871/upgrading-uk-airspace-strategic-rationale.pdf

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set out the criteria of the airspace change process, which a change sponsor of any permanent change to the published airspace design must follow. The airspace change process is split into 7 Stages;

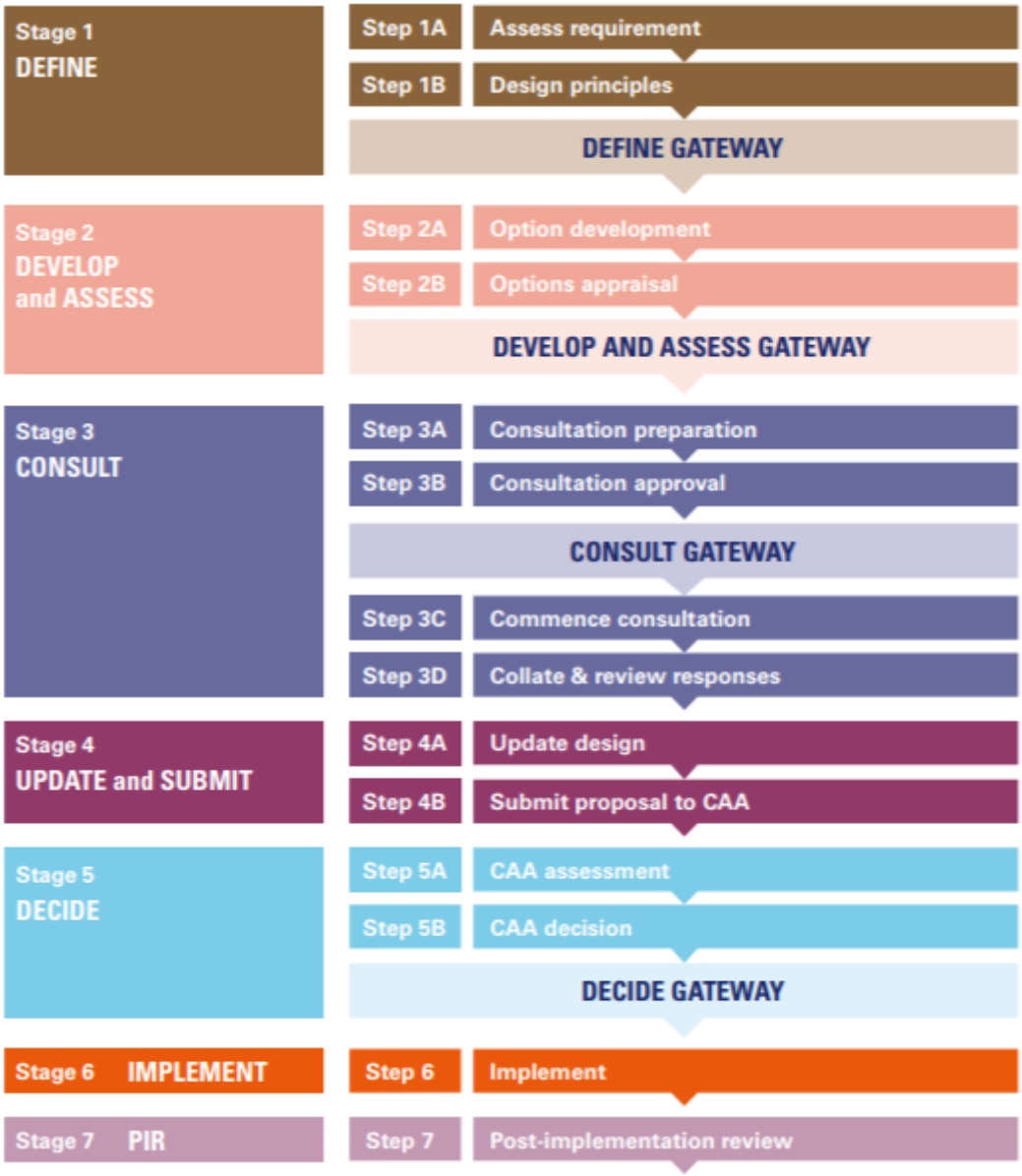

Figure 1: CAP1616 Process

This document is the submission to the CAA at the end of Stage 1B, the Design Principles for the Define Gateway.

What is a Design Principle?

CAP1616 states that design principles; “encompass the safety, environmental and operational criteria and the strategic policy objectives that the change sponsor seeks to achieve in developing the airspace change proposal.”

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Design Principles must also consider government policy documents (e.g. Air Navigation Guidance 2017) and any local criteria, such as planning agreements and Noise Preferential Routes (NPRs). The Design Principles will form a framework against which the airspace change design options will be evaluated[2].

FASI-S Design Principles

Following two-way engagement with Stakeholders, evidence of which is in Appendices 1 and 3 of this document, the Design Principles for the LLAOL FASI-S airspace change proposal are;

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof.
3	Should not constrain the airport's capacity, providing the environmental objectives/requirements have been met
4	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
5	Should provide an equitable distribution of traffic where possible, through eg; • Use of multiple routes • New route structures • Options (mechanisms) for respite
6	Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7000ft
7	Should minimise tactical intervention by ATC below 7000ft
8	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

Table 1: Final Prioritised Design Principles

Stakeholder Engagement – Identifying Stakeholders

LLAOL engages with its airlines, local communities and neighbouring airports on a regular basis and has developed good relationships with them. LLAOL used its existing forums to discuss the proposed airspace change and the process to develop design principles.

[2] More information can be found at https://publicapps.caa.co.uk/docs/33/CAP1616E2interactive.pdf

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LLAOL also reached out to stakeholders who do not normally engage with the airport, but who could be impacted by an airspace change of this magnitude, such as the Local Authorities of Chiltern, South Cambridgeshire & Welwyn Hatfield.

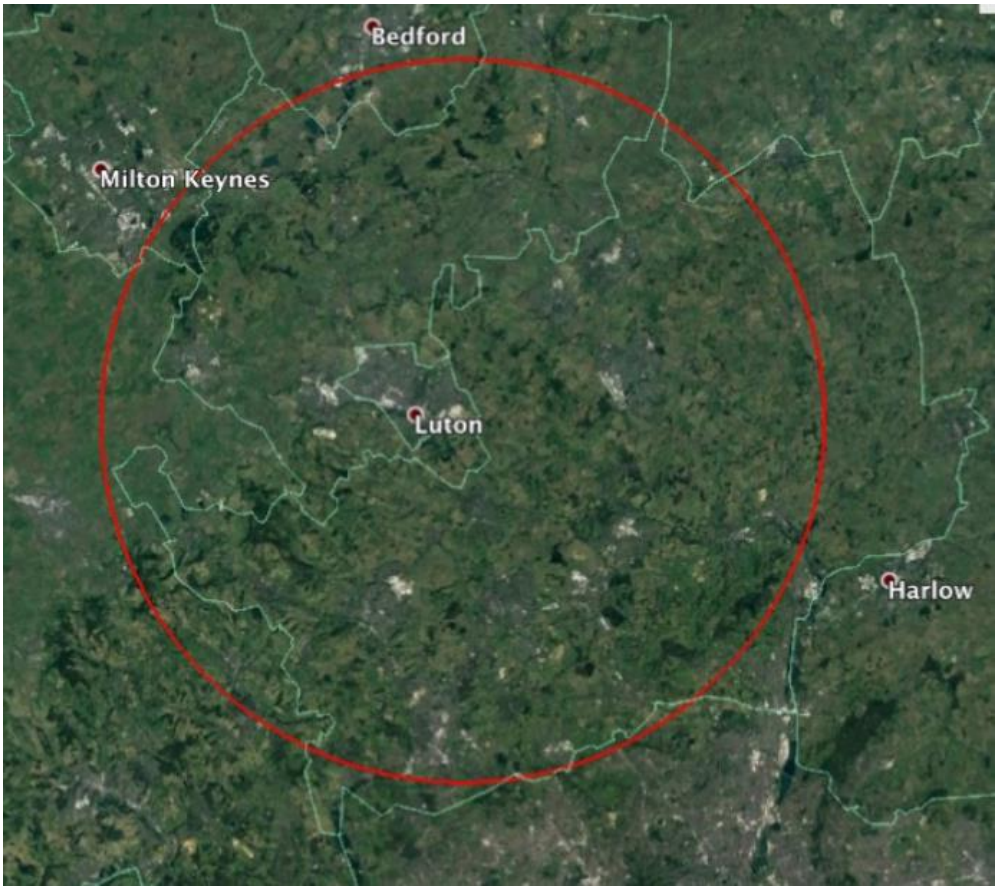

Figure 2: Engagement Area

LLAOL is responsible for their airspace up to 7000ft, beyond that is NATS' responsibility. Therefore, those stakeholders within this region were chosen for our Design Principles engagement. LLAOL was able to identify the areas surrounding the airport that could be overflown up to 7000ft in the future by Luton arrivals or departures. For the departures, this was based on an 8% climb gradient from the Declared End of Runway (DER) to 7000ft, which is conservative for LLAOL operations. LLAOL then carried out an exercise to identify the local authorities within this area.

Stakeholders

CAP1616 states that during Stage 1 of the process, Design Principles should be drawn up through discussion with affected local stakeholders. This engagement should look to include elected community representatives, local community groups, the airport consultative committee and representatives of local General Aviation organisations or clubs. LLAOL identified the following organisations;

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London Luton Airport Consultative Committee (LLACC)

Luton's consultative committee was set up as a forum to discuss issues of concern to those using the airport, working at it or living around it. Members include Local Authority representatives, airline and freight representatives and community focus group representatives.

Name	Position/Representing
[redacted]	Chairman
[redacted]	North Herts DC (Vice Chairman)
[redacted]	Buckinghamshire CC
[redacted]	Buckinghamshire CC
[redacted]	Central Bedfordshire Council
[redacted]	Central Bedfordshire Council
[redacted]	Hertfordshire CC
[redacted]	Hertfordshire CC
[redacted]	Luton BC
[redacted]	Luton BC
[redacted]	Aylesbury Vale District Council
[redacted]	North Hertfordshire District Council
[redacted]	Dacorum Borough Council
[redacted]	Stevenage Borough Council
[redacted]	St Albans City & District Council
[redacted]	Buckinghamshire & MK Association of Local Councils
[redacted]	Hertfordshire Association of Town & Parish Councils
[redacted]	Bedfordshire Association of Town & Parish Councils
[redacted]	London Luton Airport Town & Villages Communities Committee (LLATVCC)
[redacted]	Luton & District Association for the Control of Aircraft Noise (LADACAN)
[redacted]	PAIN
[redacted]	St Albans Quieter Skies
[redacted]	Breachwood Green Society

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[redacted]	National Air Traffic Services
[redacted]	LLA Branch TGWU
[redacted]	EasyJet
[redacted]	BBGA Operators
[redacted]	Freight Airline Representative
[redacted]	Chamber of Commerce
[redacted]	Airline Representative
Other Attendees	**Position/Representing**
[redacted]	Hertfordshire Association of Town & Parish Councils
[redacted]	St Albans City & District Council
[redacted]	Luton & District Association for the Control of Aircraft Noise (LADACAN)
[redacted]	St Albans Quieter Skies
[redacted]	Luton BC Planning Officer

Table 2: List of LLACC Members (Main attendees taken from official website)[3]

Key areas of responsibility include:

- To enable aerodrome operators, communities in the vicinity of the aerodrome, local authorities, local business representatives, aerodrome users and other interested parties to exchange information and ideas;
- To allow the concerns of interested parties to be raised and taken into account by the aerodrome operators with a genuine desire on all sides to resolve any issues that may emerge; and
- To complement the legal framework within which the aerodrome operates.

Noise and Track Keeping Sub Committee (NTSC)

Luton's Noise and Track Keeping Sub-Committee is a sub-committee of the LLACC and meets four times a year. The NTSC's terms of reference are;

- To consider on its own initiative or by direction of the Consultative Committee any question in connection with the Airport affecting noise and flight paths;
- To act as an advisory body to the Consultative Committee on such matters; and
- To report to the Consultative Committee on their considerations and, where appropriate, to make recommendations.

[3] http://www.llacc.com/membership/

Other Attendees (added by LLAOL), are those who attended recent meetings but who are not yet on the official list

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Name	Position/Representing
[redacted]	Chairman
[redacted]	North Herts DC
[redacted]	Central Bedfordshire Council
[redacted]	Hertfordshire CC
[redacted]	Dacorum Borough Council
[redacted]	Aylesbury Vale DC
[redacted]	Luton & District Association for the Control of Aircraft Noise (LADACAN)
[redacted]	PAIN
[redacted]	LLATVCC
[redacted]	NATS Luton
[redacted]	St Albans District Council
[redacted]	Freight Airline Representative
Other Attendees	**Position/Representing**
[redacted]	Aylesbury Vale DC
[redacted]	Aylesbury Vale DC

Table 3: List of NTSC Members (taken from official website)[4]

Local Authorities

LLAOL invited additional Local Authority representatives (with whom we have not already engaged through the LLACC or NTSC) located within the geographic area affected by the airspace change up to 7000ft.

Local Authority	7000ft	LLACC	NTSC
Aylesbury Vale	Yes	Yes	Yes
Barnet	Yes		
Bedford	Yes	Yes	

[4] http://www.llacc.com/membership/

Other Attendees (added by LLAOL), are those who attended recent meetings but who are not yet on the official list

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Broxbourne	Yes		
Central Bedfordshire	Yes	Yes	Yes
Chiltern	Yes		
Dacorum	Yes	Yes	Yes
East Hertfordshire	Yes		
Enfield	Yes		
Hertsmere	Yes		
Luton	Yes	Yes	
Milton Keynes	Yes	Yes	
North Hertfordshire	Yes	Yes	Yes
South Cambridgeshire	Yes		
St Albans	Yes	Yes	Yes
Stevenage	Yes	Yes	
Three Rivers	Yes		
Watford	Yes		
Welwyn Hatfield	Yes		

Table 4: Local Authorities in Engagement Area

Luton's Flight Operations Safety Committee (FLOPC)

FLOPC is made up of representatives from the airport's operations team, the Flight Performance Team, our airlines, the Department for Transport (DfT) and NATS. It meets twice a year to review operational performance, adherence to noise and track keeping rules and to share best practice.

FLOPC Members	
DHL	Ryanair
TUI	Wizz Air
NATS	BBGA
EasyJet Airline Company Ltd	Harrods Aviation
AOPA/LGC/RIN	Signature Flight Support
British Airline Pilot Association	RSS Jet Centre

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MNG Airlines	

Table 5: List of FLOPC Members

General Aviation

As well as the groups mentioned, LLAOL also reached out separately to the General Aviation community, including Airspace for All (A4A[5]), and the British Gliding Association (BGA)[6] to ensure that their needs are understood. Due to the proximity of the London Gliding Club (LGC)[7] LLAOL also engaged directly with them.

National Air Traffic Management Committee (NATMAC)

NATMAC is a non-statutory advisory body sponsored by the Directorate of Airspace Policy (DAP). The committee is consulted for advice and views on any major matter concerned with airspace management. NATMAC is to assist DAP in the development of airspace policies, configurations and procedures in order that due attention is given to the various requirements of all users of United Kingdom airspace, civil and military.

NATMAC Committee Members	
ADS – Aerospace, Defence, Security	Airport Operators Association (AOA)
Aircraft Owners & Pilots Association (AOPA)	British Airways plc
BAA Plc	British Air Line Pilots Association (BALPA)
Business Aircraft Users Association (BAUA)	British Balloon & Airship Club (BBAC)
British Gliding Association (BGA)	British Helicopter Advisory Board (BHAB)
British Hang-gliding & Paragliding Association (BHPA)	British Microlight Aircraft Association (BMAA)
British Parachute Association (BPA)	General Aviation Manufacturers and Trade Association (GAMTA)
Guild of Air Pilots & Navigators (GAPAN)	General Aviation Safety Council (GASC)
Guild of Air Traffic Control Officers (GATCO)	Heavy Airlines Group
Helicopter Club of Great Britain (HCGB)	ICAO representative Light Airlines
Light Aircraft Association (LAA)	British Model Flying Association (BMFA)
Large Model Association (LMA)	Low Cost Airlines Group
National Air Traffic Services Ltd (NATS)	Royal Aero Club (RAeC)

[5] https://airspace4all.org/about-us/

[6] https://www.gliding.co.uk/

[7] http://www.londonglidingclub.co.uk/

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Safety Regulation Group (CAA)	Association of Remotely Piloted Aircraft Systems (ARPAS-UK)
UK Airprox Board (UKAB)	UK Flight Safety Committee
Military members	

Table 6: List of NATMAC Members

Adjacent Airports

Due to the proximity of LLAOL to other major airports, it was decided that the following would be engaged on Design Principles; Heathrow, Stansted, London City and RAF Northolt.

Other Stakeholders

LLAOL's existing operations already impact the Chilterns Area of Outstanding Natural Beauty, however due to the potential changes that may occur through the FASI-S airspace change proposal, LLAOL also exchanged emails with the Chiltern Conservation Board, and held a separate briefing session for them. Details of their feedback can be found in Appendices 2 (page 112-114) and 4.

Engagement Methods

CAP1616 states that "Design Principles must be set through a two-way process and involve effective engagement" and this submission demonstrates how Luton is engaging effectively with its stakeholders.

Good stakeholder engagement means actively seeking out, listening to and acting on the views of our stakeholders. The identified Stakeholders were engaged through workshops and presentations, with emails sent to individual airports and those organisations who either don't hold regular meetings, or where meetings fell outside of the engagement timeline.

We asked, You said, We did

We asked

LLAOL began the Design Principle engagement by reaching out to stakeholders. LLAOL invited members of the LLACC, NTSC and Local Authorities to attend a workshop. This was so they could be fully informed of the FASI-S Luton airspace change proposal, discuss the CAP1616 process and provide background on Design Principles. The presentations given and the notes from this workshop are available at Appendix 2. Following the presentation, the group generated a potential Design Principles specifically for the FASI-S airspace change proposal. The result of this discussion was a long-list of potential Design Principles. See Table 7.

For the General Aviation community, LLAOL initially held a workshop to discuss the above, this resulted in some focussed potential Design Principles that LLAOL were able to add to the list supplied by the community stakeholders. However due to time constraints of individuals within the organisations LLAOL wished to reach, LLAOL engaged in email correspondence following the first workshop.

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The outcome of these workshops provided LLAOL with a list of potential Design Principles. This list became a scoring matrix, which was sent out to all the members of the LLACC and NTSC, the Local Authorities within the 7000ft engagement area and FLOPC, for their feedback. It gave everyone the opportunity to provide their opinions on each individual suggestion and add any comments they felt appropriate. They were also invited to make any new suggestions that had not so far been considered.

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe							
Must be technically viable							
Should be a minimum PBN specification							
Must comply with ANG17 & NPSe							
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that							
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft							
Avoid noise sensitive buildings and sites below 4000ft							
Avoid conservation areas below 4000ft							
Consider different routes for day/night use							
Consider use of alternative route structures to provide predictable & effective respite							
Avoid overflying communities with multiple routes							
Fairer distribution of noise for those significantly affected							
Routes should be designed and operated so as to provide an equitable distribution of traffic							
Minimise the total numbers of population overflown							
Minimise the numbers of population newly overflown							
Prioritise routes over commercial and industrial areas							
Prioritise parks and open spaces, rather than residential areas							
Minimise populations effected by NOx emissions below 1000ft							
Airspace should not constrain the airport's capacity							
Minimise impact on other airspace users							
Keep Controlled Airspace requirements to a minimum							
Design simple airspace boundaries to enable easier navigation for GA airspace users							
Continuous Climb/Descent							

Table 7: Potential Design Principle Matrix

The focussed Design Principles suggested during the GA workshop, attended by an LGC member, were sent out to the GA community; A4A, BGA and LGC for their feedback, along with the opportunity to suggest any further Design Principles.

LLAOL FASI-S Design Principles

- Minimise impact on other airspace users
- Keep Controlled Airspace requirements to a minimum
- Design simple airspace boundaries to enable easier navigation for GA airspace users
- Continuous Climb/Descent

You said

The full feedback LLAOL received is available in Appendix 3. This feedback was analysed by LLAOL and provided us with the following results;

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered
Must be safe	IIIIIIIIIII	I				
Must be technically viable	IIIIIIIII	II				
Should be a minimum PBN specification	IIIIII	II	IIII			
Must comply with ANG17 & NPSe	IIIIII	III	III			
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	IIIIIII	IIIIII				
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	II	IIIIIII	II	I		
Avoid noise sensitive buildings and sites below 4000ft	IIIIII	IIII	I	II		
Avoid conservation areas below 4000ft	IIIII	IIII	II		I	I
Consider different routes for day/night use	IIII	II	IIIIII	I		
Consider use of alternative route structures to provide predictable & effective respite	IIII	III	IIII	I		I
Avoid overflying communities with multiple routes	IIII	IIIIII	II			
Fairer distribution of noise for those significantly affected	IIIII	III	IIII	I		
Routes should be designed and operated so as to provide an equitable distribution of traffic	IIIII	I	III	II		II
Minimise the total numbers of population overflown	II	III	IIII	II		II
Minimise the numbers of population newly overflown	I	III	III	IIII		II
Prioritise routes over commercial and industrial areas	II	IIIIII	III	I		I
Prioritise parks and open spaces, rather than residential areas		IIIIII	II	III	I	I
Minimise populations effected by NOx emissions below 1000ft	III	IIII	IIIII			I
Airspace should not constrain the airport's capacity	I	I	III	II	I	IIIII
Minimise impact on other airspace users	I	IIIII	IIIII		I	I
Keep Controlled Airspace requirements to a minimum	IIII	II	IIIIIII			I
Design simple airspace boundaries to enable easier navigation for GA airspace users	II	IIII	IIII		I	II
Continuous Climb/Descent	IIIIIIIII	III				

Table 8: Design Principle Matrix

LLAOL FASI-S Design Principles

The feedback received allowed LLAOL to narrow down the suggested Design Principles, into a potential final list;

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe* • Avoid significant adverse impacts on health & quality of life • Mitigate & minimise adverse impacts on health & quality of life • Where possible, contribute to the improvement of health & quality of life
3	Must meet local air quality requirements
4	Should be minimum RNP1 specification
5	Should not constrain the airport's capacity
6	Should provide a more equitable distribution of traffic where possible, to reduce significant and adverse impacts of noise enabled through; • Use of alternative route structures for respite • Overflight of commercial and industrial areas • Overflight of parks and open spaces at night
7	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
8	Should avoid overflying communities with multiple routes, including routes from other airports, below 7000ft
9	Should minimise tactical intervention by ATC below 7000ft
10	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

* It is implicit that any ACP will be required to meet the requirements of the Air Navigation Guidance 2017

Table 9: Potential Final List of Design Principles

LLAOL then held a second workshop, inviting members of the LLACC, NTSC and Local Authorities to attend. During this workshop LLAOL were able to go through each original suggested Design Principle and discuss the feedback received. LLAOL then presented a potential final list of proposed Design Principles, for comment and feedback. The discussion led to several changes being made and a revised set of Design Principles were generated collaboratively (see table 9). The presentation and notes from this workshop are available in Appendix 2.

We did

It was at this stage, with a shorter, more final list that LLAOL requested the feedback of NATMAC, the adjacent airports; Heathrow, Stansted, London City & RAF Northolt, and held a briefing session with the Chilterns Conservation Board. We emailed the above list (table 9), requesting their thoughts and any other suggestions. The Chilterns Conservation feedback is in Appendix 2, (pages 112-114), the feedback we received from NAMTAC and adjacent airports is in Appendix 3 (pages 29-32).

Following the analysis of this feedback, combined with all the other feedback LLAOL received, and the project requirements the final, prioritised Design Principles for the FASI-S airspace change proposal are;

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Table 10: Final Prioritised Design Principles

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof.
3	Should not constrain the airport's capacity, providing the environmental objectives/requirements have been met
4	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
5	Should provide an equitable distribution of traffic where possible, through eg; • Use of multiple routes • New route structures • Options (mechanisms) for respite
6	Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7000ft
7	Should minimise tactical intervention by ATC below 7000ft
8	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

Following the submission of this document to the CAA on the 10th May 2019 LLAOL received feedback from NATS on the 17th May 2019. This feedback has been added to the redacted version of the submission for publication on the CAA Portal and is available in Appendix 3.

The feedback received by NATS raises concerns on the ability to realise Design Principle 4 and Design Principle 5. LLAOL accept that the delivery of these Principles rely on multiple stakeholders and an efficient network above 7000ft and therefore also on overall London Terminal Control Area (LTMA) designs. However, LLAOL feel that they should still be included and look forward to working with NATS and the Airspace Change Organising Group (ACOG) to achieve these Design Principles.

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Appendix 1 – Engagement Activity

Date	Airport Representative	Stakeholder Group/Rep	Type of Engagement	Title of Engagement	Supporting Material	Location in Appendix 2
Jan-19	[redacted]	LLACC	Meeting	Airspace Modernisation (FASI-S)	Presentation	Pages 2 - 11
07-Feb-19	[redacted]	LA's/LLACC/NTSQ	Email	Request attendance at DP Workshop	Email	Pages 12 - 13
07-Feb-19	[redacted]	A4A & BGA	Email	Request attendance at DP Workshop	Email	Page 14
12-Feb-19	[redacted]	London Gliding Club	Workshop	FASI-S Design Principles Workshop	Presentation	Pages 15 - 31
	[redacted]					
14-Feb-19	[redacted]	A4A & BGA	Email	Invite to a DP Workshop	Email	Page 32
25-Feb-19	[redacted]	London Gliding Club	Email	Notes from Workshop & Presentation	Email	Page 33
					Meeting Notes	Pages 34 - 35
26-Feb-19	[redacted]	A4A & BGA	Email	Invite to a workshop/DP Presentation	Email	Page 37
26-Feb-19	[redacted]	LA's/LLACC/NTSQ	Email	Reminder & Workshop Agenda	Agenda	Page 36
					Email	Page 38
27-Feb-19	[redacted]	LA's/LLACC/NTSQ	Workshop	FASI-S Design Principles Workshop	Presentation	Pages 45 - 64
	[redacted]				Meeting Notes	Page 39 - 40
08-Mar-19	[redacted]	LA's/LLACC/NTSQ	Email	Follow Up to Workshop & DP Matrix	Email	Page 42

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					Matrix	Pages 43 - 44
					Presentation	Pages 45 - 64
14-Mar-19	[redacted]	A4A & BGA	Email	Feedback Reminder	Email	Page 65
15-Mar-19	[redacted]	BGA	Email	Extended Deadline for Feedback	Email Confirmation	Page 66
15-Mar-19	[redacted]	FLOPC	Email	FASI-S DP Information & Request for Feedback	Email	Pages 67 - 68
					Presentation	Pages 69 - 86
					Matrix	Pages 43 - 44
21-Mar-19	[redacted]	LA's/LLACC/NTSQ	Email	Invitation to Workshop 2	Email	Page 87
27- Mar-19	[redacted]	Chilterns Conservation Board	Telephone Call	Offer a briefing session on FASI-S		
28-Mar-19	[redacted]	HAPTC	Email Exchange	Follow up on feedback provided	Email	Pages 88 - 89
04-Apr-19	[redacted]	LA's/LLACC/NTSQ	Email	Agenda & Presentation for Workshop 2	Email	Page 90
					Presentation	Pages 91 - 108
5-Apr 19	[redacted]	LA's/LLACC/NTSQ	Workshop	Workshop 2: Feedback on suggested DP's/DP Matrix/DP Prioritisation	Presentation	Pages 91 - 108
11-Apr-19	[redacted]	NATMAC	Email	Request Feedback on DP's	Email	Page 109
					DP List	Page 110
11-Apr-19	[redacted]	Stansted/Heathrow/RAF	Email	Request Feedback on DP's	Email	Page 111
		Northolt/London City			DP List	Page 110
30 -Apr-19	[redacted]	Chilterns Conservation Board	Email	Follow up to meeting held on 30 Apr 10 & DP Feedback	Email	Page 112 - 114

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8-May-19	[redacted]	LA's/LLACC/NTSQ	Email	Notes from Workshop 2	Email	Page 115
					Meeting Notes	Pages 116 - 120
					Presentation	Pages 91- 108

Appendix 2 – Engagement Material, Correspondence & Meeting Notes

London Luton Airport Consultative Committee January 2019

London Luton Airport

Introduction

In December 2018 the Government and Civil Aviation Authority announced their commitment to modernising UK airspace by making best use of technology to better manage today's air traffic, reduce the impact of noise on local communities and the wider environment, and create capacity for future flights.

The Aviation Strategy Green Paper and the CAA's Airspace Modernisation Strategy explain clearly why we need to modernise UK airspace, how we will achieve that and the roles of all stakeholders in the process.

London Luton Airport welcomes this long overdue commitment and is fully engaged in the programme ensuring we are able to improve the industry's capability and reduce its impact.

Aviation 2050: The future of UK aviation

The government is seeking feedback on its green paper which outlines proposals for a new aviation strategy. The strategy will set out the challenges and opportunities for aviation to 2050 and beyond and will emphasise the significance of aviation to the UK economy and regional growth.

Airspace Modernisation Strategy

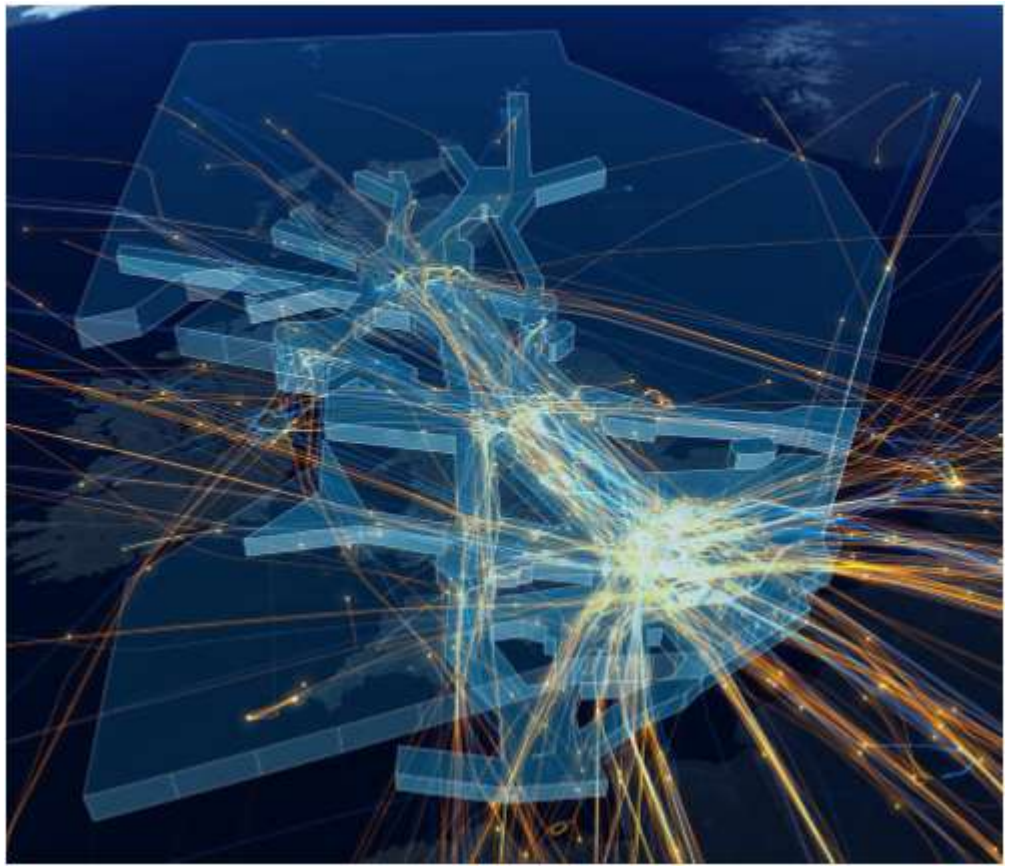
The AMS replaces the Future Airspace Strategy and sets out the ways, means and ends of modernising airspace, initially focusing on the period until the end of 2024.

This will be done through 15 initiatives that are grouped under 5 headings:

- upper airspace
- terminal airspace
- **airspace at lower altitudes**
- outside controlled airspace
- the UK's communications, navigation and surveillance infrastructure

What does airspace modernisation mean?

- The UK's airspace structure was designed in the 1950s for a different generation of aircraft
- Our airspace does not currently make best use of the vastly improved aircraft capabilities
- Modernising airspace can reduce noise impact on communities around airports
- It will also ensure we can safely accommodate the additional flights forecast by 2030
- Doing nothing will mean more noise, emissions, delays and cancellations



Why do we need to modernise airspace?

- Airspace modernisation means moving to satellite-based navigation rather than ground-based navigation aids, with aircraft flying more accurately enabling more routes to be established safely within the same amount of airspace.

- These would be used flexibly to provide noise respite to local communities and flying more efficiently to reduce emissions

- On departure, aircraft would follow one of a number of predefined set routes following an efficient continuous climb route to reach 7,000ft

- On arrival, aircraft would follow a predefined route using efficient continuous descent to the runway

What are the benefits of modernisation?

- Reduction in noise
  - Getting aircraft higher quicker and keeping them higher for longer
  - Use multiple routes to give predictable periods of respite
  - Use a single route to minimise the number of people overflown (or newly overflown)

- Reduction in emissions and delays
  - Reduced emissions per aircraft through greater use of continuous climb and descent operations, improved routings and a reduction in holding at low level
  - Reduced needs for holds
  - Avoid significant delays and cancellations

How will this be achieved?

- The NATS technical feasibility report that accompanies the DfT's green paper identifies 15 UK airports (8 core airports) where collaborative working is required to deliver the CAA's Airspace Modernisation Strategy.

- Most of the design process will be computer-based rather than traditional pen and paper.

- The level of complexity means that significant modelling and simulations are required to help identify the best possible solution for all stakeholders; addressing safety, environment and capacity needs.

Who is responsible for what?

- NATS are currently working on the structure above 9000ft
- Airports will shortly begin work on the process below 7000ft
- The section in between will be joined up at a later date when there is greater clarity on airport route designs to 7000ft

What's next?

- LLA submitted its statement of need to the CAA in November 2018, this can be found on the CAA's airspace change portal.
- LLA will be meeting with the CAA this week for the assessment briefing to determine the type of airspace change required.
- Following this meeting and an acceptance of the requirements, we will start the stakeholder engagement process for design principles.
- It would be beneficial to start thinking about themes for design principles prior to the formal engagement process.

Examples of design principles

- Must be safe
- Must meet commitments to the Governments Airspace Modernisation Strategy
- Limit and where possible reduce noise impacts (multiple options)
- Minimise aircraft emissions
- Minimise impact on other airspace users
- Designs based on latest navigational technology
- Create operational efficiency and resilience

RE: London Luton Airport Airspace Modernisation Programme

1 message

[redacted] 7 February 2019 at 08:31

Good morning all,

My apologies but I believed this had been sent last week but for some IT reason didn't, I'll get the issue resolved with this mailbox today.

Best regards

[redacted]

Good afternoon,

In 2017, through the Upgrading UK Airspace, Strategic Rationale the Department for Transport notified aviation stakeholders that the current controlled airspace in southern England is capacity constrained. In order to modernise the overall airspace and route network the Future Airspace Strategy Implementation-South programme has been established, of which London Luton Airport Operations Ltd (LLAOL) is part of.

LLAOL is planning to use this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival, enabling significant environmental benefits.

A crucial part of the airspace change process is engagement with local communities, including those currently overflown and, as this is a large-scale change, we also need to ensure we engage with communities who are not currently overflown, but who may be impacted by aircraft noise in the future. As a key part of our local area, LLAOL would like to you to be involved.

We are planning on holding two workshops over the next few months, with stakeholders and would be delighted if you could attend.

The first is due to take place on the 27th February 1000-1300 (location to be confirmed). During this workshop we will talk to you about the plans for change that LLAOL are proposing, explain

the Civil Aviation Authority (CAA) process that we must follow and request your input and feedback on the first stage of the airspace change process, known as Design Principles.

During the second workshop (to be held in March 2019, date TBC) we will talk in more detail about Design Principles, and with your help develop and prioritise our list, for submission to the CAA.

Further details about the CAA's Airspace Modernisation Strategy can be found here and information on the proposed LLAOL airspace change and the project so far, can be found on the CAA Airspace Change Portal here.

Best regards

RE: London Luton Airport meeting 12th Februrary

1 message

5 February 2019 at 20:51

Good evening all,

Following the meeting next week on the 12th regarding the Swanwick Airspace Improvement Project Airspace Deployment 6 – “SAIP AD6”. Could you hang around for another hour or so for me to talk to you about the FASI-South programme.

In 2017, through the Upgrading UK Airspace, Strategic Rationale the Department for Transport notified aviation stakeholders that the current controlled airspace in southern England is capacity constrained. In order to modernise the overall airspace and route network the Future Airspace Strategy Implementation-South programme has been established, of which London Luton Airport Operations Ltd (LLAOL) is part of.

LLAOL is planning to use this opportunity to look at options of how our airspace is managed and upgrade the navigational procedures to and from London Luton Airport.

A crucial part of the airspace change process is engagement with local stakeholders, including those currently impacted by aircraft and in the future. As a key part of our local stakeholder group, LLAOL would like to you to be involved.

If you can respond to this email and let me know if you’re available I’ll follow up with a calendar invite.

Best regards

London Luton Airport Operations Ltd
Workshop 1 A4A, LGC & BGA CAP1616 & Design Principles

12th February 2019

London Luton Airport

Purpose of Workshop 1

- To explore all potential Design Principles for London Luton Airports wholesale airspace redesign that are important to you

- We will take these away, and take into consideration with all other Design Principles proposed by other groups

- Hold Workshop 2 in March 2019, where we will present a succinct list of Design Principles and ask you to prioritise

London Luton Airport Operations Ltd – Airspace Change Proposal

The Department for Transport have notified aviation stakeholders via the Upgrading UK airspace: strategic rationale, published in February 2017, that the controlled airspace in southern England used to support commercial air transport operations is capacity constrained, it has evolved over time and does not exploit modern navigation technology.

The Future Airspace Strategy Implementation South (FASI South) programme has been established by NATS and a number of key airports operating in southern England, including London Luton Airport Operations Ltd to coordinate a series of linked ACPs that will modernise the overall airspace structure and route network.

London Luton Airport Operations Ltd is using this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival enabling significant environmental benefits.

London Luton Airport Ltd (LLAL) – Plans for Expansion

- The existing planning limit of the airport is 18m passengers per year. This is expected to be reached by 2020/21.

- LLAL (the airport owner) has commenced the Development Consent Order (DCO) process to seek an increase to that limit to 38m passengers per year by 2050. This will require new terminal and airside infrastructure.

- LLAL are planning to hold their Statutory DCO consultation this summer. Current estimates stand at 2021 for a DCO Decision.

- Regardless of DCO timescales and success, LLAOL (the airport operator) require that this once in a lifetime ACP is future proofed.

Introduction to CAP1616

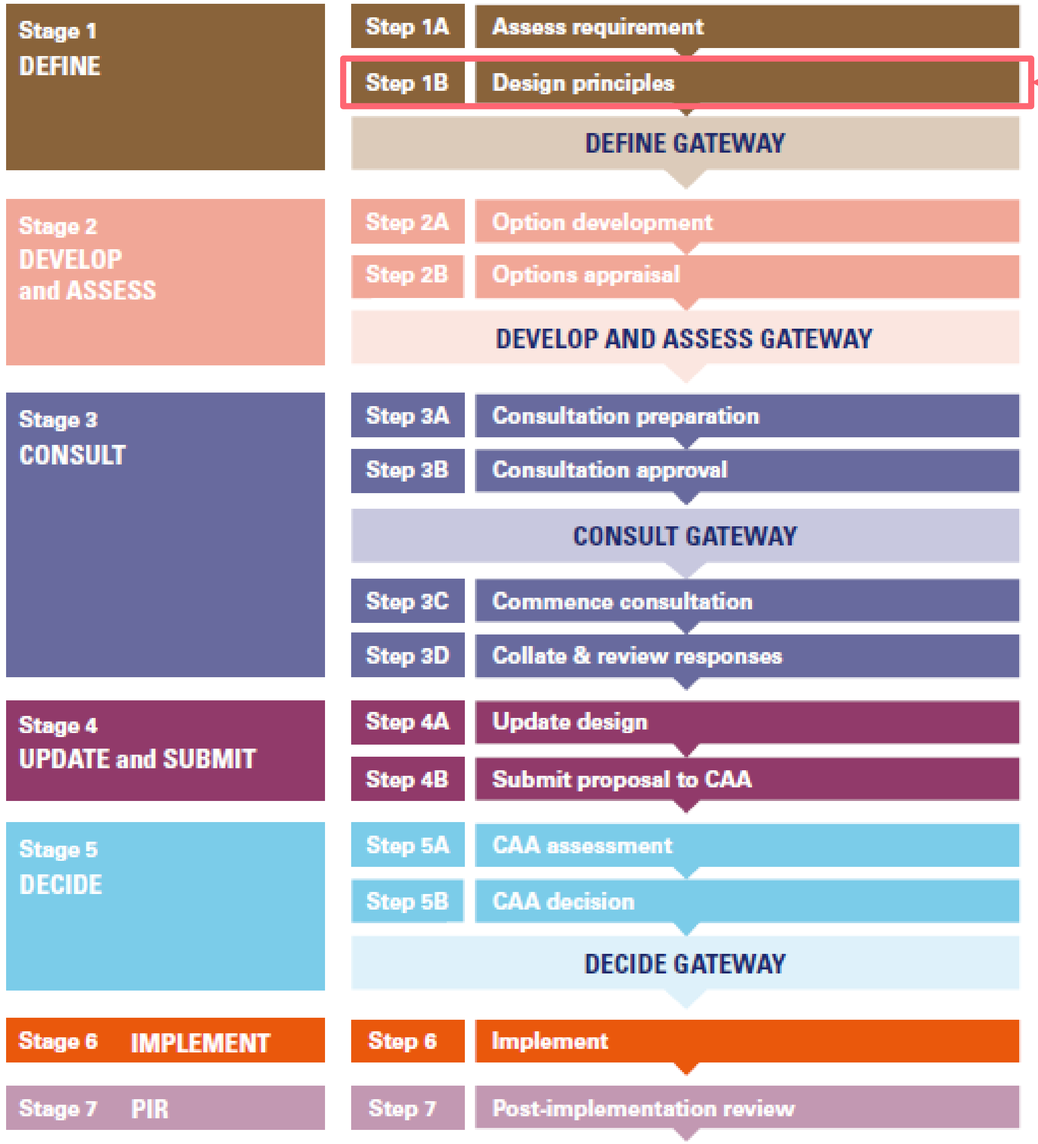
• In January 2018 the CAA launched its Guidance on the regulatory process for changing airspace design: CAP1616.

• CAP1616 provides a process framework to be used when designing airspace and is split into 7 Stages as shown on the next slide.

• We are now in the Define Stage of the process where by LLAOL is seeking views on the proposed design principles to be used in considering the airspace design proposal.

• We will be aiming to submit the final set of design principles to the CAA for the Stage 1B Gateway in May 2019.

Introduction to CAP1616



We are here

CAP1616 – References to General Aviation

Stage 1 - Design Principles to be drawn up through discussion between the change sponsor and affected stakeholders at this early stage in the process. Local stakeholders will normally include elected community representatives, local community groups, the airport consultative committee and representatives of local General Aviation organisations or clubs.

The aim is for there to be a good level of understanding by change sponsors as to what design considerations are important to stakeholders, such as predictable respite from noise for communities and access for General Aviation.

Stage 2 - When the airspace change is likely to have a detrimental effect on a significant number of stakeholders (such as General Aviation or local communities), those stakeholders have a reasonable expectation that the change sponsor has demonstrated that it has properly considered the potential safety impacts of its proposal.

Stage 3 - Where a change may impact on General Aviation's access to airspace, the change sponsor may need to communicate directly with local flying clubs and schools, as well as with the national bodies representing these types of activity.

The final proposal **must** include an analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and include an outline concept of operations describing how operations within the new airspace will be managed. Specifically, consideration should be given to:

- Impact on IFR general air traffic and operational air traffic or on VFR General Aviation (GA) traffic flow in or through the area

What is a Design Principle?

- The CAP1616 guidance requires the production of design principles for each airspace change

- Design principles essentially provide a list of high level criteria that the proposed airspace design options should meet. They also provide a means of analysing the impact of different design options and a framework for choosing between options

- CAP1616 states that:

- the development of design principles should provide “a shortlist of principles to inform the development of airspace design options” and a “framework against which airspace design options are evaluated”.

- principles “are in no way immutable and, as a part of the process for the establishment of the airspace design principles, should be challenged as part of the ongoing dialogue with stakeholders.”

Examples of Design Principles

- Must be safe
- Must meet commitments to the Government Airspace Modernisation Strategy
- Must adhere to Air Navigation Guidance 2017 and Noise Policy Statement for England (see next slides)
- Limit and where possible reduce noise impacts (multiple options)
- Procedures should be developed to allow for alternative routes to offer respite
- Minimise total numbers overflown
- Minimise numbers of newly overflown
- Procedures should be designed to minimise number of track miles flown
- Avoid overflight of sensitive areas e.g. hospitals, schools, parks etc
- Minimise aircraft emissions
- Minimise impact on other airspace users
- Should limit dependencies on adjacent airports
- Keep Controlled Airspace requirement to a minimum
- Design simple airspace boundaries to enable easier navigation for GA airspace users.
- Designs based on latest navigational technology
- Steeper Approaches where possible
- Create operational efficiency and resilience
- Continuous Climb/Continuous Descent

Air Navigation Guidance 2017 (ANG17)

- Guidance to the CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management.

- Air Navigation Guidance 2017 is statutory guidance to the CAA on environmental objectives relating to CAA's air navigation functions in accordance with section 70(2) of the Transport Act 2000 and the Air Navigation Directions issued under sections 66(1) and 68 of that Act.

- This information should also be noted and taken into consideration by the aviation industry.

The Government's Key Environmental Objectives (ANG17)

The environmental objectives with respect to air navigation are chosen to facilitate the government's overall environmental policies. These environmental objectives are designed to minimise the environmental impact of aviation within the context of supporting a strong and sustainable aviation sector. These objectives are, in support of sustainable development, to:

a. limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise;
b. ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions; and
c. minimise local air quality emissions and in particular ensure that the UK complies with its international obligations on air quality.

Noise Policy Statement for England (NPSe) Aims

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

a. avoid significant adverse impacts on health and quality of life;
b. mitigate and minimise adverse impacts on health and quality of life; and
c. where possible, contribute to the improvement of health and quality of life.

Prioritisation

- CAP1616 highlights that design principles can be contradictory, for example where avoiding one kind of impact is likely to increase another:

- *“some of the principles may contradict one another and some may be prioritised over others: this will be an iterative process and a qualitative one rather than a purely numerical exercise with binary answers.”*

- Prioritisation of design principles help our airspace designers to compare different design options when we reach that stage of the CAP1616 process.

Discussion & Questions

Noise

What is important to you as community members?

Environment

Health

What is important to you as general airspace users?

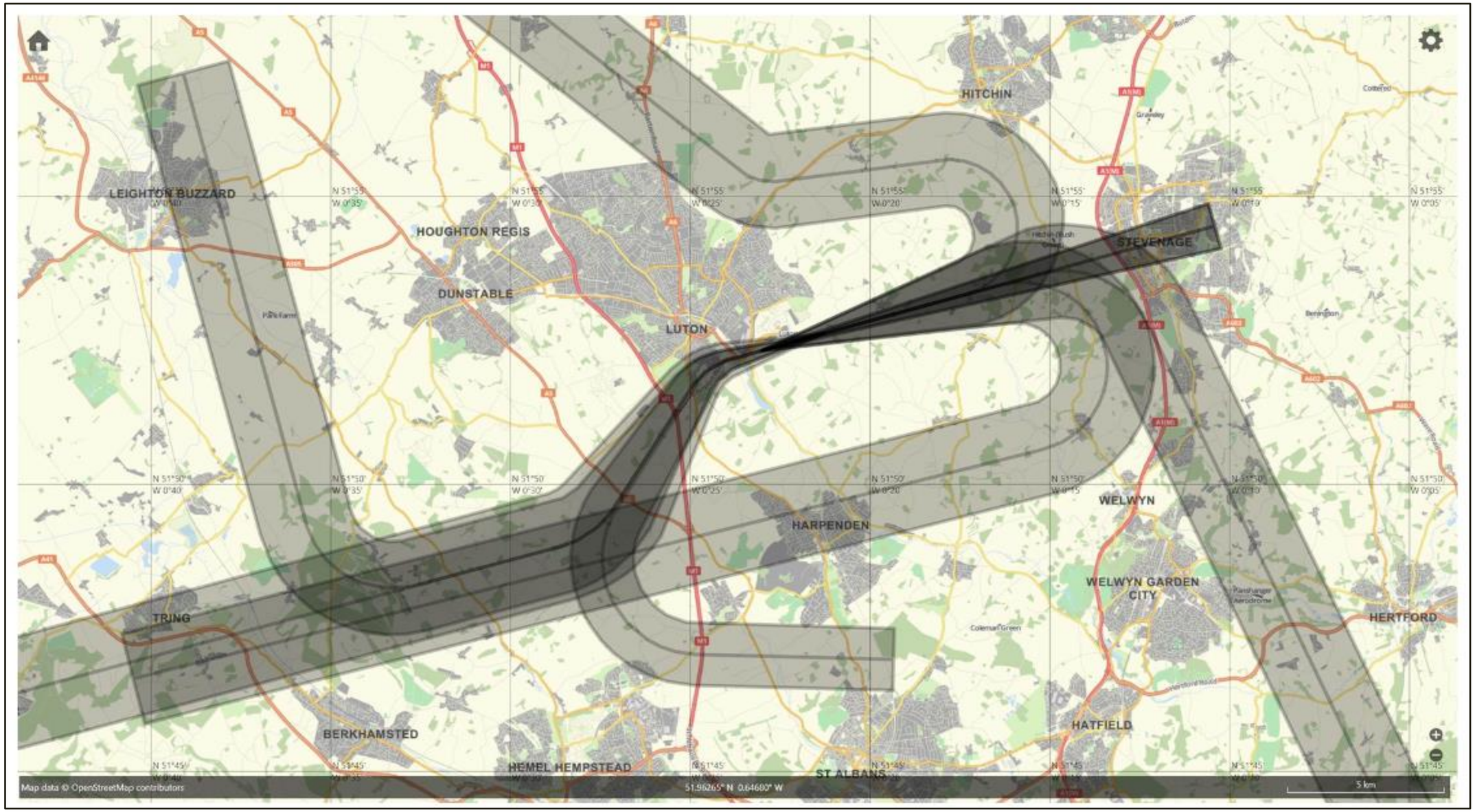
What is important to you as passengers?

Jobs & the economy

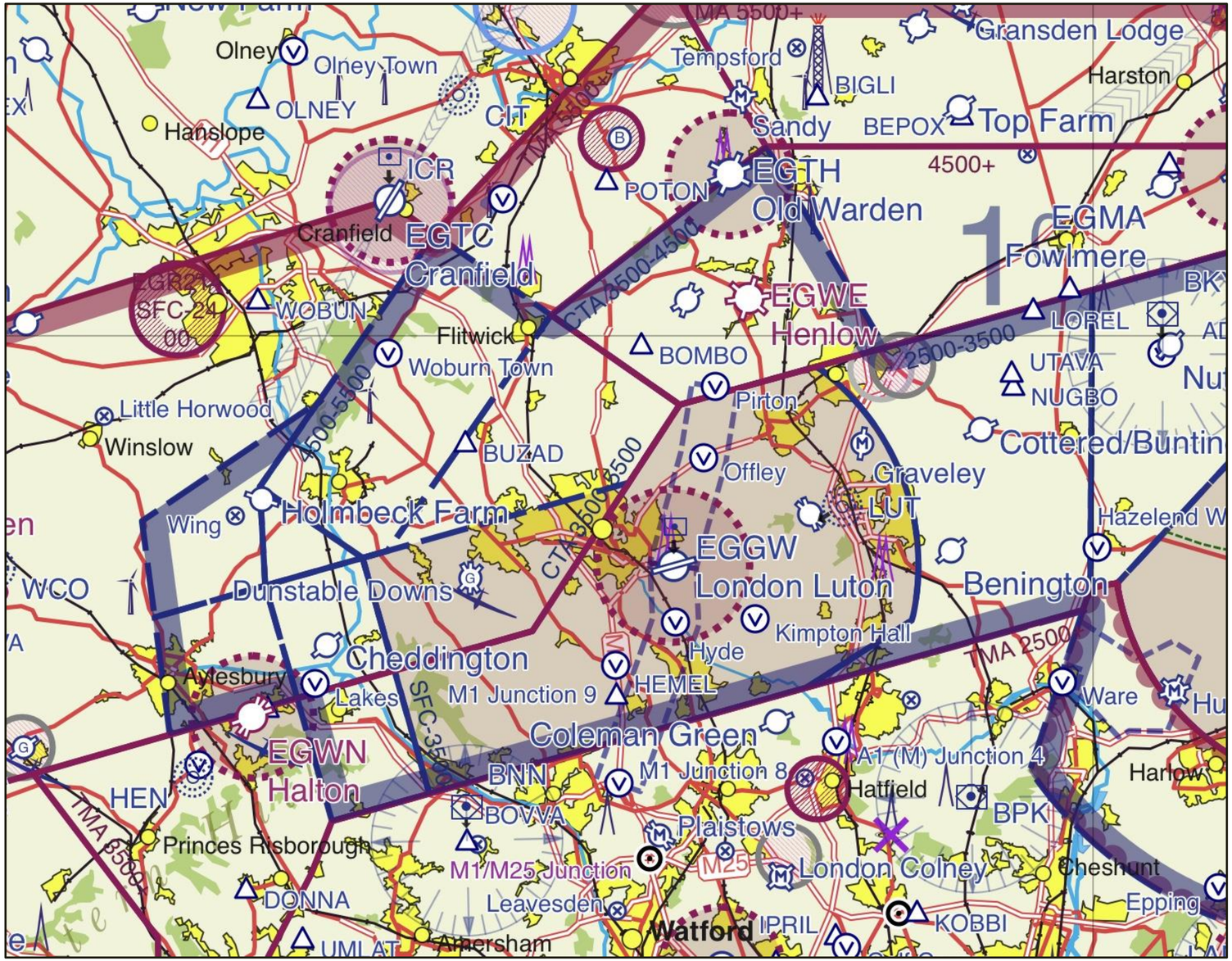
What is important to you as commercial airspace users?

Efficiency

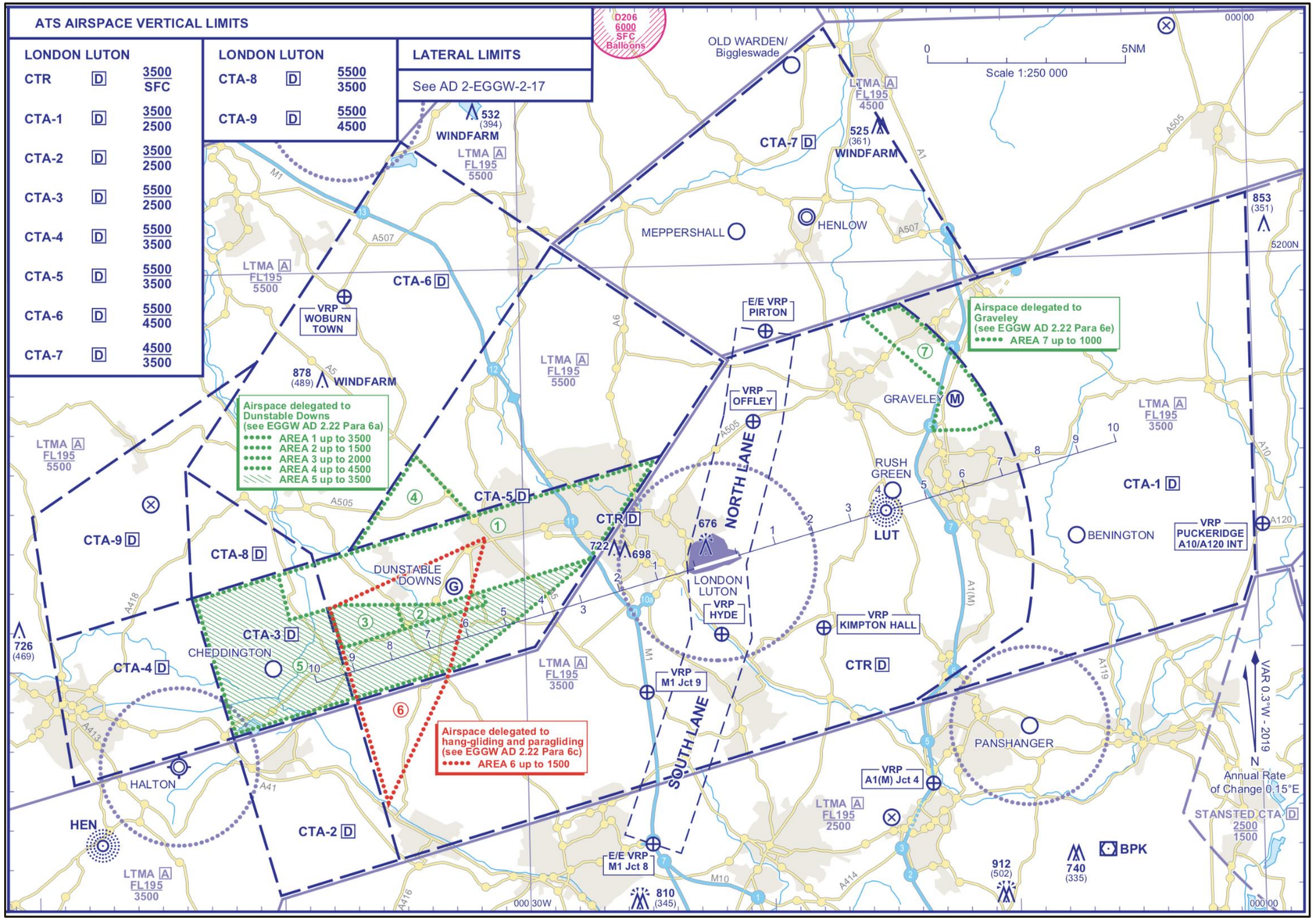
London Luton Airport Departure Routes



London Luton Airport Airspace



London Luton Airport Airspace



We're sorry you couldn't stay on Tuesday for us to start the conversation on developing Design principles for Luton's wholesale airspace redesign as part of FASI-S. As you will appreciate, this is a once in a life time opportunity to explore the existing Luton CTR/CTA boundaries, the constraints it currently places on GA and the opportunities to re-shape them, which is within the scope of the ACP.

We had a good discussion with the London Gliding Club to understand their operating requirements and ambitions and we would like to do the same with A4A as an established General Aviation representative. Firstly from a 'Design Principle' perspective and then, in slower time for a requirements / wish-list capture exercise.

Would you be free over the next 2-3 weeks for us to meet and discuss?

Many thanks,

Luton Design Principles workshop for ACP-2018-70

1 message

25 February 2019 at 13:41

Good Afternoon

Thank you very much for attending the Design Principle Workshop on 12th February 2019. I appreciate you taking the time to be part of this process at this early stage and hope you found it useful.

Please find attached the meeting notes from our session and a copy of the presentation that you received. I would be grateful if you could share this information with your colleagues in the London Gliding Club and involve them in the discussion that took place about specific Design Principles. We would very much welcome your feedback on the Design Principles which we identified (in the meeting notes) and any further suggestions you have.

If you could please send us your formal feedback by Friday 15th March 2019, we will then add that to the feedback we receive from our other stakeholders to create a list of Design Principles. I will be in touch in April with our full list of Design Principles and to request your input in prioritising them from an LGC perspective.

London Luton Airport Operations Ltd - FASI-S ACP

Meeting Notes from Workshop 1 – Design Principles

Held on 12th February 2019 at Luton Airport

Attendees

[redacted]- LLAOL	[redacted] – Trax International
[redacted]LLAOL	
[redacted]- London Gliding Club Representative	[redacted] Trax International

Purpose	The purpose of the workshop was to begin the Design Principle Engagement with the British Gliding Association (BGA) & Airspace 4 All (A4), as key stakeholders of London Luton Airport Operations Ltd (LLAOL) on the FASI-S ACP.
Overview	LLAOL invited members of the BGA & A4A to attend a workshop on 12th February 2019. The workshop intended to introduce the Luton FASI-S Airspace Change Proposal to these stakeholders and begin engagement on Stage 1 of the CAP1616 process, the Design Principles. The workshop was scheduled to take place following on from an existing meeting between the BGA, A4A and LLAOL and the email invitation was sent on the 5th February 2019. Unfortunately, on the day A4A and BGA were unable to stay and attend the meeting. [redacted] a representative from the London Gliding Club (LGC) was happy to remain, however he was only representing the LGC, not the BGA.
Discussion	Trax went through the presentation (Annex 1) and explained the scope of the FASI-S ACP, what Design Principles are, how they are used and how prioritisation of Design Principles can take place, as explained in CAP 1616. LGC explained their operations and airspace constraints. In overall terms LGC stated that they would be happy with no changes to their operating airspace and had some suggestions on where changes could potentially enhance their operations. With regards to specific Design Principles LGC favoured minimising the impact on their airspace and potentially increasing their operating area. Discussion also took place of the potential benefits of continuous climb and continuous descent procedures.

Design Principles	Following on from the discussion, key Design Principles for the LGC could be; 1. Minimise impact on other airspace users 2. Keep Controlled Airspace requirements to a minimum 3. Design simple airspace boundaries to enable easier navigation for GA airspace users 4. Continuous Climb/Continuous Descent (to enable (2))
Outcomes	LGC were asked to discuss the Design Principles with their members and provide formal feedback, including any further suggestions for Design Principles by Friday 15th March 2019. It was agreed that LGC would also come up with a wish list of suggestions/ideas that could be fed into later stages of the CAP1616 process.
Next Steps	LLAOL will send these notes from Workshop 1 to LGC to request their input and feedback on the FASI-S Design Principles. As BGA & A4A were unable to attend this workshop, LLAOL will offer another date to them. LGC will provide feedback by Friday 15th March 2019.

London Luton Airport Operations Limited

Airspace Modernisation Programme - Design Principle Workshop

Held at the Courtyard by Marriott Luton Airport on Wednesday 27th February 2019 1000-1300

Agenda

#	Item	Start Time
1	Coffee	09:45
2	Introductions	10:00
3	Introduction to FASI-S. A summary of CAP1616. What are Design Principles?	10:10
4	Break	11:00
5	Discussion on Design Principles	11:15
6	Summary of Design Principle Discussion	12:30
7	AOB	12:45

London Luton Airport Airspace Modernisation Programme design principles workshop

26 February 2019 at 10:32

Good Morning,

I was very sorry that you were unable to attend the Workshop on the 12th February 2019, to discuss the FASI-S programme airspace change proposal and begin work on our Design Principles for the project.

We had a very useful session with a representative from the London Gliding Club and the presentation is attached for your information. During our discussion we identified the following as potential Design Principles that could also be beneficial to your organisation;

1. Minimise impact on other airspace users
2. Keep Controlled Airspace requirements to a minimum
3. Design simple airspace boundaries to enable easier navigation for GA airspace users
4. Continuous Climb/Continuous Descent (to enable (2))

I would welcome your input and feedback on these potential Design Principles and any other suggestions you have. I would also welcome the opportunity to arrange another workshop session for you, if you feel that is suitable.

Alternatively, I would be happy to receive your feedback in writing by 15th March 2019. Any feedback that you send to us will be incorporated with the other feedback we receive from our stakeholders, to create our list of Design Principles.

Following that feedback and analysis, we will be in touch again with our full set of design principles for your consideration.

Best regards

London Luton Airport

London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

26 February 2019 at 20:21

Good evening all,

Please find attached agenda and slidepack for tomorrow's meeting.

Please note a correction is required to slide 3 where LLAL have announced today that the DCO will seek to increase passengers to 32 mppa and not 38mppa as the slidepack suggests, this will be corrected for tomorrows presentation and the minutes following.

Best regards

London Luton Airport Operations Ltd - FASI-S ACP

Meeting Notes from Workshop 1 – Design Principles

Held on 27th February 2019 at the Courtyard by Marriott Luton Airport Hotel

Attendees

[redacted] - LLAOL	[redacted] – Aylesbury Vale District Council
[redacted] - LLAOL	[redacted] – Bucks County Council
[redacted] - LLAOL	[redacted] – St Albans City and District Council
[redacted] – Trax International	[redacted] – Herts County Council
	[redacted] – Welwyn and Hatfield Borough Council
[redacted] – Trax International	[redacted] – LADACAN
[redacted] – Central Beds Council	[redacted] – Hertfordshire Association of Town and Parish Councils
[redacted] - PAIN	[redacted] – St Albans Quieter Skies
[redacted] - Bickerdike Allen & Partners (Noise Consultant)	[redacted] – York Aviation (representing LLAL)
[redacted] - Chair	

Purpose	The purpose of the workshop was to begin the Design Principle Engagement with the London Luton Consultative Committee (LLACC), the Noise & Track Keeping Sub-Committee (NTSC) as key stakeholders of London Luton Airport Operations Ltd (LLAOL) on the FASI-S ACP. Also invited were representatives from Local Authorities, who do not currently sit on either committee, but who may be impacted by the FASI-S ACP.
Overview	LLAOL invited members of the LLACC, NTSC and Local Authorities to attend a workshop on 27th February 2019. The workshop intended to introduce the Luton FASI-S Airspace Change Proposal to these stakeholders and begin engagement on Stage 1 of the CAP1616 process, the Design Principles. LLAOL explained that the purpose of this workshop is to start a programme of engagement that will continue throughout the process, with continuous interactions between the organisations.
Discussion	Trax went through the presentation (Annex 1) and explained the scope of the FASI-S ACP, what Design Principles are and how they are used. Trax also explained CAP1616 and its stages. • The aim of the FASI-S ACP is a whole scale redesign of airspace. Trax explained that the majority of the surrounding airports have started their programmes for

	airspace changes and one of the aims is to decrease the amount of tactical intervention by Air Traffic Control (ATC). • The information discussed here, and any feedback should be shared appropriately between the LLACC, NTSC and the Local Authorities with their communities as they see fit. • Discussion around CAP1616 started debate regarding the Statement of Need (SoN) and some representatives felt they should have been involved in its creation. LLAOL agreed that if the assembled group did not feel that the Design Principles fully addressed their concerns, then the SoN could be revisited. • Trax explained that Design Principles can address both environmental and operational issues and can have different Design Principles for day/night if stakeholders felt that was appropriate. • The question was asked as to whether committed developments are taken into consideration when determining population counts for the Airspace Change Process or if it is only of existing developments. Trax took an action to investigate
Design Principles	A discussion took place concerning specific Design Principles. All the suggested Design Principles are at Annex 2.
Outcomes	The assembled members were asked to discuss the Design Principles with the stakeholders that they each represent and provide feedback, and using the table provided in Annex 2, prioritise the Design Principles suggested during this workshop. They are asked to provide feedback to this meeting, the results of their prioritisation and any other suggestions for Design Principles to LLAOL by 22nd March 2019.
Next Steps	LLAOL will send these notes from Workshop 1 to all the members to request their input and feedback. A second workshop will be scheduled, during which we will discuss the prioritisation of the Design Principles and the final list to be submitted to the CAA.

London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

8 March 2019 at 10:56

Good Morning,

Thank you very much for attending the FASI-S Design Principles Workshop on the 27th February 2019, we hope you found it useful.

Please find attached a copy of the presentation that you received and the meeting notes from the workshop.

As discussed during the meeting, the next stage that we would like your assistance with is the prioritisation of the Design Principles that were suggested and debated. Therefore, also attached to this email is a table of Design Principles for you to comment on. We would be grateful if you could return this, along with any other feedback, including further suggestions for Design Principles to us by 1700hrs on Friday 22nd March 2019.

Following this feedback, and the feedback we receive from other stakeholders we will put together a final, prioritised list of Design Principles for the FASI-S airspace change proposal. We would like to share and discuss this list with you at our next workshop, to be held on Friday 5th April 2019 (time & location to be confirmed.

We look forward to receiving your thoughts.

Best regards

London Luton Airport Operations Ltd - Design Principle Matrix

Annex 2

Response by: ……

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe							
Must be technically viable							
Should be a minimum PBN specification							
Must comply with ANG17 & NPSe							
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that							
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft							
Avoid noise sensitive buildings and sites below 4000ft							
Avoid conservation areas below 4000ft							
Consider different routes for day/night use							
Consider use of alternative route structures to provide predictable & effective respite							
Avoid overflying communities with multiple routes							
Fairer distribution of noise for those significantly affected							
Routes should be designed and operated so as to provide an equitable distribution of traffic							
Minimise the total numbers of population overflown							
Minimise the numbers of population newly overflown							
Prioritise routes over commercial and industrial areas							
Prioritise parks and open spaces, rather than residential areas							

Minimise populations effected by NOx emissions below 1000ft							
Airspace should not constrain the airport's capacity							
Minimise impact on other airspace users							
Keep Controlled Airspace requirements to a minimum							
Design simple airspace boundaries to enable easier navigation for GA airspace users							
Continuous Climb/Descent							

London Luton Airport Operations Ltd
Workshop 1: LLAC & NTSC
CAP1616 & Design Principles

Courtyard by Marriott Luton Airport
27th February 2019

London
Luton
Airport

Purpose of Workshop 1

- To explore all potential Design Principles for London Luton Airports wholesale airspace redesign that are important to you

- We will take these away, and take into consideration with all other Design Principles proposed by other groups

- Hold Workshop 2 in March 2019, where we will present a succinct list of Design Principles and ask you to prioritise

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- LLAL are planning to hold their Statutory DCO consultation this summer. Current estimates stand at 2021 for a DCO Decision.

- Regardless of DCO timescales and success, LLAOL (the airport operator) require that this once in a lifetime ACP is future proofed.

Introduction to CAP1616

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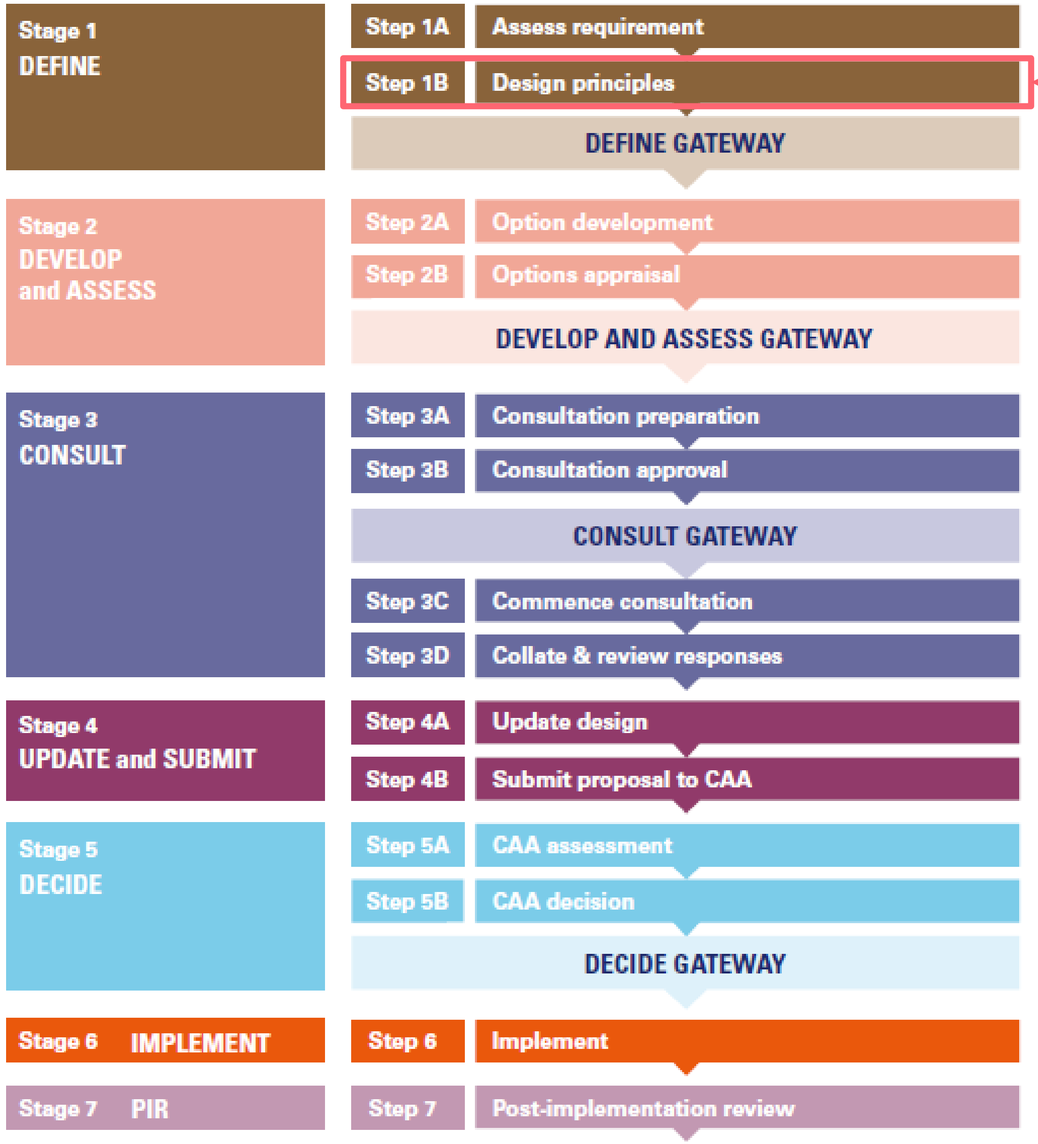
- CAP1616 provides a process framework to be used when designing airspace and is split into 7 Stages as shown on the next slide.

- We are now in the Define Stage of the process where by LLAOL is seeking views on the proposed design principles to be used in considering the airspace design proposal.

- We will be aiming to submit the final set of design principles to the CAA for the Stage 1B Gateway in May 2019.

Introduction to CAP1616



We are here

Stage 1 - Define

- Statement of Need
  - Written by the change sponsor, setting out what airspace issue it is seeking to address

- Assessment Meeting
  - Held with the CAA to review the Statement of Need, agree if the change is relevant and discuss level and proposed timescales

- Scales of Airspace Change
  - Level 0/1/2

- Stage 1B – Design Principles – We will come back to this later..

Stage 1 - Define

Stage 2 – Develop & Assess

- Stage 2A – Options Development
  - Develop a comprehensive list of options, that address the Statement of Need & align with the Design Principles
  - Test with Stakeholders (as engaged with during Stage 1B)
  - Produce Design Principle Evaluation
  - Publish list of options & Design Principle Evaluation on the CAA Portal

- Stage 2B– Options Appraisal
  - Perform an Initial Options Appraisal
  - Key impacted audiences should be clearly identified
  - Initial Options Appraisal published on CAA Portal

Stage 3 – Consult

- Stage 3A – Consultation Preparation
  - Plans and prepares stakeholder consultation and engagement documents.
  - Carries our full options appraisal

- Stage 3B– Consultation Approval
  - CAA review & where appropriate, approves the consultation strategy, ensure materials are clear & appropriate and the questions unbiased.

- Stage 3C – Consultation
  - Launches consultation, approximately 12 weeks.

- Stage 3D – Collate & Review Responses
  - All responses made through the online portal are collated, reviewed and categorised.

Stages 4 - 7

- Stage 4 – Update & Submit
  - 4A – Update design, following the consultation responses/ Final options appraisal and revise design.
  - 4B – Submit airspace change proposal to CAA

- Stage 5 – Decide
  - CAA Assessment & Decision
  - Level 1 at least 16 weeks

- Stage 6 – Implement

- Stage 7 – Post-implementation review

What is a Design Principle?

- The CAP1616 guidance requires the production of design principles for each airspace change

- Design principles essentially provide a list of high level criteria that the proposed airspace design options should meet. They also provide a means of analysing the impact of different design options and a framework for choosing between options

- CAP1616 states that:

- the development of design principles should provide “a shortlist of principles to inform the development of airspace design options” and a “framework against which airspace design options are evaluated”.

- principles “are in no way immutable and, as a part of the process for the establishment of the airspace design principles, should be challenged as part of the ongoing dialogue with stakeholders.”

Examples of Design Principles

- Must be safe
- Must meet commitments to the Government Airspace Modernisation Strategy
- Must adhere to Air Navigation Guidance 2017 and Noise Policy Statement for England (see next slides)
- Limit and where possible reduce noise impacts (multiple options)
- Procedures should be developed to allow for alternative routes to offer respite
- Minimise total numbers overflown
- Minimise numbers of newly overflown
- Procedures should be designed to minimise number of track miles flown
- Avoid overflight of sensitive areas e.g. hospitals, schools, parks etc
- Minimise aircraft emissions
- Minimise impact on other airspace users
- Should limit dependencies on adjacent airports
- Keep Controlled Airspace requirement to a minimum
- Design simple airspace boundaries to enable easier navigation for GA airspace users.
- Designs based on latest navigational technology
- Steeper Approaches where possible
- Create operational efficiency and resilience
- Continuous Climb/Continuous Descent

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- This information should also be noted and taken into consideration by the aviation industry.

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The environmental objectives with respect to air navigation are chosen to facilitate the government's overall environmental policies. These environmental objectives are designed to minimise the environmental impact of aviation within the context of supporting a strong and sustainable aviation sector. These objectives are, in support of sustainable development, to:

a. limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise;
b. ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions; and
c. minimise local air quality emissions and in particular ensure that the UK complies with its international obligations on air quality.

Noise Policy Statement for England (NPSe) Aims

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

a. avoid significant adverse impacts on health and quality of life;
b. mitigate and minimise adverse impacts on health and quality of life; and
c. where possible, contribute to the improvement of health and quality of life.

Prioritisation

• CAP1616 highlights that design principles can be contradictory, for example where avoiding one kind of impact is likely to increase another:

• *“some of the principles may contradict one another and some may be prioritised over others: this will be an iterative process and a qualitative one rather than a purely numerical exercise with binary answers.”*

• Prioritisation of design principles help our airspace designers to compare different design options when we reach that stage of the CAP1616 process.

Discussion & Questions

Noise

What is important to you as community members?

Environment

Health

What is important to you as general airspace users?

What is important to you as passengers?

Jobs & the economy

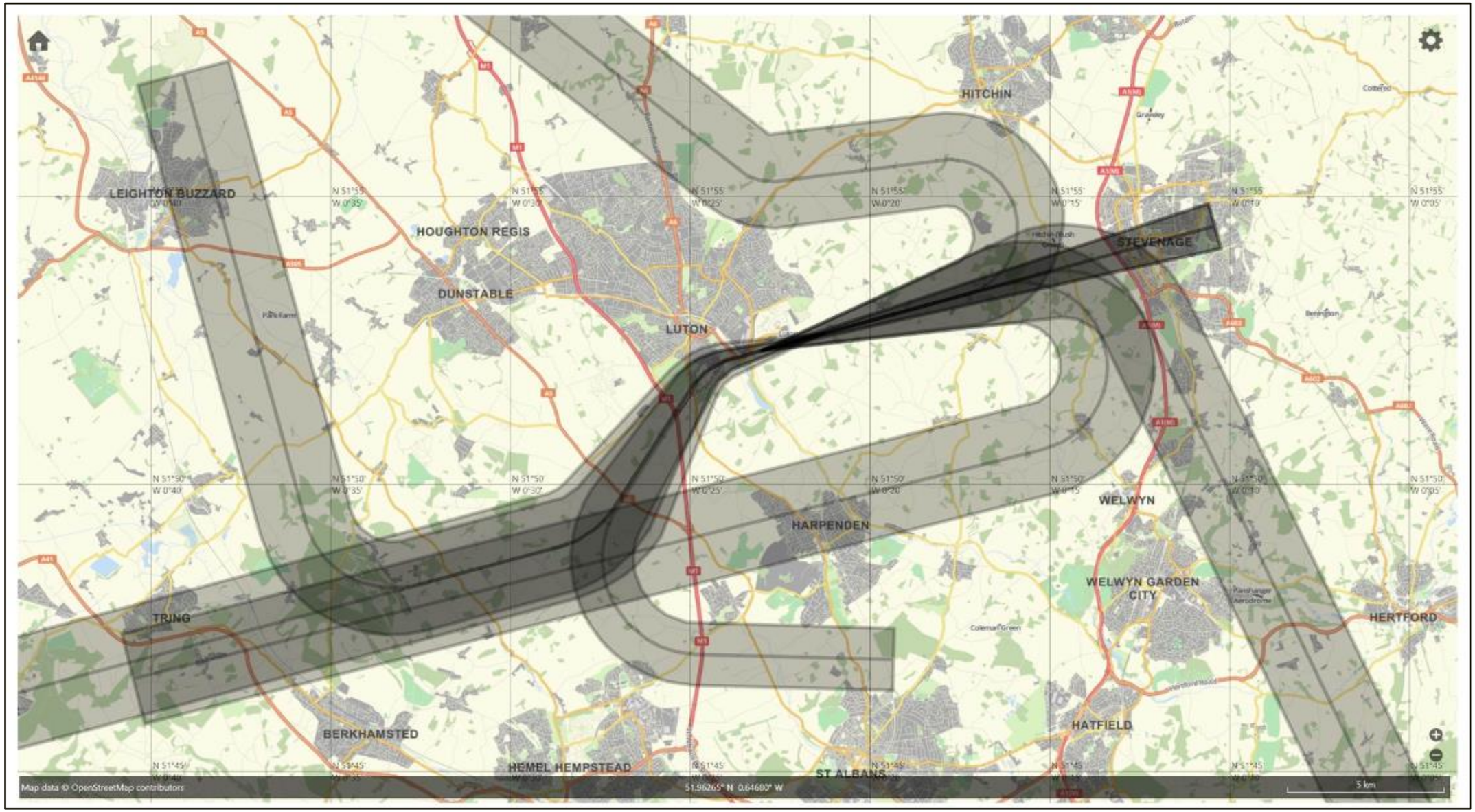
What is important to you as commercial airspace users?

Efficiency

FOR CONSIDERATION

- Are there noise-sensitive buildings that should be avoided, and if so what and where (i.e. hospitals, care homes, schools, higher education establishments, and so on)?
- How should the minimisation of overflight, or of night noise, or the difference between multiple respite routes and concentrated routes be traded off against one another?
- If multiple routes are considered in order to provide respite, what might constitute a sufficient period of respite?
- Are there areas in which efficiency from a whole airspace perspective or expeditious routeing (shorter or faster routes) take precedence and areas in which other factors should take precedence?

London Luton Airport Departure Routes



Next Steps for Design Principles

- We will produce a summary of this session for all attendees.

- We will hold a second workshop in March 2019 (date TBC) to inform you of the Design Principles and to ask for your assistance in prioritising them.

RE: London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

Good morning all,

I haven’t heard anything since the last email a few weeks ago and just wanted to check on how things were.

Are you still able to send us your feedback in writing by tomorrow? Do you need an extension to this? Or would it be more beneficial for us to set up a couple of face to face meetings to discuss design principles that you’d like to feed into the process?

Best regards

From: Airspace Modernisation
Sent: 01 March 2019 13:34

RE: London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

15 March 2019 at 10:24

Spoke to [redacted] from the BGA yesterday, I've given him an extra week to respond and we'll most likely get a single respond from the general aviation alliance

London Luton Airport Airspace Modernisation Programme

1 message

Good Morning,

As you may be aware, London Luton Airport Operations Ltd (LLAOL) has very recently begun an airspace change proposal as part of a wider project to modernise UK airspace.

In 2017, through the Upgrading UK Airspace, Strategic Rationale the Department for Transport notified aviation stakeholders that the current controlled airspace in southern England is capacity constrained. In order to modernise the overall airspace and route network the Future Airspace Strategy Implementation-South programme has been established, of which LLAOL is part of.

LLAOL is planning to use this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival, enabling significant environmental benefits.

A crucial part of the airspace change process is engagement with our stakeholders. As a key stakeholder group, LLAOL would like you to be involved.

We have begun Stage 1 of the CAP1616 Process, Design Principles, and we have had some very useful workshops with London Gliding Club and local community representatives. Unfortunately, as FLOPSC does not meet again until May this year, we will not have the opportunity to meet with you face-to-face, so we would like to conduct our Design Principle engagement via email/in writing.

Attached to this email is a presentation, giving more details on the FASI-S Airspace Change Proposal, CAP1616 Process and details on Design Principles. We hope that this information will provide you with the background you need to assist us with developing our FASI-S Design Principles. Also attached is a matrix of proposed Design Principles which we reached with our other stakeholders. We would very much appreciate your input on these proposed principles.

If you could return this table, plus any further feedback, including other suggestions for Design Principle's by Friday 29th March, we will then incorporate it into the other feedback we receive.

We will then carry out analysis on all the information we have received and put together a final list of prioritised Design Principles for submission to the CAA in May 2019. An update will be given at the next FLOPC meeting in May.

Thank you very much for your assistance, if you have any questions please get in touch.

London Luton Airport Operations Ltd FASI-S Airspace Change Proposal, CAP1616 & Design Principles

London Luton Airport

London Luton Airport Operations Ltd – Airspace Change Proposal

The Department for Transport have notified aviation stakeholders via the Upgrading UK airspace: strategic rationale, published in February 2017, that the controlled airspace in southern England used to support commercial air transport operations is capacity constrained, it has evolved over time and does not exploit modern navigation technology.

The Future Airspace Strategy Implementation South (FASI South) programme has been established by NATS and a number of key airports operating in southern England, including London Luton Airport Operations Ltd to coordinate a series of linked ACPs that will modernise the overall airspace structure and route network.

London Luton Airport Operations Ltd is using this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival enabling significant environmental benefits.

London Luton Airport Ltd (LLAL) – Plans for Expansion

- The existing planning limit of the airport is 18m passengers per year. This is expected to be reached by 2020/21.

- LLAL (the airport owner) has commenced the Development Consent Order (DCO) process to seek an increase to that limit to 32m passengers per year by 2050. This will require new terminal and airside infrastructure.

- LLAL are planning to hold their Statutory DCO consultation this summer. Current estimates stand at 2021 for a DCO Decision.

- Regardless of DCO timescales and success, LLAOL (the airport operator) require that this once in a lifetime ACP is future proofed.

Introduction to CAP1616

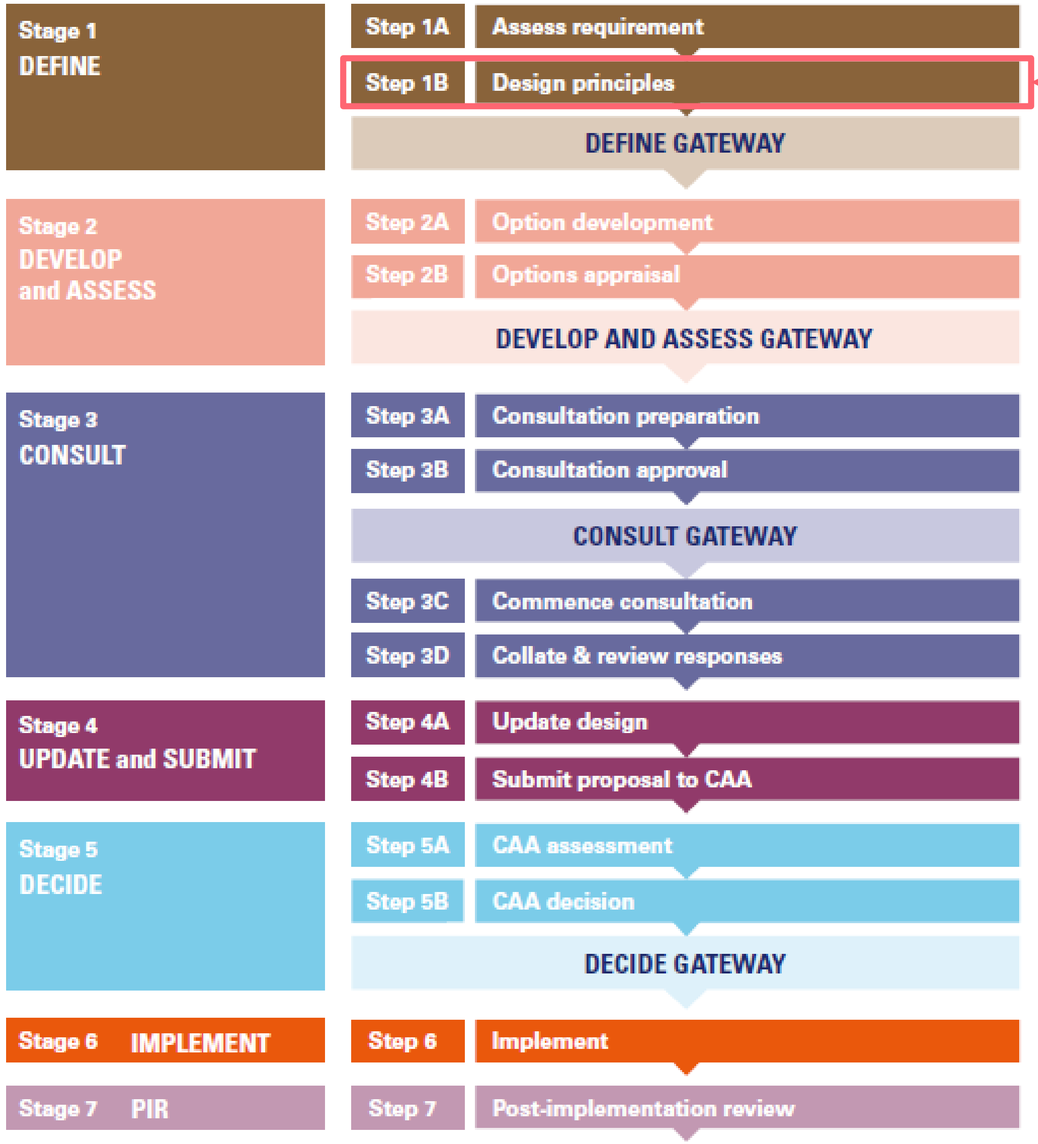
- In January 2018 the CAA launched its Guidance on the regulatory process for changing airspace design: CAP1616.

- CAP1616 provides a process framework to be used when designing airspace and is split into 7 Stages as shown on the next slide.

- We are now in the Define Stage of the process where by LLAOL is seeking views on the proposed design principles to be used in considering the airspace design proposal.

- We will be aiming to submit the final set of design principles to the CAA for the Stage 1B Gateway in May 2019.

Introduction to CAP1616



We are here

Stage 1 - Define

- Statement of Need
  - Written by the change sponsor, setting out what airspace issue it is seeking to address

- Assessment Meeting
  - Held with the CAA to review the Statement of Need, agree if the change is relevant and discuss level and proposed timescales

- Scales of Airspace Change
  - Level 0/1/2

- Stage 1B – Design Principles – We will come back to this later..

Stage 1 - Define

Stage 2 – Develop & Assess

- Stage 2A – Options Development
  - Develop a comprehensive list of options, that address the Statement of Need & align with the Design Principles
  - Test with Stakeholders (as engaged with during Stage 1B)
  - Produce Design Principle Evaluation
  - Publish list of options & Design Principle Evaluation on the CAA Portal

- Stage 2B– Options Appraisal
  - Perform an Initial Options Appraisal
  - Key impacted audiences should be clearly identified
  - Initial Options Appraisal published on CAA Portal

Stage 3 – Consult

- Stage 3A – Consultation Preparation
  - Plans and prepares stakeholder consultation and engagement documents.
  - Carries out full options appraisal

- Stage 3B– Consultation Approval
  - CAA review & where appropriate, approves the consultation strategy, ensure materials are clear & appropriate and the questions unbiased.

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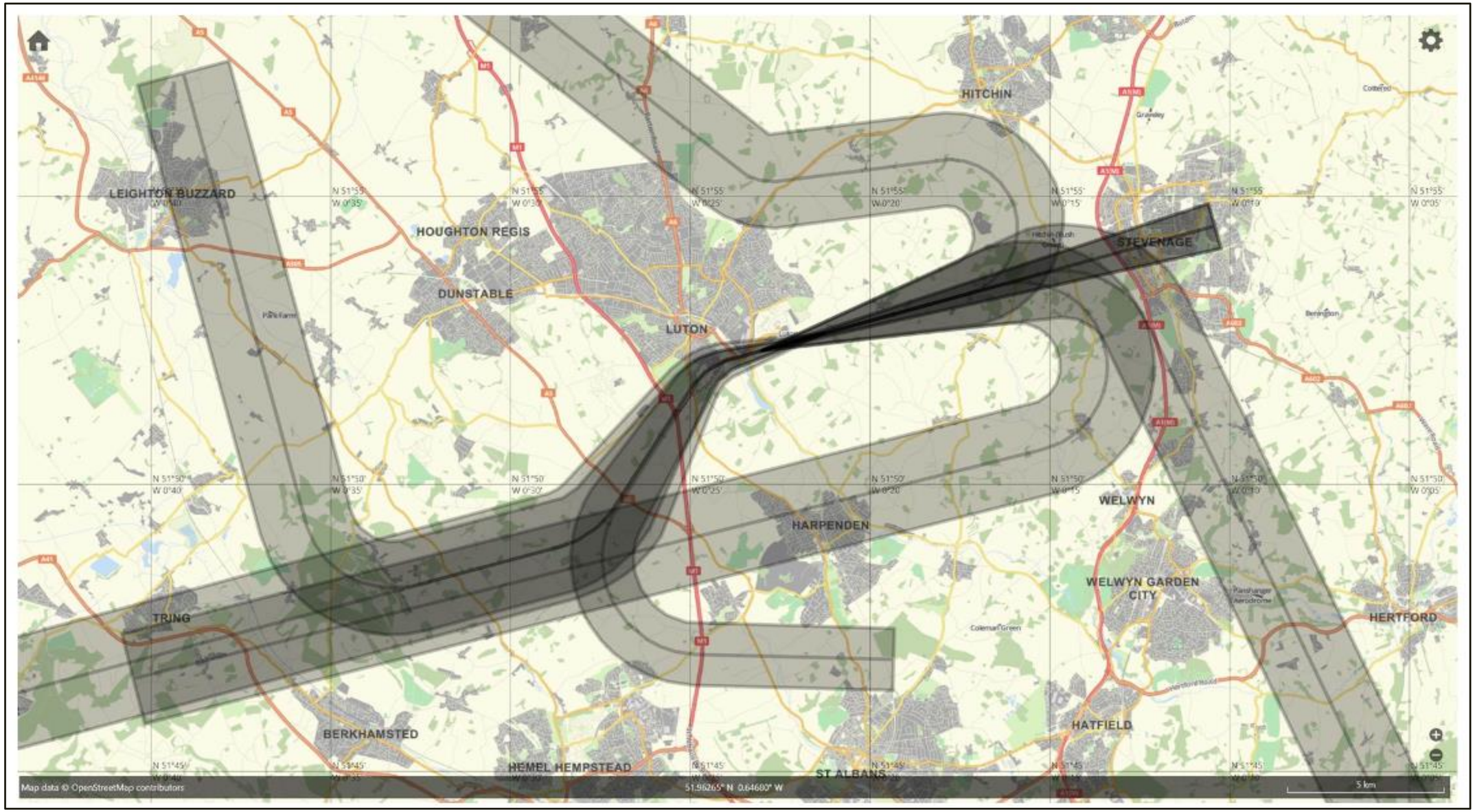
London Luton Airport Departure Routes



Next Steps for Design Principles

- We will analyse all the information and feedback we receive and produce a prioritised list of Design Principles.

- We aim to submit these Design Principles to the CAA in May 2019.

RE: London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

21 March 2019 at 13:00

Good afternoon all,

Following on from the email below I can confirm that the second design principle workshop will be held on the 5th April 2019 at the Putteridge Bury Conference centre from 1000 – 1300.

A calendar invite will follow shortly, please ensure you respond to confirm your attendance so we have an idea of numbers.

I have also attached the papers again from the last meeting.

Also for some members who have asked the indicative timescales for the ACP are shown below.

FASI-S indicative high level goal plan - CAP1616 stages		
Stage	**Detail**	**Date**
Stage 1	Design Principles	May-19
Stage 2	Options Development and Appraisal	Jul-20
Stage 3	Consultation Prep and Delivery	Jul-22
Stage 4	Update and Submit ACPs	Q1 2023
Stage 5	CAA Assessment and Decision	Q1 2024
Stage 6	Implementation	Jan-25

Best regards

RE: Matrix Doc - HAPTC Reccomemdations

28 March 2019 at 16:13

[redacted]

Just following up on my email from last week, have you had a chance to provide some more comment regarding some of your points? Also I've had a look on the HAPTC website for recent minutes but the last ones I can find are from October 2017, we may need some minutes form your recent executive committee meeting to demonstrate relevant parties were engaged if the CAA request it, is there any chance I can get a copy of those please?

Best regards

[redacted]

From: [redacted]
Sent: 21 March 2019 14:08
To: [redacted]
[redacted] RE: Matrix Doc - HAPTC Reccomemdations

[redacted]

Thank you, I got it. We'll adjust to contact list, please can I ask that you use the airspace modernisation email address for correspondence relating to FASI-S.

It would be helpful also if you could provide some comments on why the HAPTC have advised that government policy requirements should not be considered so that we can include these in any rationale decisions.

Best regards

[redacted]

Following on the from the meetings and your request for the prioritisation of the matrix, please find attached the answers from the HAPTC.

Also, I have taken over for [redacted] as the HAPTC main lead representative for all airport meetings and contact so could you please send all information directly to me from now on. I have also discussed the distribution of the information throughout the HAPTC members and we have a program to achieve this over the coming months - the plan is to send out the presentation document you sent the group to all members as an initial outline of the coming process and when the first draft proposals are published to hold a meeting for all member councils to have their say on the matter which I can then feed back to you.

Please could you acknowledge receipt of this email so I know its not sitting in your junk folder! I look forward to meeting you again on 5th April

Many thanks

[redacted]

HAPTC

RE: London Luton Airport Airspace Modernisation Programme design principles workshop

1 message

4 April 2019 at 17:05

Good afternoon all,

Please find attached the slide pack for tomorrow's FASI-S meeting. The agenda shown below;

- Introductions
- Review Feedback
- Questions and Discussion
- Finalise Design Principles
- AOB

Best regards

London Luton Airport

London Luton Airport Operations Ltd
Workshop 2: LLAC & NTSC
FASI-S ACP Design Principles

Putteridge Bury
5th April 2019

London
Luton
Airport

Purpose of Workshop 2

- To discuss the feedback we received from all our engaged Stakeholders on the list of Design Principles

- To present the list of Design Principles resulting from the feedback

- To discuss the list, amend and re-prioritise, if appropriate

The Design Principles

- Following our discussion with you on the 27th February 2019 and with our other stakeholders; Airspace4All, British Gliding Association, London Gliding Club and the Flight Operations Safety Committee (FLOPSC) we produced a list of potential Design Principles and invited all those involved to comment.

- We also invited our stakeholders to propose any new Design Principles that we may have not yet considered.

- On receipt of all the feedback we created a tally chart of everyone's responses and made a note of any additional comments or suggestions for new Design Principles.

The Design Principle Matrix - Results

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered
Must be safe	IIIIIIIIIIII	I				
Must be technically viable	IIIIIIIIII	II				
Should be a minimum PBN specification	IIIIIII	II	IIII			
Must comply with ANG17 & NPSe	IIIIII	III	III			
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	IIIIIIII	IIIIII				
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	II	IIIIIIII	II	I		
Avoid noise sensitive buildings and sites below 4000ft	IIIIII	IIII	I	II		
Avoid conservation areas below 4000ft	IIIII	IIII	II		I	I
Consider different routes for day/night use	IIII	II	IIIIII	I		
Consider use of alternative route structures to provide predictable & effective respite	IIII	III	IIII	I		I
Avoid overflying communities with multiple routes	IIII	IIIIIII	II			
Fairer distribution of noise for those significantly affected	IIIII	III	IIII	I		
Routes should be designed and operated so as to provide an equitable distribution of traffic	IIIII	I	III	II		II
Minimise the total numbers of population overflown	II	III	IIII	II		II
Minimise the numbers of population newly overflown	I	III	III	IIII		II
Prioritise routes over commercial and industrial areas	II	IIIIII	III	I		I
Prioritise parks and open spaces, rather than residential areas		IIIIII	II	III	I	I
Minimise populations effected by NOx emissions below 1000ft	III	IIII	IIIII			I
Airspace should not constrain the airport's capacity	I	I	III	II	I	IIIII
Minimise impact on other airspace users	I	IIIII	IIIII		I	I
Keep Controlled Airspace requirements to a minimum	IIII	II	IIIIIII			I
Design simple airspace boundaries to enable easier navigation for GA airspace users	II	IIII	IIII		I	II
Continuous Climb/Descent	IIIIIIIIII	III				

The Design Principles – Strongly Supported

Proposed Design Principle	Community Feedback
Must be safe	• Almost all the feedback strongly agreed with this • Obvious
Must be technically viable	• What does this mean? • Obvious
Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that	• Angle of ascent/descent is also important • Would need to also minimise turns at low level • Concerns about Heathrow interactions
Should be a minimum PBN specification	• PBN spec should be defined • What about non-PBN aircraft?
Must comply with ANG17 & NPSe	• Obvious

The Design Principles – Supported

Proposed Design Principle	Community Feedback
Avoid noise sensitive buildings and sites below 4000ft	• Difficult to define • Should be same treatment for all • Residents needs should come first
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	• Less vectoring was supported • Can ensure predictability, but tactical intervention can lead to dispersal – beneficial for some
Avoid overflying communities with multiple routes	• Difficult to apply • Needs more explanation
Avoid conservation areas below 4000ft	• Needs clarification • Difficult to fit noise mitigation in conservation areas
Fairer distribution of noise for those significantly effected	• ANG17 compliance • What does 'fair' and 'significant' mean?
Routes should be designed and operated so as to provide an equitable distribution of traffic	• Seems impractical – choice of departure dictated by destination & wind • Respite routes should also have a balance of flights
Prioritise routes over commercial and industrial areas	• Impractical in Luton area • Add "only if this eases residential disturbance"
Prioritise parks and open spaces, rather than residential areas	• Should be rephrased to 'in preference to' residential areas • Parks should be respite areas/Parks at night, industrial by day?
Minimise impact on other airspace users	• Formal legacy agreements must be respected • Commercial aircraft should not take second place to recreational pilots
Consider different routes for day/night use	• ANG 17 aim is for the least number of practicable routes
Consider use of alternative route structures to provide predictable and effective respite	• Contravenes ANG17 ???
Minimise populations effected by NOx emissions below 1000ft	• How would it be monitored? Most aircraft are above this by the airport boundary • Needs balancing with noise impact • NOx emissions insignificant from aircraft
Keep Controlled Airspace requirements to a minimum	• Limit the volume of CAS? Or limit NATS/pilot workload?

The Design Principles – Less Support

Proposed Design Principle	Community Feedback
Minimise the total numbers of population overflown	• ANG17 • Suggested re-wording 'minimise the number of people experiencing significant adverse noise impacts' • Definition of 'overflown' needs further work & clarification
Minimise the numbers of population newly overflown	• Suggested re-wording as previous • What is the baseline?
Design simple airspace boundaries to enable easier navigation for GA airspace users	• Residents should be prioritised • GA add to the noise burden
Airspace should not constraint the airport's capacity	• Contradicts safety and environmental criteria • Availability of airspace should be considered first

Evolution of Design Principles

Proposed Design Principle	Proposed Final Wording	Comment
Must be safe	Must be safe	
Must be technically viable	Should be a minimum PBN specification, to be determined during Stage 2A	Combined with PBN principle
Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that	
Should be a minimum PBN specification	Should be a minimum PBN specification, to be determined during Stage 2A	Combined with technically viable principle
Must comply with ANG17 & NPSe	Must meet the 3 aims of the NPSe* a. Avoid significant adverse impacts on health & quality of life b. Mitigate & minimise adverse impacts on health & quality of life c. Where possible, contribute to the improvement of health & quality of life	Added the specifics from the NPSe and removed the reference to ANG17. As it is implicit that any ACP will be required to meet the requirements of the Air Navigation Guidance 2017

Evolution of Design Principles

Proposed Design Principle	Proposed Final Wording	Comment
Avoid noise sensitive buildings and sites below 4000ft	It is implicit that any ACP will be required to meet the requirements of the Air Navigation Guidance 2017	Covered by ANG17 Para 3.37
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	Should minimise tactical intervention by ATC below 7000ft	
Avoid overflying communities with multiple routes	Should avoid overflying communities with multiple routes, including routes from other airports, below 7000ft	Clarification added
Avoid conservation areas below 4000ft	It is implicit that any ACP will be required to meet the requirements of the Air Navigation Guidance 2017	ANG17 refers to Conservation of Habitats and Species Regulations 2010.18
Fairer distribution of noise for those significantly effected	Should provide a more equitable distribution of traffic where possible, to reduce significant and adverse impacts of noise enabled through; a. Use of alternative route structures for respite b. Overflight of commercial and industrial areas c. Overflight of parks and open spaces at night	Principles combined
Routes should be designed and operated so as to provide an equitable distribution of traffic		
Prioritise routes over commercial and industrial areas		

Evolution of Design Principles

Proposed Design Principle	Proposed Final Wording	Comment
Prioritise parks and open spaces, rather than residential areas	Should provide a more equitable distribution of traffic where possible, to reduce significant and adverse impacts of noise enabled through; a. Use of alternative route structures for respite b. Overflight of commercial and industrial areas c. Overflight of parks and open spaces at night	Combined with earlier principle
Minimise impact on other airspace users	Should minimise the impact on other airspace users through; a. Keeping CAS requirements to a minimum b. Simple airspace boundaries c. Allowing flexible use of airspace, where possible	Principles combined
Consider different routes for day/night use	Should provide a more equitable distribution of traffic where possible, to reduce significant and adverse impacts of noise enabled through; a. Use of alternative route structures for respite b. Overflight of commercial and industrial areas c. Overflight of parks and open spaces at night	Combined with earlier principle
Consider use of alternative route structures to provide predictable and effective respite		Combined with earlier principle
Minimise populations effected by NOx emissions below 1000ft	Must meet local air quality requirements	Re-worded

Evolution of Design Principles

Proposed Design Principle	Proposed Final Wording	Comment
Keep Controlled Airspace requirements to a minimum	Should minimise the impact on other airspace users through; a. Keeping CAS requirements to a minimum b. Simple airspace boundaries c. Allowing flexible use of airspace, where possible	Combined with earlier principle
Minimise the total numbers of population overflown	Not taken forward	
Minimise the numbers of population newly overflown	Not taken forward	
Design simple airspace boundaries to enable easier navigation for GA airspace users	Should minimise the impact on other airspace users through; a. Keeping CAS requirements to a minimum b. Simple airspace boundaries c. Allowing flexible use of airspace, where possible	Principles combined
Airspace should not constraint the airport's capacity	Should not constraint the airport's capacity	Taken forward by Change Sponsor

Design Principles – Further Suggestions

Proposed Design Principle	Proposed Final Wording	Comment
Where Controlled Airspace is established, options for flexible use of airspace should be detailed	Should minimise the impact on other airspace users through; a. Keeping CAS requirements to a minimum b. Simple airspace boundaries c. Allowing flexible use of airspace, where possible	Incorporated into single principle
Routes should be minimised		
Classification of CTA/CTR's to be such that they enable access to all airspace users, where appropriate		

Air Navigation Guidance 2017 (ANG17)

1.3 In order to deliver this policy, decisions which affect how aircraft noise is best distributed should be informed by local circumstances and consideration of different options. Options, and appraisal of the pros and cons, may include concentrating traffic on single routes, which normally reduce the number of people overflown, versus the use of multiple routes which can potentially provide relief or respite from noise if routes can be sufficiently separated.

3.3a. In the airspace from the ground to below 4,000ft the government's environmental priority is to limit and, where possible, reduce the total adverse effects on people;

e. Where practicable, it is desirable that airspace routes below 7,000ft should seek to avoid flying over Areas of Outstanding National Beauty (AONB) and National Parks; and

f. All changes below 7,000ft should take into account local circumstances in the development of the airspace design, including the actual height of the ground level being overflown....

3.8 There may however be options which perform comparatively better in terms of minimising more serious impacts as opposed to annoyance, or certain options may be better for day noise than night noise, or vice versa. In these instances, the CAA should verify that sponsors have considered the relative trade-offs and taken into account any community views on what the objective in terms of noise should be.

ANG17 Continued...

3.18 In terms of noise, a single route will, generally, tend to affect fewer people overall compared to multiple routes. It may mean however that more people are exposed to higher levels of noise where there is a greater risk of adverse effects, than if noise was more dispersed.

3.19 As stated in section 1.3, decisions on how aircraft noise is best shared should be informed by local circumstances and considerations of the different options that are deemed to be practicable. This consideration should include the pro's and cons of concentrating traffic on single routes which normally reduce the number of people overflown, versus the use of multiple routes which can potentially provide relief or respite from noise but increase the number overflown overall.

3.20 This means there will be situations when multiple routes, that expose more people overall to noise but to a lesser extent, maybe better from a noise perspective.

3.23 Improvements in aircraft track-keeping also offer the potential for aircraft to be more concentrated along a defined route, if desired, as well as providing the potential for routes to be alternated to introduce an element of limited respite for those under the routes.

CAP 1616 - Prioritisation

- CAP1616 highlights that design principles can be contradictory, for example where avoiding one kind of impact is likely to increase another:

“Where possible these discussion must identify whether stakeholders can identify common priorities, although the CAA acknowledges that unanimous agreement on the principles may be unlikely. Some of the principles may contradict one another and some may be prioritised over others”.

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CAP 1616 - Prioritisation

FASI-S Design Principles – Proposed Final List

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe* • Avoid significant adverse impacts on health & quality of life • Mitigate & minimise adverse impacts on health & quality of life • Where possible, contribute to the improvement of health & quality of life
3	Must meet local air quality requirements
4	Should be a minimum PBN specification, to be determined during Stage 2A
5	Should not constrain the airport's capacity
6	Should provide a more equitable distribution of traffic where possible, to reduce significant and adverse impacts of noise enabled through; • Use of alternative route structures for respite • Overflight of commercial and industrial areas • Overflight of parks and open spaces at night
7	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
8	Should avoid overflying communities with multiple routes, including routes from other airports, below 7000ft
9	Should minimise tactical intervention by ATC below 7000ft
10	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

* It is implicit that any ACP will be required to meet the requirements of the Air Navigation Guidance 2017

Discussion & Questions

Next Steps for Design Principles

- We will produce a summary of this session for all attendees, including the final list of Design Principles for submission to the CAA.

- We will prepare our submission for the CAA, including the records of meetings and all the feedback we have received. This will be submitted to the CAA by 10th May 2019.

- A redacted version of the submission will be available on the portal shortly after 10th May 2019.

London Luton Airport Airspace Change Proposal Design Principles

11 April 2019 at 11:41

Good Morning,

In 2017, through the Upgrading UK Airspace, Strategic Rationale the Department for Transport notified aviation stakeholders that the current controlled airspace in southern England is capacity constrained. In order to modernise the overall airspace and route network the Future Airspace Strategy Implementation-South programme has been established, of which London Luton Airport Operations Ltd (LLAOL) is part of.

LLAOL is planning to use this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival, enabling significant environmental benefits.

A crucial part of the airspace change process is engagement with our stakeholders. As a key stakeholder, LLAOL would like you to be involved.

We have begun Stage 1B of the CAP1616 Process, Design Principles, and we have had some very useful workshops with London Gliding Club and local community representatives. Their feedback, along with feedback from FLOPSC (Flight Operations Safety Committee), the BGA & A4A has produced the attached list of proposed Design Principles for the FASI-S Airspace Change Proposal.

We would very much appreciate your feedback on these proposed principles or if you have any further suggestions to make. We would like to receive your feedback by Friday 26th April 2019 and we can then incorporate it with the feedback from our other stakeholders and produce our final list of prioritised Design Principles for submission to the CAA, in May 2019.

Thank you very much for your assistance, if you have an estions please get in touch.

FASI-S Design Principles – Proposed Final List

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof.
3	Should not constrain the airport's capacity, providing the environmental objectives/requirements have been met
4	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
5	Should provide a equitable distribution of traffic where possible, through eg; • Use of multiple routes • New route structures • Options (mechanisms) for respite
6	Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7000ft
7	Should minimise tactical intervention by ATC below 7000ft
8	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

London Luton Airport Airspace Change Proposal Design Principles

11 April 2019 at 16:47

Good Afternoon,

In 2017, through the Upgrading UK Airspace, Strategic Rationale the Department for Transport notified aviation stakeholders that the current controlled airspace in southern England is capacity constrained. In order to modernise the overall airspace and route network the Future Airspace Strategy Implementation-South programme has been established, of which London Luton Airport Operations Ltd (LLAOL) is part of.

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A crucial part of the airspace change process is engagement with our stakeholders. As a key stakeholder, LLAOL would like you to be involved.

We have begun Stage 1B of the CAP1616 Process, Design Principles, and we have had some very useful workshops with London Gliding Club and local community representatives. Their feedback, along with feedback from FLOPSC (Flight Operations Safety Committee), the BGA & A4A has produced the attached list of proposed Design Principles for the FASI-S Airspace Change Proposal.

We would very much appreciate your feedback on these proposed principles or if you have any further suggestions to make. We would like to receive your feedback by Friday 26th April 2019 and we can then incorporate it with the feedback from our other stakeholders and produce our final list of prioritised Design Principles for submission to the CAA, in May 2019.

Thank you very much for your assistance, if you have any questions please get in touch.

Best regards

From: [redacted]
Sent: 30 April 2019 20:49
To: [redacted]
Cc: [redacted]
Subject: Chilterns AONB & Airspace Developments associated with London Luton Airport

Dear [redacted]

Thank you for the meeting today, it was very useful to hear directly about the Luton Airport airspace change proposals and I appreciate the amount of time you gave us.

The Chilterns Conservation Board would be supportive of changes that reduce noise over the Chilterns, and we can see that the proposals for higher climbs, steeper descents, the end of stacking and quieter planes are likely to be positive. Conversely we are likely to oppose proposals which harm tranquillity in the Chilterns AONB. From your summary, it seems the AD6 proposals are likely to involve no change for the Chilterns AONB, and the FASI-S project is where we should focus our time as stakeholders.

Our initial response on the FASI-S Design Principles you showed us are:

1. Chilterns Conservation Board should have been involved sooner. The Chilterns

Conservation Board is the statutory independent corporate body for the Chilterns Area of Outstanding Natural Beauty, set up by Parliamentary Order under the provisions of Section 86 of the Countryside and Rights of Way (CRoW) Act 2000. The Chilterns Conservation Board is a statutory consultee for National Policy Statement consultations, a prescribed consultee for major infrastructure projects that affect the Chilterns AONB and an interested party for examinations in connection with Nationally Significant Infrastructure Projects that may affect the Chilterns AONB (as set out in the Infrastructure Planning (National Policy Statement Consultation) Regulations (2009), the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) and the Infrastructure Planning (Interested Parties) Regulations (2010)). We are concerned that the Focus Group has been predominately resident and local authority dominated (apparent from the Design Principles matrix and its results) and has not so far included either local or national bodies with a remit for the AONB. We suggest you also include the

Chilterns Conservation Board, the Chiltern Society, and Natural England (as the statutory consultee which oversees protected landscapes of National Parks and AONBs), plus organisations to represent visitors and the recreation sector. As a nationally protected landscape on the doorstep of London and many large settlements, the tranquillity of the Chilterns AONB is of national importance, not just to local residents, but visitors and tourists too.

2. The Chilterns AONB is nationally protected as one of the finest areas of countryside in the UK. Public bodies and statutory undertakers have a statutory duty of regard to the purpose of conserving and enhancing the natural beauty of the AONB (Section 85 of CroW Act 2000). There is further advice on this in CAP1616 including a link to the DEFRA, Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONB) and the Norfolk and Suffolk Broads Guidance Note, 2005. The process for both AD6 and FASI-S should ensure that you have both had regard to the AONB and demonstrated that you have done it; see CAP161 para B77: “Change sponsors are required to have regard to these statutory purposes when developing airspace change proposals”.

3. At the moment the Design Principles are lacking any reference to conserving and enhancing the natural beauty of the Chilterns AONB. As an airport with flightpaths directly over the AONB, it is relevant to include a design principle referring to and giving consideration to the AONB. We suggest:

“Safeguard the tranquillity of the nationally protected landscape of the Chilterns AONB”

4. Adding a Design Principle on the AONB is needed because the current proposed principle on meeting government policy is too broad. The AONB is likely to get overlooked among the myriad of other policy considerations. As drafted it is not a useful principle because no option can meet every element of government policy, so no option is likely to score ‘yes’ or ‘no’ in the clear and useful way you need for assessing options. Also as drafted it does not mention complying with legislation (of which there will be many relevant laws, for example the Countryside and Rights of Way Act 2000 on the AONB, and others on conservation areas, listed buildings, biodiversity etc).

5. The assessment of tranquillity in the AONB should involve more than testing whether noise levels breach 57 dB LAeq 16hr and 48 dB LAeq8hr.

   The assessment should give weight to the AONB as a national asset and recognise that people walking, running, cycling, riding or volunteering in the AONB are likely to be outside and seeking peace, so are especially noise sensitive. The EIA should assess where people visit for leisure time and when people are more likely to be outdoors in the Chilterns Area of Outstanding Natural Beauty (AONB). It would be informed by mapping areas for existing ambient noise levels and ensuring that quiet areas of protected countryside remain as quiet as possible, recognising their importance for quiet recreation, health and wellbeing. We would be happy to assist with design of a study of tranquillity for the Luton airspace project if helpful.

6. We suggest considering mobile noise monitoring at locations in the AONB around Tring,

   and at key visitor destinations like the National Trust's Ashridge Estate, Ivinghoe Beacon, the Dunstable Downs, Sharpenhoe Clappers, and Galley and Warden Hills.

I hope this is helpful and if can assist further with the Design Principles before your submission deadline to the CAA, please don't hesitate to get in touch.

Kind regards,

Planning Officer

Chilterns Conservation Board

01844 355507

planning@chilternsaonb.org

Follow us on Twitter, Facebook www.chilternsaonb.org

Areas of Outstanding Natural Beauty are some of the most beautiful and cherished landscapes in Britain. They need to be cared for, now and in the future.

From: [redacted]
Sent: 09 May 2019 11:30
To: [redacted]
Subject: London Luton Airport Airspace Modernisation Programme (FASI-S) design principles workshop - 5th April 2019

Good Morning,

Thank you very much for attending the second FASI-S Design Principles Workshop on the 5th April 2019.

Please find attached a copy of the presentation that you received and the meeting notes from the workshop.

As we discussed in the meeting, we are now putting together the Stage 1 gateway submission document for the CAA. Once complete, this will be uploaded to the CAA's portal here. I will also send a notification email to everyone when this is uploaded.

Kind regards,

[redacted]

London Luton Airport Operations Ltd (LLAOL) - FASI-S ACP

Meeting Notes from Workshop 2 – Design Principles

Held on 5th April 2019 at Putteridge Bury Campus

Attendees

[redacted] - LLAOL	[redacted] – Aylesbury Vale District Council
[redacted] - LLAOL	[redacted] – Bucks County Council
[redacted] - LLAOL	[redacted] – Hertfordshire County Council
[redacted] – Trax International	[redacted] – Herts County Council Officer
[redacted] Trax International	[redacted] – Dacorum BC
[redacted] – Trax International	[redacted] – LADACAN
[redacted] – Harpenden Sky	[redacted] – St Albans Quieter Skies
[redacted] – Central Beds Council	[redacted] – York Aviation (representing LLAL)
[redacted] - PAIN	[redacted] - LLATVCC
[redacted] - Bickerdike Allen & Partners (Noise Consultant)	[redacted] – North Herts
[redacted] – Independent Chair	[redacted] – Luton BC
[redacted] – Buckinghamshire and Milton Keynes Association of Local Councils	

Overview	LLAOL invited members of the LLACC, NTSC and Local Authorities to attend a second FASI-S Design Principles workshop on 5th April 2019. The workshop intended to discuss the feedback that LLAOL had received to previous engagement activities and agree and prioritise the final proposed list of Design Principles (set out in table 1).
Purpose	The purpose of the workshop was to follow up on the Design Principle Matrix that was distributed following the previous workshop, held on 27th February 2019 and incorporates feedback from local community stakeholders, environmental representatives, General Aviation and Commercial Air Transport. The latest version of the proposed Design Principle Matrix had been sent in advance to the members of the London Luton Consultative Committee (LLACC), the Noise and Track Keeping Sub-Committee (NTSC) and Local Authorities within the areas that may be impacted by the ACP.

	All those who received the matrix had previously been given 3 weeks in which to provide feedback on the current set of proposed Design Principles and make suggestions to add or amend the Principles. Workshop 2 on April 5th 2019 was arranged to further consider the feedback provided by all stakeholders to date, resolve any issues and agree upon a final prioritised list of Design Principles for the LLAOL FASI-S airspace change proposal (ACP).
Discussion	The independent chairman and facilitator opened the workshop with a positive comment regarding the number of attendees at the workshop and at previous engagements that demonstrates a good level of interest in the project from a broad mix of stakeholders and a willingness to contribute to the process. Trax gave a recap on the previous Design Principles definition workshop in February 2019 and the associated engagement activities that followed. Stakeholders sought further clarification about the scope and objectives of the overall FASI-S programme and the approach that will be followed to ensure all airports ACPs and the NATS network ACP will be aligned. Trax delivered the presentation circulated in advance that summarised the feedback received from all stakeholders following the first round of Design Principle engagement and opened up the discussion to stakeholders to offer further views regarding the terms of the proposed Design Principles and how they should be prioritised. A summary of the conversation with stakeholders is set out in the points a) to n) below: a) Some stakeholders considered certain Design Principle proposals as 'obvious; and as a result, may not need to be included, for example DP1 - 'the Airspace Design Must be Safe'. Although, obvious and agreeable to all stakeholders, Design Principles such as 'Must be Safe' will be retained in the final submission because they will have a central role in the way that airspace design options are defined, evaluated and discounted as the CAP1616 process progresses. b) Trax provided a high-level explanation of the overall concept of operations developed by NATS to redesign the London terminal route network that aims to provide each airport with dedicated arrival and departure 'tubes', which are separated from other airport routes by design, thus requiring significantly less tactical intervention from air traffic controllers. Stakeholders agreed that the new concept should be focused on enabling continuous climb and descent operations as covered in DP4. c) Trax provided a brief overview of the technical specification that the airspace will be designed from an aircraft navigation and air traffic management perspective. A Design Principle proposal to require the use of advanced navigation standards in the airspace design options was removed by stakeholders because it was considered a necessary solution to the problem set out in the Statement of Need, rather than a principle per se. d) Stakeholders requested that airspace design options which minimise tactical intervention below 7000ft are included as a Design Principle for the Luton FASI South ACP in line with the ambitions set out in the NATS network concept of operations. This is covered in DP7.

e) Stakeholders considered the existing traffic growth forecasts and masterplan ambitions of airports in Southern England and highlighted the challenges associated with introducing sufficient additional airspace capacity to service such high levels of forecast demand. The group agreed that traffic forecasts and their implications for additional airspace capacity as part of the Luton FASI South ACP should be considered as part of DP3.

f) Stakeholders considered the implications of traffic growth on the frequency of aircraft noise events in different airspace design options and highlighted the importance of defining how intensively each route may be used as the airport grows following the implementation of the airspace change. The group agreed that the considerations about the level, frequency and distribution of aircraft noise associated with ACP (and capacity increases it may enable) are well captured under DP2. Stakeholders expect to review the analysis of noise impacts in the terms describe in the NPSe and ANG 2017 during stage 2 of the CAP1616 process.

g) Stakeholders discussed the principle of avoiding noise sensitive buildings and raised concerns about the process by which noise sensitive buildings, and more broadly, noise sensitive areas will be identified. The terms in which a building or area is to be defined as particularly noise sensitive (and their relative importance, and to whom) was also unclear. The group agreed that the considerations about noise sensitive buildings and areas will be adequately captured as part of a broader principle about alignment with the aims of the National Policy Statement and the 2017 Air Navigation Guidance. It was pointed out that some organisations with a particular interest in established noise sensitive buildings and areas, such as Historic England, are statutory consultees within the airspace change process and will have further opportunities to input into the options development, assessment and consultation processes during Stages 2 and 3 of CAP1616.

h) The group discussed the ambition and approach to achieving and/or retaining an equitable distribution of traffic (DP5) through the airspace design by (where possible) deploying multiple route options, entirely new routes and other mechanisms that may offer predictable relief from aircraft noise. There was a recognition from stakeholders that the ambition for an equitable distribution of traffic may at times lead to new areas being overflown creating environmental impacts on those who have not experienced significant aircraft noise before. Stakeholders highlighted that the relationship between DP5 and DP2 is a key area where trade-off decisions will need to be made when considering the FASI South airspace design options for Luton and looked forward to being engaged in the process during stage 2.

i) Stakeholders considered the definition of an overflight that will be particularly important when applying DPs 2 and 5 to the potential airspace design options. LLAOL confirmed that the definition of an overflight set out in CAA CAP1498 would be adopted as a working assumption when the ACP moves into Stage 2.

j) Stakeholders expressed their preference for a principle about the interaction between Luton's airspace design options and the traffic flows from neighbouring airports. Stakeholders would like to ensure due consideration of options that prevent outbound traffic flows from other airports having a detrimental effect on the

environmental performance of Luton departures. DP6 was modified to incorporate the feedback.

k) Stakeholders considered the pros and cons of a 'Design Envelope' consultation as recently run by Heathrow at the start of stage 2. The consensus of the group was that a Design Envelope consultation was unlikely to be the preferred direction of LLAOL's FASI-S ACP at this time.

l) Stakeholders were briefed on the other groups that have been engaged to help shape the proposed Design Principles including aircraft operators from the Commercial Air Transport and General Aviation sectors. LLAOL confirmed that redacted versions of all feedback received would be available on the CAA Portal, following the submission of the Design Principles.

m) Following the completion of Stage 1 of the CAP1616 process, stakeholders requested that a clear timeline for the definition and evaluation of the airspace design options is shared in good time for the group to remain actively engaged in the process.

n) Trax provided an overview of how it is envisaged that the final set of Design Principles will be used during Stage 2 of CAP1616 to guide the evaluation of a comprehensive list of options that may address the Statement of Need and the appraisal of preferred options, at which time the same group of stakeholders will be engaged again to offer feedback on the more detailed work.

Outcomes

At the end of the discussions, the independent chair and facilitator summarised the outcomes of the conversations and then, as a group, the stakeholders agreed a prioritised list of Design Principles to take forward to the Define Gateway, as summarised in table 1.

	Design Principle
1	Must be safe
2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof.
3	Should not constrain the airport's capacity, providing the environmental objectives/requirements have been met
4	Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that
5	Should provide an equitable distribution of traffic where possible, through eg; • Use of multiple routes • New route structures • Options (mechanisms) for respite
6	Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7000ft
7	Should minimise tactical intervention by ATC below 7000ft
8	Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum

- Simple airspace boundaries
- Allowing flexible use of airspace, where possible

Following this workshop, the change sponsor LLAOL confirmed they would produce a formal submission for the Define Gateway to the CAA on 10th May 2019.

LLAOL FASI-S Design Principles

Appendix 3 – Design Principle Feedback

Response by: [redacted] LLATVCC

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	*						
Must be technically viable	*						Must be flyable by all likely users of LLA
Should be a minimum PBN specification	*						I hope that this implies RNP standards
Must comply with ANG17 & NPSe	*						Including routes aimed at achieving lowest-CO2
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	*						And at a good climb gradient: 10 degrees would be a suitable target that can be consistently achieved.
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		*					The less vectoring the better – reduced variability of the noise fallout.
Avoid noise sensitive buildings and sites below 4000ft		*					Definition of “sensitive” will be a challenge
Avoid conservation areas below 4000ft		*					Remember that around Luton much of the land is at least 500ft amsl.
Consider different routes for day/night use				*			Contravenes ANG17: aim is for the least number of practicable routes

LLAOL FASI-S Design Principles

Consider use of alternative route structures to provide predictable & effective respite							Contravenes ANG17: aim is for the least number of practicable routes and minimising the numbers overflown. Bear in mind CAP1498 and the lateral spread of “overflight” noise.
Avoid overflying communities with multiple routes		*					The effect of arrivals seems to have been underplayed: and it is difficult to see how this could apply to Breachwood Green which gets 70% of arrivals and 30% of departures.
Fairer distribution of noise for those significantly affected				*			Contravenes ANG17: aim is minimising the numbers overflown. How would “fairness” be evaluated in the light, for example, of the 70/30 runway direction factor?
Routes should be designed and operated so as to provide an equitable distribution of traffic				*			Seems impractical: the choice of departure route is dictated by ultimate destination and wind direction. Remember the CO2 issue.
Minimise the total numbers of population overflown	*						As per ANG17, which reflects long-standing policy
Minimise the numbers of population newly overflown	*						Even more important: it's more than likely that such communities wouldn't know what was being proposed for them.
Prioritise routes over commercial and industrial areas			*				Seems impractical in the LLA context: what happens on either side of such areas? The suggestion to fly along motorways looks attractive, but bear in mind CAP1498 and the lateral spread of “overflight” noise.

LLAOL FASI-S Design Principles

Prioritise parks and open spaces, rather than residential areas				*			This would have perverse effects, particularly at night.
Minimise populations effected by NOx emissions below 1000ft		*					A worthy objective: but how would success be monitored? And since aircraft are above 1000ft amsl by the time they pass the runway ends the population numbers are minuscule.
Airspace should not constrain the airport's capacity				*			It's an unfortunate fact of life: it will as airspace, and LLA's share of it, is not limitless.
Minimise impact on other airspace users		*					Do unto others.... One hopes that others are equally thoughtful.
Keep Controlled Airspace requirements to a minimum		*					
Design simple airspace boundaries to enable easier navigation for GA airspace users			*				GA is a rather broad definition: most of LLA's GA users are as well instrumented as commercials. This seems to be aimed at the PPL sector.
Continuous Climb/Descent	*						

Response by: [redacted]

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	*						
Must be technically viable	*						
Should be a minimum PBN specification	*						

LLAOL FASI-S Design Principles

Must comply with ANG17 & NPSe	*						N.B. ANG17 implies minimal significant adverse noise impact, not minimising people overflown
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	*						
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		*					
Avoid noise sensitive buildings and sites below 4000ft	*						
Avoid conservation areas below 4000ft	*						
Consider different routes for day/night use			*				May not comply with ANG17
Consider use of alternative route structures to provide predictable & effective respite			*				May not comply with ANG17
Avoid overflying communities with multiple routes		*					
Fairer distribution of noise for those significantly affected			*				May not comply with ANG17

LLAOL FASI-S Design Principles

Routes should be designed and operated so as to provide an equitable distribution of traffic			*				Only if complies with ANG17
Minimise the total numbers of population overflown				*			Needs rewording" to minimise the number of people experiencing significant adverse noise impact" not "overflown". Overflying at 10,000 ft is not an issue.
Minimise the numbers of population newly overflown				*			As above
Prioritise routes over commercial and industrial areas				*			Needs rewording to include "only if this eases residential disturbance"
Prioritise parks and open spaces, rather than residential areas				*			Parks at least should be respite areas.
Minimise populations effected by NOx emissions below 1000ft	*						Needs balancing with noise impact
Airspace should not constrain the airport's capacity				*			
Minimise impact on other airspace users		*					Must be a two way street
Keep Controlled Airspace requirements to a minimum		*					Already broken by latest NATs airspace plan
Design simple airspace boundaries to enable			*				

LLAOL FASI-S Design Principles

easier navigation for GA airspace users							
Continuous Climb/Descent	*						

Response by: ……NetJets Europe…

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	X						
Must be technically viable	X						
Should be a minimum PBN specification		X					
Must comply with ANG17 & NPSe		X					
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	X						
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		X					
Avoid noise sensitive buildings and sites below 4000ft		X					
Avoid conservation areas below 4000ft		X					
Consider different routes for day/night use		X					
Consider use of alternative route structures to provide predictable & effective respite		X					
Avoid overflying communities with multiple routes		X					
Fairer distribution of noise for those significantly affected		X					

LLAOL FASI-S Design Principles

Routes should be designed and operated so as to provide an equitable distribution of traffic		X					
Minimise the total numbers of population overflown		X					
Minimise the numbers of population newly overflown		X					
Prioritise routes over commercial and industrial areas		X					
Prioritise parks and open spaces, rather than residential areas		X					
Minimise populations effected by NOx emissions below 1000ft		X					
Airspace should not constrain the airport's capacity			X				
Minimise impact on other airspace users		X					
Keep Controlled Airspace requirements to a minimum	X						
Design simple airspace boundaries to enable easier navigation for GA airspace users		X					
Continuous Climb/Descent	X						

Response by: [redacted] ***BMKALC***

Design Principle	**Strongly Agree**	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**	**Should not be considered**	**Comments**
Must be safe	*						
Must be technically viable	*						

LLAOL FASI-S Design Principles

Should be a minimum PBN specification	*						• "PBN spec." and "minimum" must be defined / quantified at the outset. • And what about aircraft that are not appropriately kitted out / capable of the desired spec; and/or pilots that are not PBN trained / qualified?
Must comply with ANG17 & NPSe	*						• Note that ANG17 is concerned with minimal significant adverse noise impact (as officially defined and measured), which is different from minimising headcount overflown; i.e. it does NOT mean a mandatory avoidance of built-up areas. • Care re lateral noise (CAP 1498). • Also note that ANG17 compliance includes minimising fuel burn and emissions.
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that		*					• The angle of ascent / descent makes a noticeable difference to noise and fuel burn, and this should be factored into the design impact. • Also note that a turning aircraft needs engine thrust and is therefore noisier, so "CA/CD" with a turn would not achieve the desired results.
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft				*			If all else works well subject to a modest amount of routine intervention, then NATS will have to compromise
Avoid noise sensitive buildings and sites below 4000ft				*			• Difficulty in defining what a noise-sensitive building is and what would be impacted if these were avoided, e.g. low-ambient noise residential area. • Care re CAP1498
Avoid conservation areas below 4000ft	*						• Need to be clarify what is meant by cons. area, e.g. AONB, SSSIs, SAMs, village and town historic centres, etc. • Care re CAP1498
Consider different routes for day/night use			*				Contravenes requirement for minimum number of routes

LLAOL FASI-S Design Principles

Consider use of alternative route structures to provide predictable & effective respite						*	Contravenes requirement for minimum number of routes. Multiple routes would facilitate greater throughput.
Avoid overflying communities with multiple routes	*						• Need to be explicit whether we mean arrivals / departures and/or wind direction. • Care re CAP1498
Fairer distribution of noise for those significantly affected			*				• This duplicates other criteria • What is meant by “Fairer” and “Significantly”?
Routes should be designed and operated so as to provide an equitable distribution of traffic						*	• How define “Equitable”? • Duplicates other criteria
Minimise the total numbers of population overflown						*	• See above: ANG17 actually says minimise the number of people experiencing significant adverse noise impact” not “overflown”. • Care re CAP1498
Minimise the numbers of population newly overflown		*					• What is the baseline for being overflown currently? • Some communities are not under an actual flightpath but the number of vectored / expedited planes is still significant. • Could this be reworded to “Minimise the number of communities newly overflown? • Care re CAP1498
Prioritise routes over commercial and industrial areas	*						• But depends what is either side of such areas • Care re CAP1498
Prioritise parks and open spaces, rather than residential areas					*		• These areas, e.g. the Chilterns, provide necessary respite and recreation, not just from aircraft noise. • Indeed, one design criteria should be to minimise increased impact over the Chilterns.
Minimise populations effected by NOx emissions below 1000ft						*	NOx emissions from aircraft are insignificant compare to those from surface access, per recent Heathrow study.

LLAOL FASI-S Design Principles

Airspace should not constrain the airport's capacity						*	Contradicts all the safety and environmental criteria and contravenes principle of sustainable development
Minimise impact on other airspace users		*					Formal legacy agreements must be respected
Keep Controlled Airspace requirements to a minimum			*				Does this mean limit the volume of CAS, or limit NATS' workload, or pilot's workload? Needs clarification.
Design simple airspace boundaries to enable easier navigation for GA airspace users			*				I understand most GA has "ALERT" kit that warns when coming close to an aispace boundary
Continuous Climb/Descent		*					Isn't this a duplication of that above?

Response by: [redacted] easyJet Base Captain Luton

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	Yes						
Must be technically viable	Yes						
Should be a minimum PBN specification	Yes						
Must comply with ANG17 & NPSe	Yes						
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that		Yes					
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		Yes					
Avoid noise sensitive buildings and sites below 4000ft	Yes						
Avoid conservation areas below 4000ft	Yes						
Consider different routes for day/night use			Yes				
Consider use of alternative route structures to provide predictable & effective respite			Yes				

LLAOL FASI-S Design Principles

Avoid overflying communities with multiple routes		Yes					
Fairer distribution of noise for those significantly affected		Yes					
Routes should be designed and operated so as to provide an equitable distribution of traffic				Yes			
Minimise the total numbers of population overflown			Yes				
Minimise the numbers of population newly overflown			Yes				
Prioritise routes over commercial and industrial areas		Yes					
Prioritise parks and open spaces, rather than residential areas		Yes					
Minimise populations effected by NOx emissions below 1000ft		Yes					
Airspace should not constrain the airport's capacity			Yes				
Minimise impact on other airspace users			Yes				
Keep Controlled Airspace requirements to a minimum			Yes				
Design simple airspace boundaries to enable easier navigation for GA airspace users		Yes					
Continuous Climb/Descent	Yes						

LLAOL FASI-S Design Principles

From: [redacted]
Sent: 26 March 2019 15:08
To: [redacted]
Subject: Airspace Change Proposals

Dear Sirs,

Please find attached the duly completed design principle matrix in connection with your airspace change proposals.

As an operator we are focussed on ensuring that the solutions provide sufficient access to this busy corner of the UK. Obviously if that can also be done with increased efficiency with constant climbs and descents then this would be the preferred option.

We fully understand that as the sponsor of these changes you have very many interests to balance and often these are in competition with one another. Having a content local community does reduce workload as well as meet the expectations of the process.

Having being involved in airspace change issues before I wish you the best of luck in these endeavours.

Whilst I am sure you do not need any advice when it comes to consultations etc… I would stress that communication remains key. Even if you have bad news to deliver to various stakeholders it is always better than an information vacuum.

Such voids will always be filled by rumour, gossip and distorted versions of the truth.

Best of luck,

[redacted]

[redacted]

DHL Air Limited
EMA Cargo West
East Midlands Airport
Derby

LLAOL FASI-S Design Principles

Response by: …DHL AIR LTD

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	X						
Must be technically viable	X						
Should be a minimum PBN specification			X				
Must comply with ANG17 & NPSe		X					
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that		X					
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		X					
Avoid noise sensitive buildings and sites below 4000ft		X					
Avoid conservation areas below 4000ft			X				
Consider different routes for day/night use			X				
Consider use of alternative route structures to provide predictable & effective respite			X				
Avoid overflying communities with multiple routes			X				
Fairer distribution of noise for those significantly affected			X				
Routes should be designed and operated so as to provide an equitable distribution of traffic			X				
Minimise the total numbers of population overflown		X					
Minimise the numbers of population newly overflown			X				
Prioritise routes over commercial and industrial areas		X					

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Prioritise parks and open spaces, rather than residential areas		X					
Minimise populations effected by NOx emissions below 1000ft			X				
Airspace should not constrain the airport's capacity		X					
Minimise impact on other airspace users			X				
Keep Controlled Airspace requirements to a minimum			X				
Design simple airspace boundaries to enable easier navigation for GA airspace users		X					
Continuous Climb/Descent	X						

LLAOL FASI-S Design Principles

Response by: [redacted] HATTC Rep

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	✓						
Must be technically viable	✓						
Should be a minimum PBN specification			✓				
Must comply with ANG17 & NPSe			✓				
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	✓						
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft			✓				
Avoid noise sensitive buildings and sites below 4000ft	✓						
Avoid conservation areas below 4000ft	✓						
Consider different routes for day/night use	✓						
Consider use of alternative route structures to provide predictable & effective respite	✓						THIS IS CRITICAL TO ALL.
Avoid overflying communities with multiple routes	✓						

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Fairer distribution of noise for those significantly affected	✓						CRITICAL
Routes should be designed and operated so as to provide an equitable distribution of traffic	✓						CRITICAL.
Minimise the total numbers of population overflown						✓	
Minimise the numbers of population newly overflown						✓	
Prioritise routes over commercial and industrial areas		✓					
Prioritise parks and open spaces, rather than residential areas				✓			
Minimise populations effected by NOx emissions below 1000ft			✓				
Airspace should not constrain the airport's capacity						✓	
Minimise impact on other airspace users						✓	
Keep Controlled Airspace requirements to a minimum			✓				
Design simple airspace boundaries to enable easier navigation for GA airspace users						✓	
Continuous Climb/Descent		✓					

LLAOL FASI-S Design Principles

Response by: **STAQS (St. Albans Quieter Skies)**

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	x						Waste of a question
Must be technically viable	X						
Should be a minimum PBN specification			x				
Must comply with ANG17 & NPSe			x				
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that		x					
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		x					
Avoid noise sensitive buildings and sites below 4000ft				X			No, same treatment for all. 4000 is an arbitrary altitude that makes little difference in the real world.
Avoid conservation areas below 4000ft					x		
Consider different routes for day/night use		x					
Consider use of alternative route structures to provide predictable & effective respite		x					Yes but can see issues
Avoid overflying communities with multiple routes		X					Yes. Multiple routes must include routes to/from other airports.
Fairer distribution of noise for those significantly affected	x						Yes, definitely
Routes should be designed and operated so as to provide an equitable distribution of traffic	x						Yes definitely
Minimise the total numbers of population overflown			x				Definition of "overflown" needs further work & clarification.

LLAOL FASI-S Design Principles

Minimise the numbers of population newly overflown				x			
Prioritise routes over commercial and industrial areas			x				Sounds good but it surely Depends on size, exact location of commercial industrial area – eg Porters Wood industrial estate – totally unsuitable for this treatment.
Prioritise parks and open spaces, rather than residential areas		X					Using the definition that parks and open spaces are to be overflown in preference to residential areas.
Minimise populations effected by NOx emissions below 1000ft			x				Unsure. Sounds good but worried this is a Trojan horse for a 2nd runway to minimize taxiing time
Airspace should not constrain the airport's capacity					X		Availability of airspace should be considered first – and must be a constraint on an airports capacity.
Minimise impact on other airspace users					X		Hundreds of commercial aircraft every day should not take second place to recreational pilots.
Keep Controlled Airspace requirements to a minimum			x				
Design simple airspace boundaries to enable easier navigation for GA airspace users					X		Prioritise residents
Continuous Climb/Descent		x					

LLAOL FASI-S Design Principles

Response by: Kings Walden Parish Council

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	X						Considering the topography of the land around Luton Airport and the shortness of the runway, can it ever be totally safe?
Must be technically viable	X						
Should be a minimum PBN specification	X						
Must comply with ANG17 & NPSe	X						
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	X						Review climb factor for BWG Village
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	X						
Avoid noise sensitive buildings and sites below 4000ft	X						Local School. Old Church, Playing Fields, Countryside area, wildlife
Avoid conservation areas below 4000ft						X	Not in Conservation area
Consider different routes for day/night use	X						Daytime noise when aircraft take off is the biggest problem
Consider use of alternative route structures to provide predictable & effective respite	X						Allow 10% drift to southern routes
Avoid overflying communities with multiple routes	X						
Fairer distribution of noise for those significantly affected	X						
Routes should be designed and operated so as to provide an equitable distribution of traffic						X	Depends on needs of airspace

LLAOL FASI-S Design Principles

Minimise the total numbers of population overflown					X		Priority should be given to the population closest to the airport and therefore subject to the most noise
Minimise the numbers of population newly overflown					X		As above
Prioritise routes over commercial and industrial areas						X	Not in Industrial area Better to fly over industrial areas that are already noisy, rather than quiet countryside
Prioritise parks and open spaces, rather than residential areas						X	Use parks/open spaces at night, Industrial by day?
Minimise populations effected by NOx emissions below 1000ft	X						
Airspace should not constrain the airport's capacity						X	Capacity is determined in any case by precedence
Minimise impact on other airspace users	X						
Keep Controlled Airspace requirements to a minimum	X						
Design simple airspace boundaries to enable easier navigation for GA airspace users	X						
Continuous Climb/Descent	X						

LLAOL FASI-S Design Principles

From: [redacted]
Sent: 02 April 2019 16:10
To: [redacted]
Cc: [redacted]
Subject: RE: London Luton Airport Airspace Modernisation Programme

Hi [redacted]

Sorry for being a little late but please see our comments below and the attached completed form.

Thank you for the opportunity to comment on this early stage of the Luton Airport Airspace Modernisation programme.

Dealing firstly with the design principles, these are generally ones I am sure we would all support and I attach our generally supportive response. As you can see, the only one we would question is the proposal to concentrate the noise on parks and open spaces. Open spaces yes, but surely, we should try to preserve the tranquillity of parks for people to enjoy? Accordingly, we recommend that parks should come under a separate heading and be allocated a different priority.

Turning to the PowerPoint, again we would have no cause to question the principles and so only offer comment as invited on Slide 16. In respect of the Business Aviation and larger aircraft GA community, we would urge that the sector be given fair and equitable access to both airspace and the airport. In addition, every opportunity should be taken in the redesign of the airspace to utilise the new technologies now available in these aircraft, with full advantage being taken of GNSS/SBAS to develop LPV approaches and point in space navigation. These can be tailored to local need, best to meet the objectives you have set out and which we have generally supported in Annex 2. Indeed, such technologies provide huge opportunities to enhance both safety and the environment , particularly in respect of minimising the noise impact of activity growth, through greater use of continuous decent, steep and curved approaches, as appropriate. Yet in UK we are VERY badly behind our US counterparts –and even also our European neighbours. We must, therefore, do better to ensure the airspace redesign maximises the use of new technology to enhance access and utilisation for all airspace users, whilst minimising the impact on people on the ground,

We appreciate the opportunity to comment, Signature Flight Support Luton

[redacted]

LLAOL FASI-S Design Principles

Response by: …Signature Flight Support

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	x						
Must be technically viable	x						
Should be a minimum PBN specification	x						
Must comply with ANG17 & NPSe		x					
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that		x					
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft		x					
Avoid noise sensitive buildings and sites below 4000ft	x						
Avoid conservation areas below 4000ft	x						
Consider different routes for day/night use			x				
Consider use of alternative route structures to provide predictable & effective respite		x					
Avoid overflying communities with multiple routes		x					
Fairer distribution of noise for those significantly affected		x					
Routes should be designed and operated so as to provide an equitable distribution of traffic	x						
Minimise the total numbers of population overflown		x					
Minimise the numbers of population newly overflown		x					
Prioritise routes over commercial and industrial areas		x					

LLAOL FASI-S Design Principles

Prioritise parks and open spaces, rather than residential areas				x			
Minimise populations effected by NOx emissions below 1000ft	x						
Airspace should not constrain the airport's capacity	x						
Minimise impact on other airspace users		x					
Keep Controlled Airspace requirements to a minimum	x						
Design simple airspace boundaries to enable easier navigation for GA airspace users	x						
Continuous Climb/Descent	x						

LLAOL FASI-S Design Principles

From: [redacted]
Sent: 04 April 2019 18:10
To: [redacted]
Cc: [redacted]
Subject: RE: London Luton Airport Airspace Modernisation Programme design principles workshop

Evening [redacted]

BCC is working with colleagues at AVDC on Luton airspace matters.

With reference to the consultation seeking views on the Principles BCC supports the submission made by AVDC. I attach AVDC's submission and would ask that BCC be recorded as agreeing with the AVDC prioritisation, based on the information before us. We also would welcome a response to the comments made by AVDC. On the question of parks and open spaces definition raised by AVDC we understand that this principle does not seek to cover the AONB protection principle which as a national policy would carry significant weight in airspace design and decisions.

As there will be trade -offs to be made between the principles BCC would after safety and technical requirements and, in the absence of detailed information on flightpaths, prioritise the principle that the airport should 'Minimise the numbers of population newly overflown'. This though does need to be amended to say population and communities newly overflown.

Best regards

[redacted]

[redacted]
Transport - Economy - Environment
Buckinghamshire County Council
[redacted]

LLAOL FASI-S Design Principles

Response by: ……[redacted]Aylesbury Vale District Council

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered	Comments
Must be safe	Y						
Must be technically viable	Y						
Should be a minimum PBN specification	Y						
Must comply with ANG17 & NPSe	Y						
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	Y						Key principle for minimising noise at ground level
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	Y						Safety best practice anyway?
Avoid noise sensitive buildings and sites below 4000ft	Y						
Avoid conservation areas below 4000ft	Y						
Consider different routes for day/night use	Y						Potential for better noise control over residential areas at night time.
Consider use of alternative route structures to provide predictable & effective respite	Y						
Avoid overflying communities with multiple routes		Y					Does this depend how close the routes are i.e. 2 routes not necessarily 2x no affected residents
Fairer distribution of noise for those significantly affected			Y				Potential for sig. impact on areas not currently overflown
Routes should be designed and operated so as to provide an equitable distribution of traffic			Y				Potential for sig. impact on areas not currently overflown
Minimise the total numbers of population overflown	Y						

LLAOL FASI-S Design Principles

Minimise the numbers of population newly overflown	Y						This is important as health impact is potentially greater for areas not overflown previously (i.e. large increase in noise rather than smaller incremental increase in those already overflown).
Prioritise routes over commercial and industrial areas	Y						
Prioritise parks and open spaces, rather than residential areas			Y				Unclear on definition of park/open space
Minimise populations effected by NOx emissions below 1000ft	Y						
Airspace should not constrain the airport's capacity				Y			Is Capacity and available airspace not linked?
Minimise impact on other airspace users			Y				
Keep Controlled Airspace requirements to a minimum		Y					
Design simple airspace boundaries to enable easier navigation for GA airspace users	Y						
Continuous Climb/Descent	Y						

From: [redacted]
Sent: 14 March 2019 16:45
To: [redacted]
Subject: Re: London Luton Airport Airspace Modernisation Programme design principles workshop

Dear [redacted]

Further to my call today where I explained emerging arrangements with General Aviation Alliance I provide the following.

I suspect in the future a more formalised approach will be taken which might elaborate on these, as and when more details are agreed, but future local consultation will generally be captured by the following for British Gliding.

- Safety of all directly or indirectly affected by ACPs (ie CAT, GA, passengers and those on the ground) is inviolate.

- Minimum containment, in accordance with ICAO, should be applied to allow for PBN-based arrivals and departures - in order to prevent “squeezing” of adjacent airspace.

- Continuous climb/descent profiles should be employed.

- Where CAS is established, options for flexible use airspace should be detailed (as appropriate).

- Routes should be minimised.

- In accordance with CAA’s proposals for “Share the Air”, make early provision for GA access to CAS (VFR routing and procedures).

I suspect the interaction of your ACP with Stansted will need to be coordinated and I’m sure

local club representatives, such as London and Cambridge GC, will be invaluable to you in the future prior to consultation on the detail.

Kind regards,

[redacted]

From: [redacted]
Sent: 11 April 2019 17:00
To: [redacted]
Cc: [redacted]
Subject: RE: London Luton Airport Airspace Change Proposal Design Principles

[redacted]

Noting your Design Principle No1 “Must be safe”, the Principle 8 “Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum” may adversely affect safety if the new CAS creates choke points in the surrounding Class G airspace.

Your Principle 8 is cleverly worded as a 1st glance it would imply that there would not be a need for additional CAS, but actually what you are saying is that you will keep any additional amount to the minimum. Any additional CAS requirement in the Luton area would further restrict amount the Class G airspace in the local area therefore increasing the risk of a mid-air collision to VFR traffic (more aircraft in a smaller area) – arguably adversely affecting safety for the VFR traffic whilst giving additional protection to your traffic within the CAS.

Yours
[redacted]

[redacted]
[redacted]
British Helicopter Association
Graham Suite
Fairoaks Airport
Chobham
Surrey. GU24 8HU

[redacted]
[redacted]
[redacted]

Heathrow Airport Limited
The Compass Centre, Nelson Road,
Hounslow, Middlesex TW6 2GW
T: +44 (0)844 335 1801
W: heathrow.com

25th April 2019

By email to: [redacted]

Heathrow Airport's response to London Luton Airport Operations Ltd's Design Principles

Thank you for the opportunity to comment on London Luton Airport Operations Ltd's (hereafter referred to as 'Luton') proposed final design principles.

As a member of the Future Airspace Strategy Implementation – South (FASI-S), Heathrow is committed to working together with Luton, NATS and other airport operators to bring about the airspace changes required to deliver the benefits of a modernised airspace in the south of England. Our key priority is to ensure that the suite of airspace changes from FASI-S members are aligned and can be sequenced in an appropriate way, to deliver the benefits of a modernised airspace in the south of England at the earliest opportunity.

Our comments on Luton's design principles are pitched at a high level and reflect our own experience of engaging on airspace change design principles, as well as the desire to ensure the successful delivery of the modernisation programme in the south England.

Our views on Luton's Design Principles

We consider that Luton's proposed final list of design principles represents a good balance of safety, environmental and operational factors. While the design principles are not explicitly presented in a prioritised order, we agree that safety should always be the number one priority and that design principles 2 and 3 should be prioritised as core principles.

Design principles 2,3, and 6 capture Luton's proposed approach to considering the environmental impact of differing route options, and noise effects in particular. However, a more explicit focus could be given to the environmental objectives that Luton is seeking to achieve through its airspace change. For example, there is no direct mention of how Luton will approach the trade-off between noise, local air quality and fuel burn in assessing its airspace design options.

Heathrow supports design principle 4: "Should enable continuous climb/descent to/from at least 7,000ft & facilitate continuous climb/descent above that". Deconflicting traffic from other airports, through the application of design principle 6, provides one way of enabling this, as will modernising the UK's airspace to provide a more optimal and integrated route structure. We will continue to work alongside Luton Airport and other operators through the FASI-South group to develop and deliver the Masterplan for airspace change in the south of England.

The design principle to achieve an "equitable distribution of traffic" (Design Principle 5), is aspirational. However, it is worth considering that "equitable" can mean different things to different people and so further detail might be useful on how Luton intends to apply this principle. We support the concept of

using multiple routes and looking at different options to achieve respite as these are important concepts for local communities.

Heathrow supports design principles 7 and 8.

Please do not hesitate to contact me if you would like to discuss any of our comments further.

Yours sincerely,

[redacted]

[redacted]

Heathrow Expansion

From: [redacted]

Sent: 07 May 2019 17:10

To: [redacted]

Subject: RE: London Luton Airport Airspace Change Proposal Design Principles

Good afternoon,

Apologies for the delayed response; PSB response to the Luton DPs.

The MOD recognises the importance of Airspace Modernisation and remains committed to ensuring airspace is used safely, efficiently and flexibly. Airspace modernisation and future airspace design must consider and allow for MOD access to airspace in order to meet future defence requirements.

Given the potential for interactions and dependencies between RAF Northolt and Luton, DP6 is of particular importance to the MOD. A design that allows both RAF Northolt and Luton to operate independently would be preferable however given the complexity of the airspace, a design that minimises any dependency on one another's operation and minimises overflight of the same communities on one another's departure/arrival routes, would be acceptable. The MOD welcomes continued engagement throughout the ACP process.

Please can you add me to your contact list for future engagement/consultation wrt this ACP? I will be the main POC on behalf of the MOD; contact details are below.

Please let me know if you require anything further at this stage,

Many thanks,

Regards

[redacted]

[redacted]
Airspace and Noise Performance Manager
London Luton Airport
Navigation House
Airport Way
Luton
LU2 9LY

NATS
Corporate & Technical
Centre
4000 Parkway
Whiteley
PO15 7FL

17th May 2019

Dear [redacted],

London Luton Airport Airspace Design Principles Engagement

Thank you for allowing NATS the opportunity to respond on your Design Principles in support of your airspace modernisation process. NATS and London Luton Airport have a long and successful history of working together and we look forward to continuing that positive relationship throughout the programme.

With regards to your stated design principles, our comments are:

1. Must Be Safe

NATS fully supports this design principle as being the highest priority.

2. Must meet the 3 aims of the NPSe, ANG 2017 & all appropriate Government aviation policies, and updates thereof

NATS supports the inclusion of this as a Design Principle

3. Should not constrain the airports capacity, providing the environmental objectives/requirements have been met

NATS understands the objective of this Design Principle but feels that it would be better served being split into more than one in order to allow for more qualitative assessment in the later stages of the project.

We believe that these Design Principles should cover the following areas:

- Capacity
- Environmental – CO_2 Emissions
- Environmental – Noise

4. Should enable continuous climb/descent to/from at least 7000ft & facilitate continuous climb/descent above that

Whilst NATS supports the aim of this Design Principle we feel that it should have some additional rationale that covers some of the technical aspects that it relates to.

Therefore we would suggest adding sufficient wording to cover the following;

- *Any design work undertaken will ultimately take into account the change in vertical reference caused by the transition altitude, particularly with interactions with other airports.*

With the rationale:

- *NATS will be responsible for the network design for arrivals and departures above 7000ft/FL70 with Luton Airport responsible for the routes to/from the ground, including interactions with adjacent airports and appropriate community engagement. However network route positions will be influenced to a large degree by the airports' requirements (geographically distilled into the Letterbox positions for each proposed route). These letterboxes/route positions will also be influenced by the Transition Altitude and any interactions between the routes of other airports.*

5. Should provide an equitable distribution of traffic where possible, through e.g. use of multiple routes, new route structures, options/mechanisms for respite

This will require collaboration between multiple sponsors, including NATS as the high level network specialist, and we recommend this Design Principle includes mention of that multiple-sponsor element (see also DP6).

6. Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7,000ft

As NATS will be designing the Air Traffic network above 7000ft we have no particular comment on this Design Principle, other than to suggest we believe it should be influenced by your local community representatives in collaboration with adjacent airports and other airspace users.

7. Should minimise tactical intervention by ATC below 7,000ft

Whilst we understand this Design Principle is aimed towards the increased use of modern aircraft navigational capabilities we believe that it should be more specific in its wording to reflect that. It is our opinion that it would be beneficial to all that designs and procedures should utilise Advanced PBN to their maximum capability in order to provide benefits to all stakeholders, fulfilling the requirements set out in European Commission mandates.

8. Should minimise the impact on other airspace users through keeping CAS requirements to a minimum, simple airspace boundaries, allowing flexible use of airspace where possible

NATS fully supports the inclusion of this Design Principle.

We look forward to continuing to work together, along with the other airports and stakeholders, in the wider programme of work that this airspace change is part of. Should you have any comments or questions then please do not hesitate in contacting me.

Kind regards

[redacted]
Manager, Operational Concepts

LLAOL FASI-S Design Principles

Appendix 4 – Design Principles Evolution & Design Principles not taken forward

Design Principle	Community Feedback Received	Outcome	Reason	Final Design Principle Wording
Must be safe	• Almost all the feedback strongly agreed with this • Felt it was an obvious DP	Taken forward as DP 1		Must be safe
Must be technically viable	• What does this mean? • Felt it was an obvious DP	Re-worded & combined into DP 4		Should enable continuous climb/descent to/from 7000ft & facilitate continuous climb above that.
Should be a minimum PBN specification	• PBN spec should be defined • What about non-PBN aircraft?	Re-worded & combined into DP 4		Should enable continuous climb/descent to/from 7000ft & facilitate continuous climb above that
Must comply with ANG17 & NPSe	• Felt it was an obvious DP	Re-worded & combined into DP 2		Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Enable continuous climb/descent to/from at least 7000ft and facilitate continuous climb/descent above that	• Angle of ascent/descent is also important • Would need to also minimise turns at low level • Concerns about Heathrow interactions	Taken forward as DP 4		Should enable continuous climb/descent to/from 7000ft & facilitate continuous climb above that
Routes should be positioned so as to minimise the need for routine tactical intervention by ATC below 7000ft	• Less vectoring was supported • Can ensure predictability, but tactical intervention can lead to dispersal – beneficial for some	Taken forward as DP 7		Should minimise tactical intervention by ATC below 7000ft

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Avoid noise sensitive buildings and sites below 4000ft	• Difficult to define • Should be the same treatment for all • Residents needs should come first	Not taken forward	Difficult to define	N/A
Avoid conservation areas below 4000ft	• Needs clarification • Difficult to fit noise mitigation in conservation areas	Not taken forward	Difficult to define and partially covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Consider different routes for day/night use	• ANG17 aim is for the least number of practicable routes	Re-worded into DP 5		Should provide an equitable distribution of traffic where possible, through eg: • Use of multiple routes • New route structure • Options (mechanisms) for respite
Consider use of alternative route structures to provide predictable & effective respite	• Contravenes ANG17?	Re-worded into DP 5		Should provide an equitable distribution of traffic where possible, through eg: • Use of multiple routes • New route structure • Options (mechanisms) for respite
Avoid overflying communities with multiple routes	• Difficult to apply • Needs more explanation	Re-worded & combined into DP 6		Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7000ft
Fairer distribution of noise for those significantly affected	• ANG17 compliance • What does ‘fair’ and ‘significant’ mean?	Re-worded into DP 5		Should provide an equitable distribution of traffic where possible, through eg: • Use of multiple routes • New route structure • Options (mechanisms) for respite
Routes should be designed and operated so as to provide an equitable distribution of traffic	• Seems impractical – choice of departure dictated by destination & wind • Respite routes should also have a balance of flights	Re-worded into DP 5		Should provide an equitable distribution of traffic where possible, through eg: • Use of multiple routes • New route structure • Options (mechanisms) for respite

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Minimise the total numbers of population overflown	• ANG17 • Suggested re-wording 'minimise the number of people experiencing significant adverse noise impacts' • Definition of 'overflown' needs further work & clarification	Not taken forward	Covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Minimise the numbers of population newly overflown	• Suggest re-wording as above • What is the baseline?	Not taken forward	Covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Prioritise routes over commercial and industrial areas	• Impractical in Luton area • Add 'only if this eases residential disturbance'	Not taken forward	Covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Prioritise parks and open spaces, rather than residential areas	• Should be rephrased to 'in preference to' residential areas • Parks should be respite areas/Parts at night, industrial by day?	Not taken forward	Covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Minimise populations effected by NOx emissions below 1000ft	• How would it be monitored? Most aircraft are above this y the airport boundary • Needs balancing with noise impact • NOx emissions insignificant from aircraft	Not taken forward	Covered by DP 2	Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof
Airspace should not constrain the airport's capacity	• Contradicts safety and environmental criteria • Availability of airspace should be considered first	Re-worded into DP 3		Should not constraint the airport's capacity, providing the environmental objectives/requirements have been met
Minimise impact on other airspace users	• Formal legacy agreements must be respected • Commercial aircraft should not take second place to recreational pilots	Re-worded & combined into DP 8		Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible

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Keep Controlled Airspace requirements to a minimum	• Limit the volume of CAS? Or limit NATS/pilot workload?	Re-worded & combined into DP 8		Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible
Design simple airspace boundaries to enable easier navigation for GA airspace users	• Residents should be prioritised • GA add to the noise burden	Re-worded & combined into DP 8		Should minimise the impact on other airspace users through; • Keeping CAS requirements to a minimum • Simple airspace boundaries • Allowing flexible use of airspace, where possible
Continuous Climb/Descent		Covered by DP 4		Should enable continuous climb/descent to/from 7000ft & facilitate continuous climb above that
Safeguard the tranquillity of the nationally protected landscape of the Chilterns AONB (Proposed by the Chilterns Conservation Board in an email on 30 Apr 19)		Covered by DP 2		Must meet the 3 aims of the NPSe, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof