

Swanwick Airspace Improvement Programme
Airspace Development 6

LTC Essex Sector Safety Improvement
and Luton Airport Arrival Routes

SAIP AD6 TC Essex-Luton Arrivals

Gateway documentation:
Stage 1 Define

Step 1B Design Principles
and
Stakeholder Engagement

Issue 1.3

The logo for NATS, consisting of the letters 'NATS' in a bold, dark blue, italicized sans-serif font.

London Luton Airport

Roles

Action	Role	Date
Produced	Airspace Change Specialist NATS Future Airspace and ATM	30/04/19
Produced	Flight Operations Manager London Luton Airport	30/04/19
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Issue	Month/Year	Changes this issue
1.0	April 2019	Published to CAA Portal
1.1	April 2019	CAA request clarification on some elements of stakeholder engagement
1.2	April 2019	CAA request additional clarification on some elements of stakeholder engagement evidence and DP intent (para 2.2 updated)
1.3	April 2019	CAA request further clarification on an element of stakeholder engagement evidence (para 2.2 updated)

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Introduction

NATS and LLA are co-sponsors of this proposal.

This document forms part of the document requirements for CAP1616 airspace change process:
Stage 1 Define Gateway, Step 1B Design Principles.

We engaged a range of stakeholders, targeting each group for feedback relevant to their interests.

We analysed that feedback and summarised it into this document, which describes how the feedback has influenced our final design principles – thank you for your participation.

How this document is laid out

Section 1

We engaged a representative group of aviation stakeholders.

This section summarises those activities and the results of aviation engagement.

Section 2

We engaged a representative group of local community stakeholders via London Luton Airport's Noise & Track Sub Committee (NTSC) of the Airport Consultative Committee.

This section summarises those activities and the results of community engagement.

Section 3

This section combines the result of the above engagements into a set of design principles, appropriately prioritised.

Section 4

Next steps

1. Aviation Stakeholder Engagement

1.1 Engagement activities

Date	Subject	Discussions	Participants
06/11/18	SAIP AD6 online /phone briefing	Introduction to SAIP AD6	easyJet airline
08/11/18	SAIP AD6 Meeting	Introduction to SAIP AD6	TUI airline (TUI HQ Luton Airport)
23/11/18	SAIP AD6 Meeting	Introduction to SAIP AD6	WizzAir airline (Luton Airport control tower)
28/11/18	SAIP AD6 online /phone briefing	Introduction to SAIP AD6	Ryanair airline
29/01/19	SAIP AD6 Pre-meeting CAP1616 Stage 1 Engagement	Introduction to SAIP AD6 Example Aviation Stakeholder Design Principles	General Aviation Alliance (GAA) British Gliding Association (BGA) London Gliding Club (LGC) Cambridge Gliding Club (CGC) Airspace4All (A4A) Cranfield Airport ATC
12/02/19	SAIP AD6 Aviation Workshop CAP1616 Stage 1 Engagement	Introduction to SAIP AD6 Example Aviation Stakeholder Design Principles Focus on DPs relevant to GA Focus on DPs relevant to commercial operators	General Aviation Alliance (GAA) British Gliding Association (BGA) London Gliding Club (LGC) Cambridge Gliding Club (CGC) Airspace4All (A4A) Cranfield Airport ATC British Parachute Association (BPA) TUI airline WizzAir airline Gama Aviation business jet operator Signature Aviation business jet operator Zenith Aviation business jet operator Notes from this meeting were sent to these attendees plus easyJet, Ryanair and Lux Aviation (business jet operator) due to being unable to attend or dial in on the day
06/02/19	SAIP AD6 Intro Meeting as part of general Swanwick Centre engagement visit	Introduction to SAIP AD6 Example Aviation Stakeholder Design Principles	Cambridge Airport
18/02/19	SAIP AD6 MoD Meeting	Introduction to SAIP AD6 Example Aviation Stakeholder Design Principles Focus on DPs relevant to MoD Expectation of further engagement with USAFE Lakenheath	MoD Defence Airspace & Air Traffic Management (DAATM)
21/02/19	SAIP AD6 general enquiry, phone call followed up 28/02/19	Introduction to SAIP AD6 and enquiry into operational relevance	East Anglian Rocketry Society (EARS)
19/03/19	SAIP AD6 Specific USAFE MoD Meeting at Lakenheath	Introduction to SAIP AD6 Example Aviation Stakeholder Design Principles	DAATM with USAFE Lakenheath re: F35 Lightning II operational specifics Subsequent direct phone/email negotiations on wording of USAFE-relevant DPs
19/03/19	SAIP AD6 Meeting at Stansted Airport	Update on SAIP AD6 (Stansted were previously engaged in 2018) Example Aviation Stakeholder Design Principles	Stansted Airport Ltd STAL

Table 1 Aviation stakeholders – summary of major engagement activities

The above table demonstrates engagement activities with suitable representatives of the aviation community, appropriately focused on their interests.

1.2 Design Principle Evolution

The following items summarise engagement where feedback was received which had the potential to influence the DP. This took place over the sessions described above, via email, and via telephone calls. This was an effective method of engaging relevant stakeholders, on their interests.

1.2.1 Safety is always the highest priority

The GA community requested consider adding “of all airspace users”.

Our response is that the text already implies safety of all (airborne regardless of activity, and ground based). The addressing of the safety imperative itself could be added as amplifying text:

Safety is the highest priority

Optimise the complexity of the TC Essex sector within the scope of this project

1.2.2 Operational: Facilitates the required increase in capacity of TC Essex/TC Luton, reduce controller and pilot workload through systemisation, does not unduly restrict further development of Future Airspace Strategy Implementation South (FASI(S))

Commercial aviation stakeholder consensus – this would benefit from being split and reworded due to tonally distinct sub-items. Capacity, workload, systemisation, complexity and safety are interlinked, summarised by the commercial aviation stakeholders as a preference for flight predictability over absolute fuel efficiency. There is also a preference for (at least partially) future-proofing the lower airspace structure and traffic flows in the region suitable for FASI(S) under the UK’s Airspace Modernisation Strategy.

Our response is that a DP will be constructed around the concept of predictability, and another related to the concept of retaining lower AD6 arrival concepts in service of FASI(S):

Operational – Increase predictability of LLA arrivals

Environmental – Minimise the requirement to change future low altitude arrival flows

1.2.3 Operational: Minimise impact of Luton’s and Stansted’s tactical situations on the other

We were clear that this is a high priority. The safety imperative exists because the two airports’ arrival flows depend entirely on that of each other.

Commercial operators suggested amplifying text re: specific safety benefits under example adverse event scenarios.

Our response is that the generality of the statement covers all scenarios – there is a risk that specifying examples may lead to the omission of other events not explicitly stated. The general wording could, however, be modified to be more accurate given the scope of this joint sponsored proposal:

Operational – Minimise the dependency of LLA’s arrivals on those of Stansted Airport

1.2.4 Economic: Reduce flight plan mileage where possible and associated fuel uplift/burn where appropriate. Minimise any increased flight plan mileage. Offer best vertical profiles possible.

Commercial operators agree with the intent of this DP – less fuel used, or the least possible increase in fuel needed, would cost less per flight¹. However, flight predictability was their preference over absolute fuel efficiency as noted in item 1.2.2 above. Our response is to reword the single DP into two items, and ensure their relative priority is lower than that of the DP related to predictability:

Economic – Reduce fuel burn

Economic – Minimise potential increases in fuel burn

¹ This DP discussion is declared as Economic in nature, however we appreciate that greenhouse gases are inextricably linked with the burning of fossil fuel.

- 1.2.5 Technical: Minimise negative impact on other airspace users (GA, MoD). Recognise where impacts might be greatest by considering known VFR significant areas and Military-use areas against the placement of airspace structures. Mitigate those impacts in discussion with relevant organisations. GA representatives proposed adding an amplifying statement, exploring existing CAS volumes and identifying potential candidates to release back to Class G.

The MoD via DAATM highlighted the strategic and political importance of the USAFE base at Lakenheath and the operational requirements for its new F35 role.

Our response is to simplify and reword this into two items, one concerning general impacts on other airspace users, the other concerning impacts on MoD's USAFE Lakenheath operations:

Technical – Minimise negative impact on other airspace users (GA, MoD)

Investigate potential release of existing CAS

Technical – Minimise the impacts on MoD USAFE Lakenheath operations to a level acceptable to MoD

- 1.2.6 Operational: ANSP agreement – There must be agreement between stakeholder ANSPs that the design concept being progressed suits all operations.

The ANSPs most likely to be impacted were engaged and requested to be individually specified.

Our response is to accede to this request, and we offer to specify USAFE Lakenheath as an individual element of the MoD to be separately considered alongside general MoD operations:

ANSP agreement – There must be agreement between listed stakeholder ANSPs that the design concept being progressed suits their operations.

MoD (other than USAFE Lakenheath)

MoD (USAFE Lakenheath)

Stansted Airport

Cambridge Airport

Cranfield Airport

1.3 Finalised Aviation Stakeholder Design Principles

The results of this stakeholder engagement work will be combined with the equivalent engagement work completed for the local community stakeholders. Where there is commonality, wording may be amended and combined to avoid duplication.

See Section 2 for local community stakeholder engagement.

See Section 3 for the list of finalised design principles considering all stakeholders.

2. Local Community Stakeholder Engagement

2.1 Engagement activities

Date	Subject	Discussions	Participants
20/03/19	LLA Airspace Changes FASI(S) and SAIP AD6 (Attendees were briefed on both proposals in separate sub-sessions of the group meeting)	Introduction to SAIP AD6 Collaborative approach and joint sponsorship with NATS Longlist of 23 example local community stakeholder design principles Focus group to consider DPs Each participant to complete an opinion matrix and return it ready for the next meeting	LADACAN ² Representative Central Beds Councillor North Herts Councillor East Herts Officer Hertfordshire County Council Officer Hertfordshire Association of Parish and Town Councils Councillor LLATVCC ³ Representative Aylesbury Vale District Officer Buckinghamshire County Council Officer PAIN ⁴ Representative Dacorum Borough Council Councillor Buckinghamshire and Milton Keynes Association of Town and Parish Councils Representative
05/04/19		Focus group discusses and agrees changes to DPs based on opinion matrix. Focus group refines DPs into final set for adoption and ratifies the list.	Bickerdike Allen Partners – Independent noise consultant to LLACC ⁵ St Albans Quieter Skies (STAQS) St Albans City and District Council Councillor Harpenden Sky Bedfordshire Association of Town and Parish Councils Flight Operations Committee LLAL's Airspace Consultant Independent Chairman of Consultative Committee (LLACC)
27/03/19	Brief intro to airspace change (phone call)	Brief intro to airspace change, agreement for further engagement during Stage 2.	Chilterns Area of Outstanding Natural Beauty (AONB)

Table 2 Local Community stakeholders – summary of major engagement activities

The above table demonstrates engagement activities with suitable representatives of the local community, appropriately focused on their interests.

2.2 Design Principle Evolution

The focus group nature of the community engagement was effective in considering the example DPs, amending them and refining them into the final set for adoption. This took place over two formal sessions where FASI(S) and AD6 were both considered as individual proposals.

For the avoidance of doubt, the focus group meetings were convened to discuss the DPs for both FASI(S) and AD6 on the same day to make time-efficient use of the focus group's availability, given the common stakeholders with similar issues to discuss. Separate sessions were held to discuss each proposal and it was made clear to the participants that these are separate proposals with separate justifications for the proposals with LLA sponsoring the FASI(S) work and NATS-LLA jointly sponsoring this SAIP AD6 work – NATS was not present at the LLA-only FASI(S) session.

The focus group expressed a preference: whilst the FASI(S) and AD6 ACPs are separate proposals, the underlying requirements communicated by the local community stakeholder groups are identical - this was expected.

The co-sponsors NATS-LLA are clear that the DPs for FASI(S) and AD6 must be developed separately, as they are individual proposals under the airspace change process known as CAP1616.

LLA will provide a FASI(S) DP document and associated engagement evidence under their separate ACP-2018-70 (CAA reference number).

² Luton And District Association for the Control of Aircraft Noise

³ London Luton Airport Town & Village Communities Committee

⁴ People Against Intrusive Noise

⁵ London Luton Airport Consultative Committee

The focus group also conveyed the importance of future-proofing the designs to minimise the need to engage/consult again on further changes to the arrival flows within the next 10 years. However it is understood that, should significant benefits be realised from further refinements as part of future proposals, then this may be necessary. The intent of this DP is not to constrain future low-level arrivals development, and it would not restrict FASI-S development considerations (separately from this proposal, as noted above).

2.3 The first session

This session introduced a longlist of 23 example DPs:

1. Must be safe
2. Must be technically viable
3. Should be a minimum PBN specification
4. Must comply with ANG17 & NPSE
5. Enable continuous descent from at least 7,000ft and facilitate continuous descent above that
6. Routes should be positioned to minimise need for routine ATC tactical intervention below 7,000ft
7. Avoid noise sensitive buildings and sites below 4,000ft
8. Avoid conservation areas below 4,000ft
9. Consider different routes for day/night use
10. Consider use of alternative route structures to provide predictable & effective respite
11. Avoid overflying communities with multiple routes
12. Fairer distribution of noise for those significantly affected
13. Routes should be designed and operated so as to provide an equitable distribution of traffic
14. Minimise the total numbers of population overflown
15. Minimise the numbers of population newly overflown
16. Prioritise routes over commercial and industrial areas
17. Prioritise parks and open spaces, rather than residential areas
18. Minimise populations affected by NOx emissions below 1,000ft
19. Airspace should not constrain the airport's capacity
20. Minimise impact on other airspace users
21. Keep Controlled Airspace requirements to a minimum
22. Design simple airspace boundaries to enable easier navigation for GA airspace users
23. Continuous Descent

This provoked group discussions on wording/intent and whether any could be combined or removed from consideration.

At the end of the session, participants were asked to complete an opinion matrix on the original longlist, and return it to the sponsor for analysis. Each DP was ranked by each participant on a scale of:

Strongly Agree/Agree/Neither Agree nor Disagree/Disagree/Strongly Disagree/Should not be considered

After a period of reflection once the session closed, the participants returned their completed opinion matrix for collation.

2.4 The second session

Responses from the first session were collated as per the table below:

Design Principle	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Should not be considered
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						

(The text in the matrix was common between FASI(S) and AD6 for the discussions held in the focus group session, hence the inclusion of the word "climb".)

The results of this longlist were used to illustrate preferences and to provoke further discussion within the focus group during the second session – they were not a simple "vote" to include or exclude any item from the session itself.

The scoring, wording, intent and "combinability" of the longlist items were debated. For example, "Should not constrain the airport's capacity" received few positive tallies, but the sponsor and the focus group discussed the topic and its intent (with capacity and complexity inextricably interlinked and associated with the safety imperative), accepting that it was a valid item for continued inclusion.

That morning's discussion and debate session resulted in the creation of a ten-part revised list.

This list was written in priority order, with 1 being the highest:

1. Must be safe
2. Must meet the 3 aims of the Noise Policy Statement for England (NPSE):
 - 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.
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:
 - a. Use of alternative route structure for respite;
 - b. Overflight of commercial and industrial areas; and
 - c. Overflight of parks and open spaces at night.

7. Should enable continuous descent from at least 7,000ft
8. Should avoid overflying communities with multiple routes, including routes for other airports, below 7,000ft
9. Should minimise tactical intervention by ATC below 7,000ft
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

This ten-part shortlist was itself discussed by the focus group later in the morning session and early afternoon, where further opportunities for refinement and reprioritisation were discussed. For example, shortlist item 7 above refers to a preference for continuous descent from at least 7,000ft, which was subsequently expanded (in discussion with the focus group) to specify its facilitation above that altitude.

The final agreement in the focus groups discussion was this eight-part list, again in priority order:

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 descent from at least 7,000ft & facilitate continuous descent above that
5. Should provide an equitable distribution of traffic where possible, through e.g. 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 7,000ft
7. Should minimise tactical intervention by ATC below 7,000ft
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

This list was ratified by the group to be adopted as the local community stakeholder design principles for SAIP AD6^{footnote 6}.

2.5 Finalised Local Community Stakeholder Design Principles

It was noted in the final part of the final session that DPs agreed with the aviation community would be considered alongside the community DPs. Where there is commonality, wording may be amended and combined to avoid duplication.

See Section 1 for aviation stakeholder engagement.

See Section 3 for the list of finalised design principles considering all stakeholders.

⁶ As noted previously, these principles are suitable for AD6 due to their focus on arrivals. Luton Airport's FASI(S) design principles will be similar and include departure/climb wording as appropriate, separately processed from this airspace change proposal.

3. Combined Design Principles

As noted in the previous sections, each stakeholder group has engaged with us, focused on their particular interests, and created their list of DPs. Where there is commonality, wording may be amended and combined to avoid duplication. Relative priorities have also been considered and applied appropriately given the need to combine two lists, bearing in mind the priority preferences of each group – the colour coding represents similarly-prioritised items.

Aviation DP	Local Community DP	Combined DP	Priority
Safety is the highest priority – Optimise the complexity of the TC Essex sector within the scope of this project	Must be safe	Safety is the highest priority – Optimise the complexity of the TC Essex sector within the scope of this project	1
	Must meet the 3 aims of the NPSE, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof.		2
Technical – Minimise the impacts on MoD USAFE Lakenheath operations to a level acceptable to the MoD			2
	Should not constrain the airport's capacity, providing the environmental objectives/requirements have been met		3
Technical – Minimise dependency of LLA's arrivals on those of Stansted Airport.			3
Operational – Increase predictability of LLA's arrivals			3
	Should enable continuous descent from at least 7,000ft & facilitate continuous descent above that		3
Environmental – Minimise the requirement to change future low altitude arrival flows	Focus group feedback – important to future-proof the designs to negate a need to engage/consult again on further changes to the arrival flows within the next 10 years	Environmental – Minimise the requirement to change future low altitude arrival flows within the next ten years	4
Technical – There must be agreement between stakeholder ANSPs that the design concept being progressed suits all operations. MoD (other than USAFE Lakenheath) MoD (USAFE Lakenheath) Stansted Airport Cambridge Airport Cranfield Airport			4
	Should provide an equitable distribution of traffic where possible, through e.g. use of multiple routes, new route structures, options/mechanisms for respite		4
Economic – Reduce fuel burn			5
Economic – Minimise potential increases in fuel burn			5
	Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7,000ft		6
	Should minimise tactical intervention by ATC below 7,000ft		7
Technical – Minimise negative impact on other airspace users (GA, MoD) Investigate potential release of existing CAS	Should minimise the impact on other airspace users through keeping CAS requirements to a minimum, simple airspace boundaries, allowing flexible use of airspace (FUA) where possible	Technical – Minimise negative impact on other airspace users by keeping CAS requirements to a minimum, investigating potential release of existing CAS, keeping new airspace boundaries simple where possible, and FUA if possible	8

This combined list is summarised as follows:

Priority	Design Principle
1	Safety is the highest priority Optimise the complexity of the TC Essex sector within the scope of this project
2	Environmental – Must meet the 3 aims of the NPSE, Air Navigation Guidance 2017 and all appropriate Government aviation policies, and updates thereof Technical – Minimise impacts on MoD USAFE Lakenheath operations to a level acceptable to MoD
3	Operational – Should not constrain the airport’s capacity, providing the environmental objectives/ requirements have been met Technical – Minimise dependency of LLA’s arrivals on those of Stansted Airport. Operational – Increase the predictability of LLA’s arrivals Environmental – Should enable continuous descent from at least 7,000ft & facilitate continuous descent above that
4	Environmental – Minimise the requirement to change future low altitude arrival flows within the next ten years Technical – There must be agreement between stakeholder ANSPs that the design concept being progressed suits all operations. MoD (other than USAFE Lakenheath) MoD (USAFE Lakenheath) Stansted Airport Cambridge Airport Cranfield Airport Environmental – Should provide an equitable distribution of traffic where possible, through e.g. use of multiple routes, new route structures, options/mechanisms for respite
5	Economic – Reduce fuel burn Economic – Minimise potential increases in fuel burn
6	Environmental – Should avoid overflying the same communities with multiple routes, & take into account routes of other airports, below 7,000ft
7	Operational – Should minimise tactical intervention by ATC below 7,000ft
8	Technical – Minimise negative impact on other airspace users by keeping CAS requirements to a minimum, investigating potential release of existing CAS, keeping new airspace boundaries simple where possible, and FUA if possible

4. Next Steps

We will now submit this document to the CAA as evidence to support Step 1B of the CAP1616 airspace change process.

In turn, this will complete the documentary evidence for the Stage 1 Assessment Gateway (document deadline 12th April 2019, for the CAA's Assessment Gateway scheduled for 26th April).

The planned CAP1616 timeline is as follows:

CAP1616 Item	Proposed Date
Stage 1 Define	26th April 2019
Stage 2 Develop & Assess	30 th August 2019
Stage 3 Consult	Gateway 29th November 2019 Consultation launch planned December 2019
Stage 4 Update & Submit ACP	April 2020
Stage 5 Decide	August 2020
Stage 6 Implement	December 2020

End of document