Co-sponsors:

Swanwick Airspace Improvement Programme Airspace Deployment 6, (SAIP AD6) ACP-2018-65

Proposed changes to

London Luton Airport Arrivals

CAP1616 Stage 5 Step 5A

Public Evidence Session

Executive Summary of Airspace Change Proposal

NATS-LLA Public

Contents

Note: This is a highly-abridged summary of the proposal. It has been in development since 2018. The document record is publicly available at the CAA Portal (link).

1. Introduction

1.1 London Luton Airport (LLA) and Stansted are two of the five busiest airports in the UK. They are currently forced to share the same arrival flows, in a relatively small and constrained region north of London.

1.2 There is far less room for air traffic controllers to control aircraft, compared with other major airports in the UK.

1.3 The arrival flows are so entwined that each airport has a dependency on the other. Delay and disruption at one airport causes delay and disruption at the other.

1.4 Controllers take aircraft from each of these shared arrival flows and, using radar and radio transmissions, manually direct them towards the destination airport, descending them safely to their respective runways. This is known as 'vectoring' – controllers tell a pilot to fly a compass heading and descend to an altitude. In doing this, the controller creates an arrival sequence of aircraft. The controller is in charge of each aircraft's navigation and altitude, with the pilot following their instructions.

1.5 This is a very complex, intense task. Vectoring is standard practice in the UK, but the intensity and complexity of these particular arrival flows is not standard. Arrivals to other busy airports are separated from each other by airspace design, much higher and further away than they are currently at LLA and Stansted.

1.6 We know that, unless we do something now, this intensity of air traffic control workload will become unsustainable for air traffic controllers in the longer term, and increase the potential for a reduction in safety. Maintaining safety is achieved by slowing traffic down to manageable levels, which would make arrival delays and airborne holding more common, creating increased environmental impacts such as the amount of fuel burnt and greenhouse gases such as CO_2.

1.7 We acknowledge the temporary impacts of the Covid-19 pandemic on aviation but are clear that this unique air traffic complexity, and the latent safety issue, must be resolved.

2. Summary of progress through the CAA's airspace change process CAP1616

2.1 At Stage 1 we developed 15 Design Principles via engagement with representative stakeholder groups (late 2018 to mid 2019, Ref 4).

2.2 At Stage 2 we developed 5 Upper Design Options and 9 Lower Design Options, via further engagement with the same representative stakeholder groups (mid to late 2019, Refs 5, 6, 7).

2.2.1 We evaluated each Design Option and rejected those that did not best meet the Design Principles. This included the 'do nothing' option because it did not offer the required air traffic safety benefit.

2.2.2 Of those that were accepted, we conducted an Initial Options Appraisal and stated that some or all individual Design Options could be combined into systems of options for the next stage.

2.3 At Stage 3 we developed a documentation set for consultation that was formally approved by the CAA. We held a 15-week-5-day consultation on two combined systems of options, which we named Option 1 Vectoring, and Option 2 Performance Based Navigation (PBN) Routes with Vectoring.
Preparation was from late 2019 to the launch on 19th October 2020, consultation closed on 5th February 2021, analysis was completed and published in June 2021 (Refs 8, 9, 10, 10A).

2.3.1 Option 1 Vectoring sought to establish a new airborne hold for LLA arrivals, with associated airspace and air routes, above approximately 8,000ft. From that new hold, the method air traffic controllers use to bring arrivals from c.8,000ft to the runway would be similar to today – providing each aircraft with heading, descent and speed instructions, manually managing each flight (known as vectoring). This would significantly reduce airspace complexity.

2.3.2 Option 2 PBN Routes with Vectoring also sought to establish a new airborne hold for LLA arrivals, with associated airspace and air routes, above approximately c.8,000ft. From that new hold, controllers would still use the vectoring method described in Option 1, to descend aircraft to the runway. However, there would also be a number of predetermined arrival flightpaths which pilots could be instructed to fly, and their aircraft could fly them automatically without intervention by controllers. Option 2 was our preferred option because it would reduce complexity even more than Option 1.

2.3.3 We provided comprehensive materials including a virtual exhibition hall, hosted ten video conferences for the general public to watch a presentation then interact and ask questions of the host and expert panel. All ten were recorded and are available for repeat viewing in the virtual exhibition hall (link to hall). We provided paper copies of the consultation document for the digitally excluded, on request.

2.3.4 We held private video conferences with stakeholders such as MPs, a variety of General Aviation representative groups, the Ministry of Defence, local councils, nearby airports, and air operators using this region's airspace.

2.3.5 We received more than 2,400 responses to the consultation. We analysed the responses, drew conclusions from the analysis, and developed actions for the next stage.

2.3.6 We published our Step 3D Consultation Feedback Report explaining the above.

2.4 At Stage 4 we analysed all the suggestions for design changes and summarised them into specific recommendations (June 2021).

2.4.1 We explained how each recommendation could be acted upon, and the influence it would have on the final design.

2.4.2 We made changes to elements of the airspace design in accordance with the recommendations, unless recommendations could not be acted upon, and we explained why either way in the Step 4A Consultation Response Document (Ref 10D).

2.4.3 We also published the Final Design technical map (with switchable data layers, Ref 10B, see also Ref 10F), and Final Options Appraisal document (Ref 10C).

2.4.4 The Airspace Change Proposal (ACP) document (published 25th June 2021, Ref 10E) comprises our formal application to the CAA (Stage 4B in the CAP1616 process, Ref 11). This application describes the final design, modified as a result of feedback from the consultation.

2.5 At the time of writing this document (late July 2021), we are in Stage 5, where the CAA formally assesses this proposal (Step 5A) and makes its decision (Step 5B).

2.6 Assuming this proposal is approved within standard timescales, our planned implementation date is Thursday 24th February 2022.

3. Summary of Government Environmental Guidance known as ANG2017

3.1 This section briefly summarises the Government guidance which we must consider as part of our airspace change proposal.

3.2 It provides context behind the airspace design decisions we made, which are briefly mentioned below and explained in more detail in Sections 4 and 5.

3.3 In 2017 the Department for Transport (DfT) updated its Air Navigation Guidance to the aviation regulator, the Civil Aviation Authority (CAA). The guidance is known as 'ANG2017' and is one of our primary reference documents (see Ref 15 in Section 9).

3.4 This guidance to the CAA is on its environmental objectives with regards to airspace matters, and it also applies to the wider aviation industry including the sponsors of airspace changes.

3.5 ANG2017 provides altitude-based priorities, balancing the impacts of aircraft noise against the need for flight efficiency (fuel consumption/CO_2 emissions).

3.6 Bearing the scope of this proposal in mind, the main ANG2017 priorities can be summarised in this priority order:

3.6.1 Minimise aviation noise impacts below 4,000ft
(The airspace design does not change below 5,000ft in this proposal)

3.6.2 If there is an option to keep a similar arrangement below 4,000ft, then that option is preferred
(The airspace design does not change below 5,000ft in this proposal)

3.6.3 Minimise aviation noise impacts from 4,000ft to below 7,000ft, unless this would disproportionately increase CO_2 emissions
(The airspace design was modified to increase likelihood of flightpath dispersion and reduce likelihood of concentration, mitigating noise impacts)

3.6.4 At or above 7,000ft, prioritise airspace efficiency (CO_2 emissions), minimising noise impacts is no longer the priority
(The airspace design was modified to minimise additional CO_2 emissions and the holding design was modified to mitigate noise impacts at higher altitudes, if aircraft need to use the hold)

3.7 ANG2017 also states that the impact of airspace design on local air quality is generally negligible due to the effects of mixing and dispersion, if the airspace change happens above 1,000ft.

3.7.1 This proposal would not change flightpaths below 1,000ft therefore changes to local air quality due to flightpath changes above 5,000ft are unlikely to have an impact.

4. Summary of planned changes from today's arrangements – the net change

4.1 About **30%** of arrivals would be given shortcuts where the opportunity arises, similar to today – these would not change.

4.2 Due to relative geography and other air traffic flows that can't be moved, we propose to reduce airspace complexity by changing c.**70%** of LLA's arrival flightpaths, leaving Stansted's arrivals unchanged:

4.2.1 There would be minimal change to all LLA arrivals below 5,000ft.

4.2.2 As per paragraph 4.2 above, the remaining 70% of LLA arrival flightpaths are predicted to behave like this, above 5,000ft:

- Arrivals would follow new higher-altitude routes further north than today, descending to c.9,000ft towards the holding region.
- A new holding pattern, established near the A1/A14 junction at c.9,000ft over Grafham Water, is not expected to be used continuously.
- Most flights are expected to bypass it to the south, and then descend from c.9,000ft to c.8,000ft, but some may enter the hold if it is busy. If so, they would hold at c.9,000ft or above and, when the controller is ready, would leave the hold at c.9,000ft descending to c.8,000ft.
- Flights would level at c.8,000ft, approximately in line with the A428 road between Cambridge and St Neots – this is an estimate, they may fly level north of this road.
- Arrivals would leave c.8,000ft at Great Gransden/Waresley/Black Cat Services, in a southbound descent to 5,000ft.
- This southbound descent between c.8,000ft-5,000ft is expected to be dispersed between Little Gransden, Gamlingay, Potton, Tadley, Biggleswade, Steeple Morden and Langford – this is an estimate of the spread, some may be further east or west.
- Between 6,000ft and 5,000ft they join the region where there would be minimal change from the pre-pandemic flightpath, as per paragraph 4.2.1 above.

4.3 Air traffic controller workload would reduce because the arrival flows to each airport would be separated much further out and higher up[1]. This provides assurance for a safe and efficient operation when traffic recovers to pre-pandemic levels, and for the future.

4.4 We are not proposing changes to the way aircraft depart from LLA, nor would there be changes to the way Stansted arrivals and departures fly under this proposal.

4.5 There would be less controlled airspace at lower altitudes where most other airspace users fly, but more at higher altitudes to contain the new routes and hold.

[1] The exact area of airspace where Air Traffic Controller workload would be reduced is provided in the proposal document, specifically 6.1 (page 13), the proposed airspace description.

5. Summary of how the final proposal differs from the consulted design

As a result of the consultation we made the following changes:

5.1 At upper altitudes (c.8,000ft and above) we moved the hold, reoriented it, and amended its availability such that aircraft would hold 1,000ft higher under normal operating conditions.

5.2 At lower altitudes (below c.8,000ft) we progressed Option 1 Vectoring, rather than our preferred Option 2 PBN Routes with Vectoring.

Maps and diagrams of the region:

5.3 We **strongly recommend** downloading the layered PDF map (Ref 10B) to a computer or laptop, and to open it using the free Adobe Reader DC app (Windows or Mac operating systems) to make use of the switchable layers. (It is unsuitable for smartphones and tablets.)

Summary:

5.4 We reduced the fuel / CO_2 disbenefit by shortening some of the arrival routes, keeping some aircraft higher for longer, and increasing the controllers' ability to organise a viable arrival sequence as a consequence of the moved/reoriented hold – this is likely to reduce the need to use the hold.

5.5 We also reduced the impacts on other airspace users, by making the Controlled Airspace (CAS) regions we needed at higher altitudes smaller than originally consulted (to contain the routes and hold), decreased the overall CAS at lower altitudes, and entirely removed a proposed volume of CAS from the final design.

5.6 At the lowest altitudes we consulted on two airspace design options:

5.6.1 Option 1 Vectoring (more dispersal)
This is the same operational concept used today and is described in paragraphs 1.4-1.5 on p.2.
It would happen in a new, simpler, larger working region for controllers, reducing complexity.
This would be more consistent with the Government's ANG2017 (Ref 15 and see Section 3 above).

5.6.2 Option 2 PBN Routes with Vectoring (more concentration)
Under this Option, controllers would vector about 20% of LLA's arrivals as in Option 1, but they could also issue a special instruction to fly along one of four precise routes from the hold to the runway.
About half of LLA's arrivals would expect to follow these routes. This would further reduce the workload intensity for controllers and pilots, but would increase the frequency of flights along whichever precise route was in use at the time.
This was our preferred option, and would more closely align with the Government's Airspace Modernisation Strategy (AMS, see Ref 14)[2].

5.6.3 In either Option, about 30% of all arrivals would be short-cut similar to today, where controllers identify opportunities to avoid the entire holding region. For this 30% of arrivals, there would be no change in noise impacts.

5.7 There was a clear preference for Option 1 from respondents to the consultation. We concluded that this was a viable solution to the latent issue identified as the root cause of this airspace change proposal, and was consistent with the Government's ANG2017 (Ref 15 and Section 3 above).

5.8 Therefore we are progressing Option 1 at lower altitudes, with arrivals following similar paths to today and reducing the likelihood of flightpath concentration.

5.9 See Section 8 below for summary maps and flow diagrams of the flightpath changes in the region. As per paragraph 5.3 above, we strongly recommend downloading the detailed PDF map which has

[2] As described in the Consultation Document (Ref 8 paragraph 2.43), an entirely separate change to low altitude flight paths is progressing separately under LLA's FASI-S proposal (link to CAA portal). This is necessary in order to align with the Government's AMS.

switchable layers to allow comparison of the current (pre-pandemic) design, the design we consulted on, and the final design.

6. Environmental summary: Noise – how many flights per hour, how loud

6.1 The forecasts and noise data presented here are adapted and abridged from the full Consultation Document (Ref 8).

6.2 There is no change below 5,000ft as part of the proposal and therefore no change in the 51 LAeq LOAEL, the level above which adverse effects on health and quality of life can be detected.

6.3 When an aircraft is using the lowest level of the proposed hold (approx. 8,000ft) the individual aircraft events will be audible at this height but noise will not be above LOAEL.

About forecast numbers of flights per hour

6.4 It should be noted that LLA is progressing a Development Consent Order (DCO) planning application, to increase its annual passenger limit and number of flights. This airspace change proposal was initiated due to the current airspace design's complexity at pre-pandemic traffic levels, and **is not related** to LLA's DCO application.

6.5 There are two forecasts. These forecasts are given for the 92-day summer period. During winter, traffic is usually less frequent.

6.6 The numbers of flights are provided for one future summer scenario where the DCO does not progress and traffic levels remain the same or similar to today, and for a second future summer scenario where the DCO does progress and traffic levels increase.

6.7 As noted in paragraphs 4.1 and 4.2 above, about **30%** of arrivals would be given shortcuts where the opportunity arises, similar to today – these would not change. The remaining **70%** would change flightpaths above 5,000ft, due to this proposal.

6.8 Forecasts are given as an average, for the 70% of arrivals that would change flightpaths under this proposal, as the remaining 30% - those being shortcut – would be similar to today. Table 1[3] only shows the number of flights that would route towards the hold and would fly in a different place until they reach 5,000ft (below which altitude they would fly in the same places they do now). Thus, illustrating the numbers of flights that may cause a change in potential impact and does not include those where there would be no change in impact.

6.9 Air traffic tends to arrive in bunches, so some hours will be much busier, with other hours having few, perhaps no, flights.

6.10 There are expected to be four peaks: morning, lunchtime, mid evening and late evening.

6.11 Winter traffic is usually less busy with a lower overall hourly average, but bunching still occurs so the peak hours would likely be similar.

Summer flights	2022	2032 Without DCO	2032 With DCO
Average per day	153	153	196
Average per hour	6-7	6-7	8-9
Temporary peak per hour	17	17	22

Table 1 Number of flights per hour in summer

[3] Table 1 in this document is different from Table 3 on page 18 of the final proposal document as the table in this document only shows number of flights that would fly in a different place (70% of total arrivals).

Typical arriving aircraft noise by altitude	Below 5,000ft	5,000-6,000	6,000-7,000	7,000-8,000	Above 8,000ft
Maximum Sound Level (L_{Amax})	Minimal flightpath changes below 5,000ft	59-57dB	57-56dB	56-55dB	Less than 55dB (limit of reliable accuracy)
	60dB Normal conversation in busy general office		Example sounds for comparison		50dB Conversation in quiet office

Table 2 Noise per typical arrival flight at LLA, by altitude, where a change to flightpaths would occur

About noise categories and aircraft types

6.12 LLA's most common aircraft type falls into the CAA's noise category '125-180 seat single-aisle twin-engined jet'.

6.13 This is mostly the Airbus A320 family (including the A318, A319, A321, Neo), and the Boeing 737 family (all variants), with some other similar-sized types that also fall into that broad category.

6.14 This CAA noise category covers about 80% of all LLA arrivals.

6.15 The A320/B737 types of aircraft are therefore the most common aircraft category at LLA.

6.16 In the CAA-sourced Table 2 above, measurements stop at 55dB – below that level, the accuracy of individual aircraft noise readings is difficult to maintain and is masked by background noise.

About air travel recovery, and noise impacts under this proposal

6.17 Should air traffic recover more slowly from the effects of the coronavirus pandemic, these numbers per day and per hour would generally be lower, and the noise impacts would be less frequent.

6.18 However, should bunching occur, there could still be peak hours similar to Table 1 above.

About Areas of Outstanding Natural Beauty (AONB) and Tranquillity

6.19 The Chilterns AONB is currently overflown at low altitudes because it is close to the runway and cannot be avoided. There would be no change in impacts on this AONB. Flightpaths and altitudes of LLA arrivals would be comparable to the pre-pandemic situation.

About dispersion and concentration

6.20 Vectoring tends to disperse flightpaths, though there will usually be a flightpath swathe between important places such as a holding area and final approach.

6.21 Aircraft following specific routes tend to fly them very precisely, reducing the overall width of the flightpath and the number of households overflown, but increasing the frequency of noise impacts on those beneath the route.

6.22 The main part of our consultation described two options, one with more dispersal, the other with more concentration. We asked about this in our consultation, and received feedback to help us decide.

6.23 Section 5 above describes how we made changes to the airspace design using that feedback.

7. Environmental summary: Greenhouse gas emissions (CO_2 equivalent)

7.1 This proposal is not attempting to resolve environmental issues within the relevant areas of airspace, in the current operation. Our efforts focus on resolving the safety issue described earlier, while minimising any increases in noise impacts, increases in fuel use and consequential greenhouse gas emissions such as CO_2 equivalent (CO_2e).

7.2 The forecasts and fuel/CO_2e data presented here are adapted and summarised from the Final Options Appraisal (Ref 10C).

7.3 Our consulted design would have led to an increase in CO_2e emissions of between 254kg-285kg per LLA arrival, depending on the outcome of LLA's DCO application.

7.4 Following consultation feedback, the modifications we have made have changed that disbenefit to 85kg-109kg CO_2e per flight, a reduction in the disbenefit of 60% compared with the consulted design.

7.5 Stansted arrivals would benefit slightly, between 15kg-34kg CO_2e, from the reduced likelihood of delays due to the segregation of LLA and Stansted's arrival flows.

	Average change in fuel and CO_2e per flight (LLA Arrivals)			
	Scenario	2022	2032 No DCO	2032 With DCO
	Num flights	70,740	70,740	91,500
Consulted (Option 1) design Fuel and CO_2e disbenefit	t fuel total	-6,330	-6,330	-7,302
	t fuel per flight	-0.089	-0.089	-0.080
	kg CO_2e per flight	**-285kg**	**-285kg**	**-254kg**
Final design Fuel and CO_2e disbenefit	t fuel total	-2,421	-2,421	-2,441
	t fuel per flight	-0.034	-0.034	-0.027
	kg CO_2e per flight	**-109kg**	**-109kg**	**-85kg**

	Average change in fuel and CO_2e per flight (Stansted Arrivals)			
No change to Stansted arrivals	Num flights	101,719	102,410	102,410
	t fuel total	489	1,111	1,111
	t fuel per flight	0.005	0.011	0.011
	kg CO_2e per flight	15kg	34kg	34kg

Table 3 Fuel and CO_2e summary

7.6 The airspace design was changed due to consultation feedback (see Section 5 above), resulting in greenhouse gas disbenefit being reduced.

8. Summary Maps of the airspace change

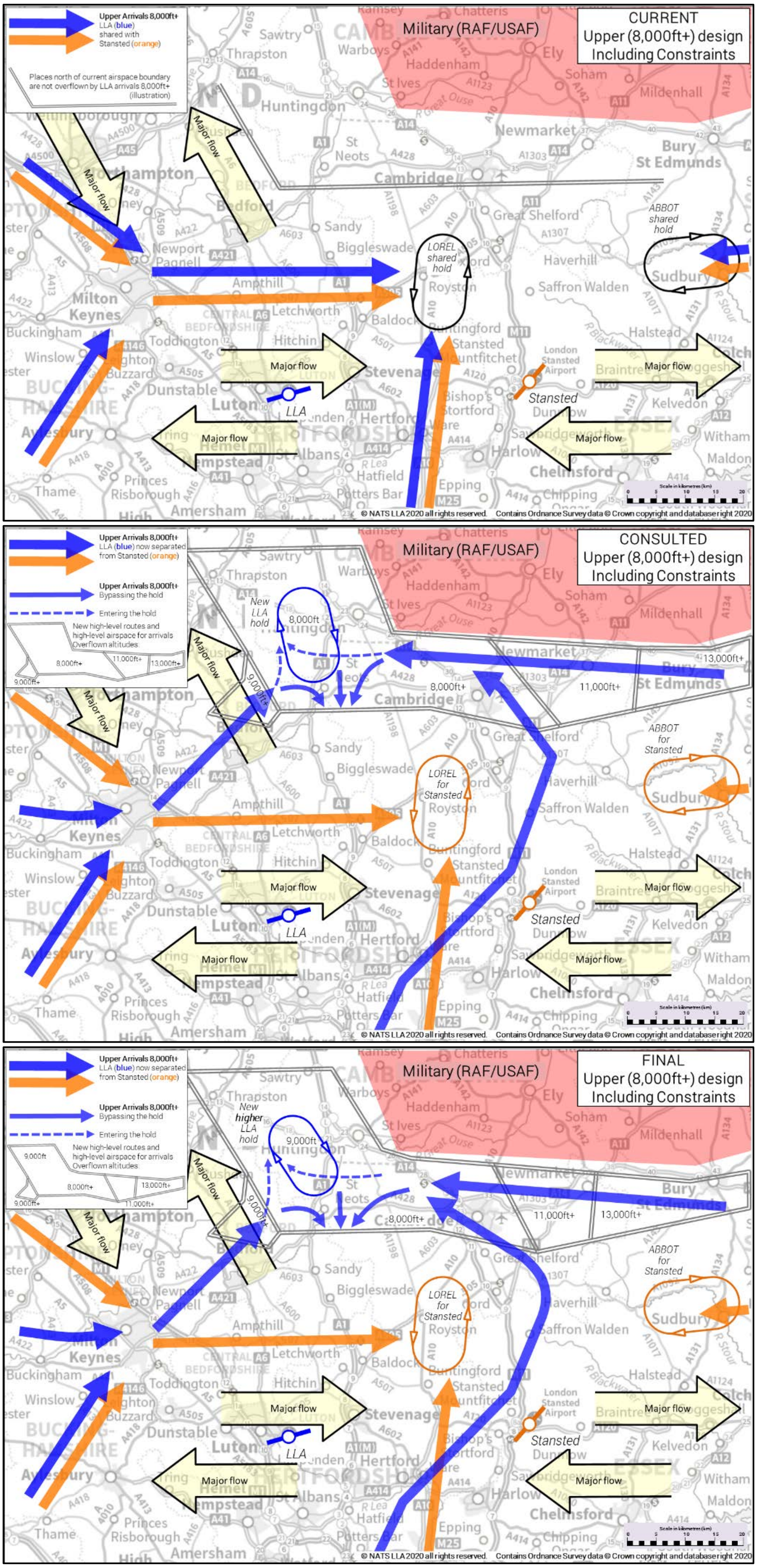


Figure 1
LLA and Stansted Arrival flows at Upper altitudes (8,000ft+)

Includes illustrations of existing air traffic control constraints (military activity area in red, major air traffic flows in yellow)

Current (top)
Consulted (centre)
Final (bottom)

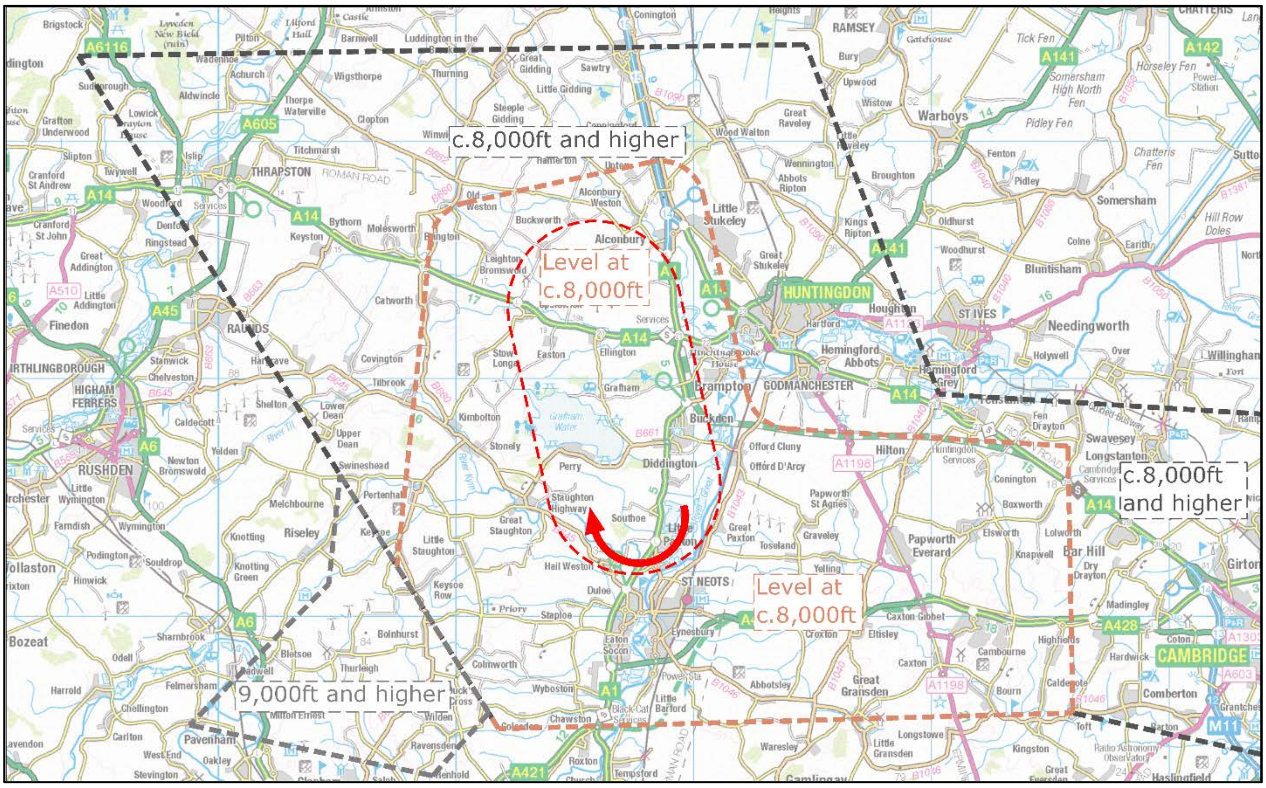
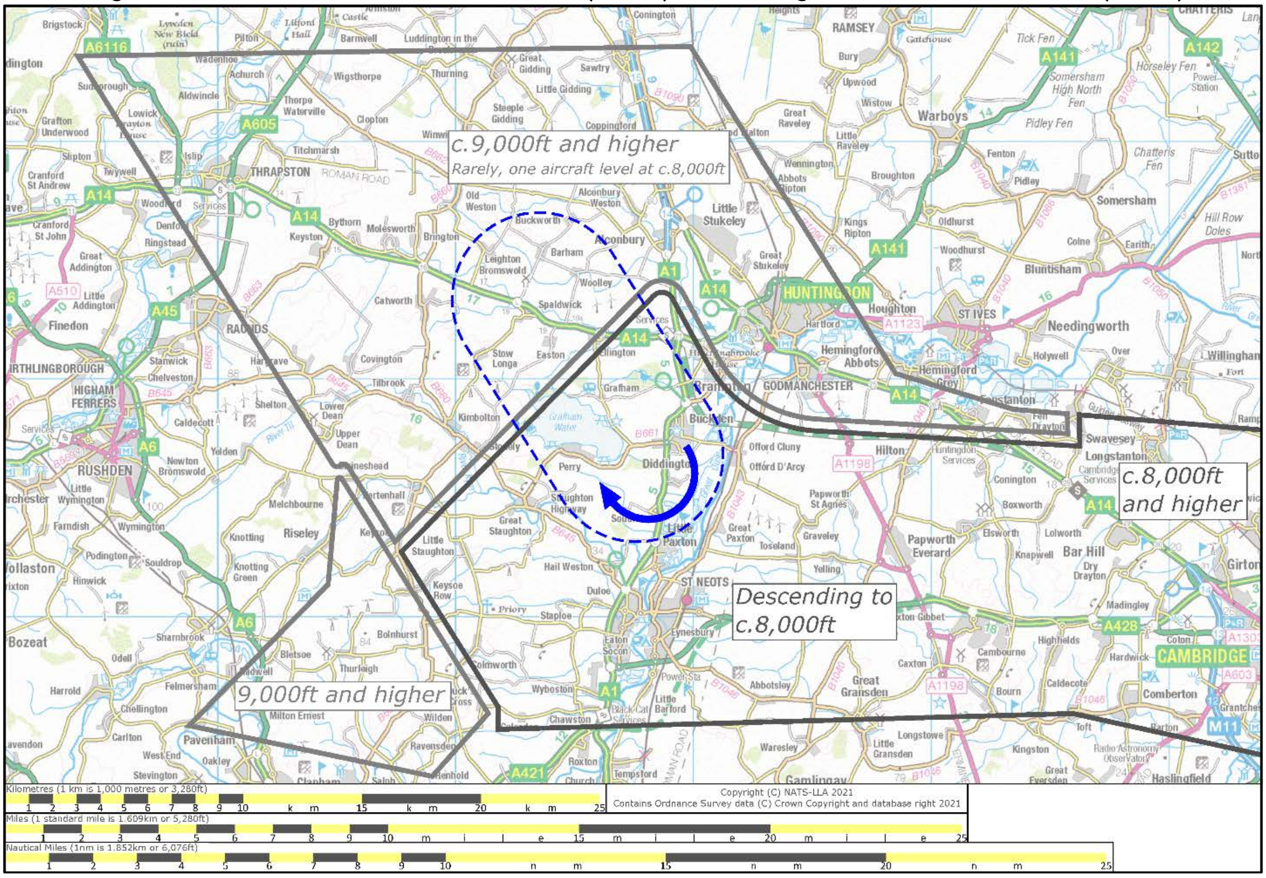


Figure 2 Consulted hold location c.8,000ft (above), Final design hold location c.9,000ft (below)



The final design upper airspace system is less likely to require holding, but some holding would still be necessary.

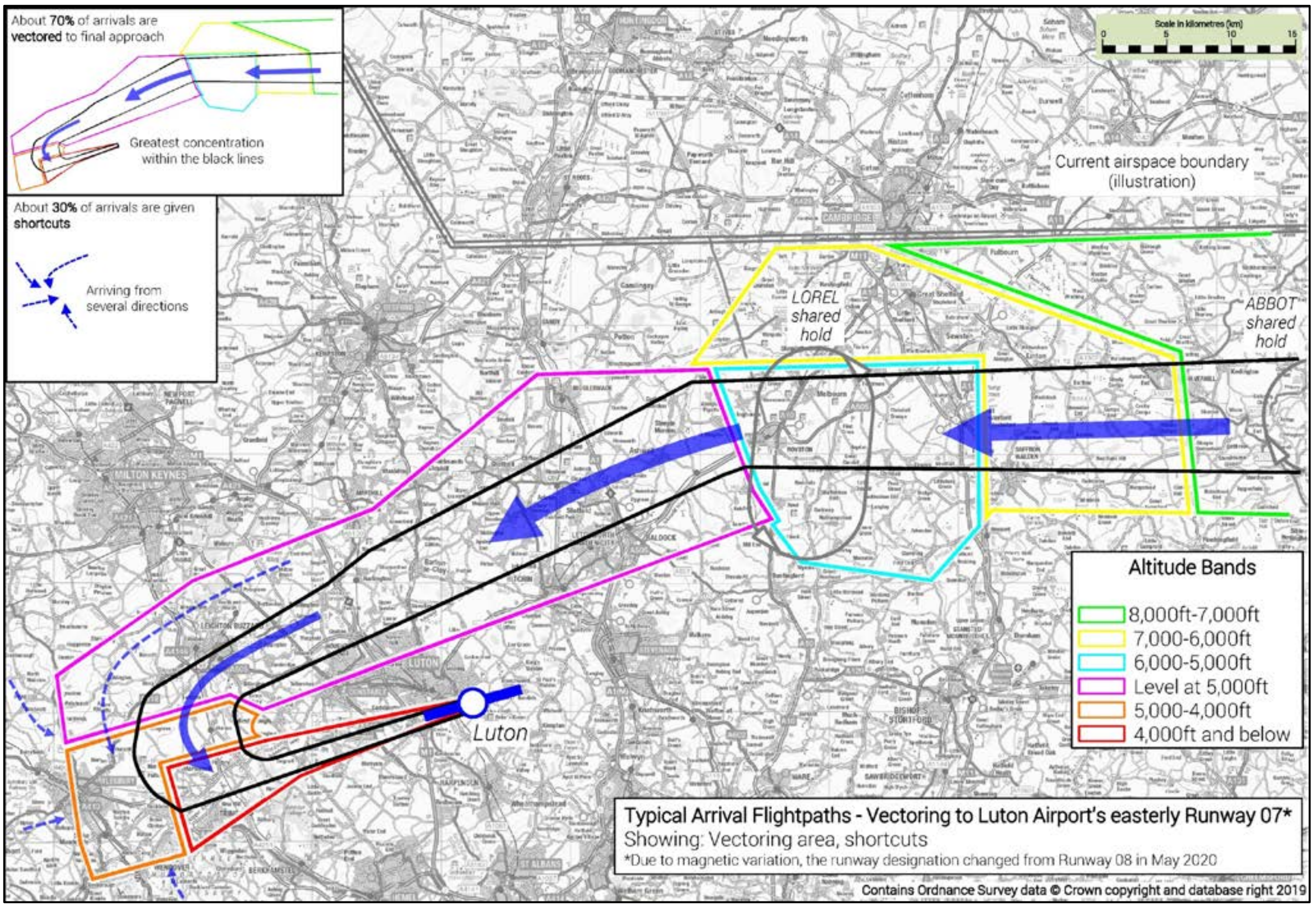
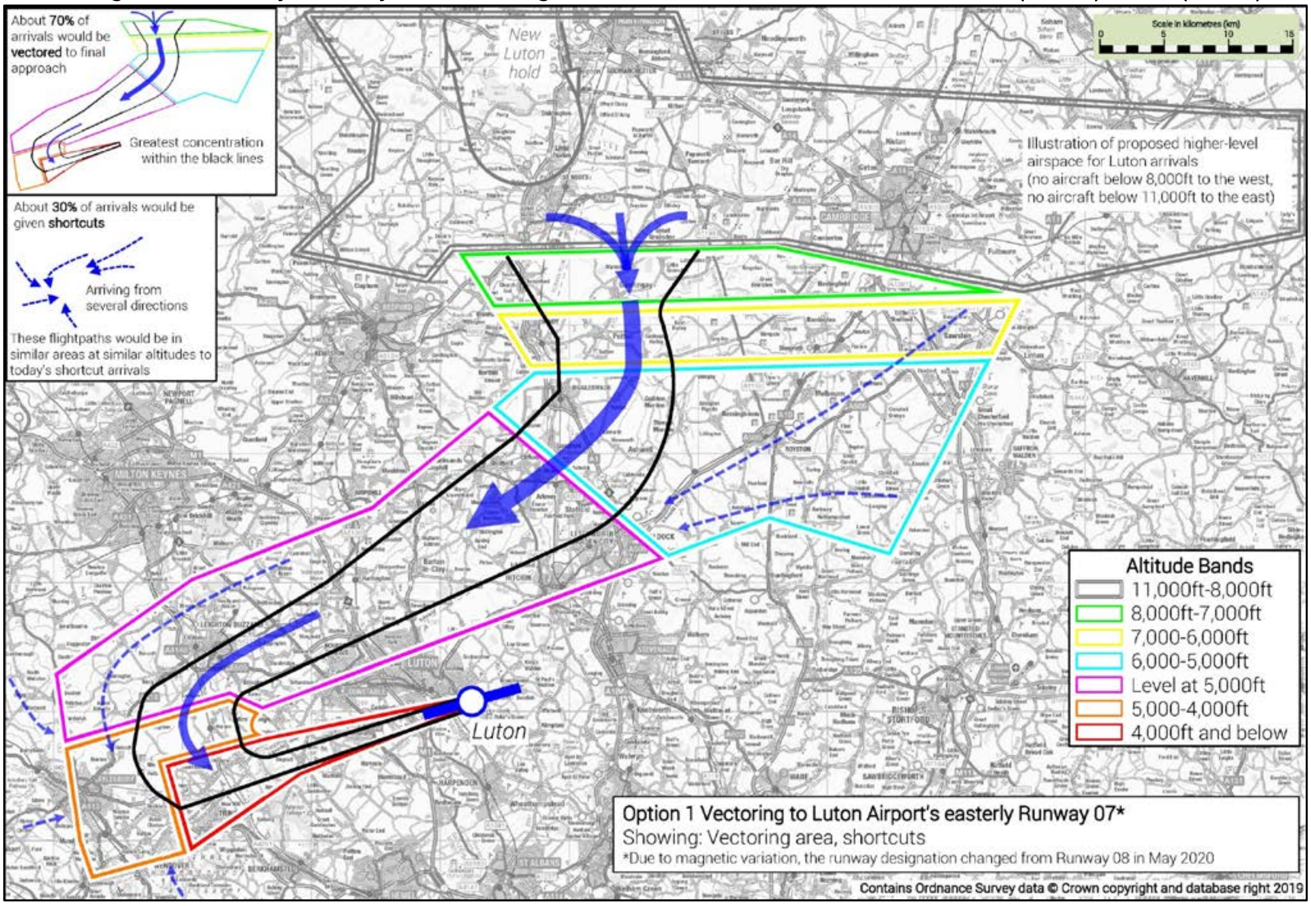


Figure 3 Easterly Runway 07 Flow Diagrams from 8,000ft: Current LLA arrivals (above), Final (below)



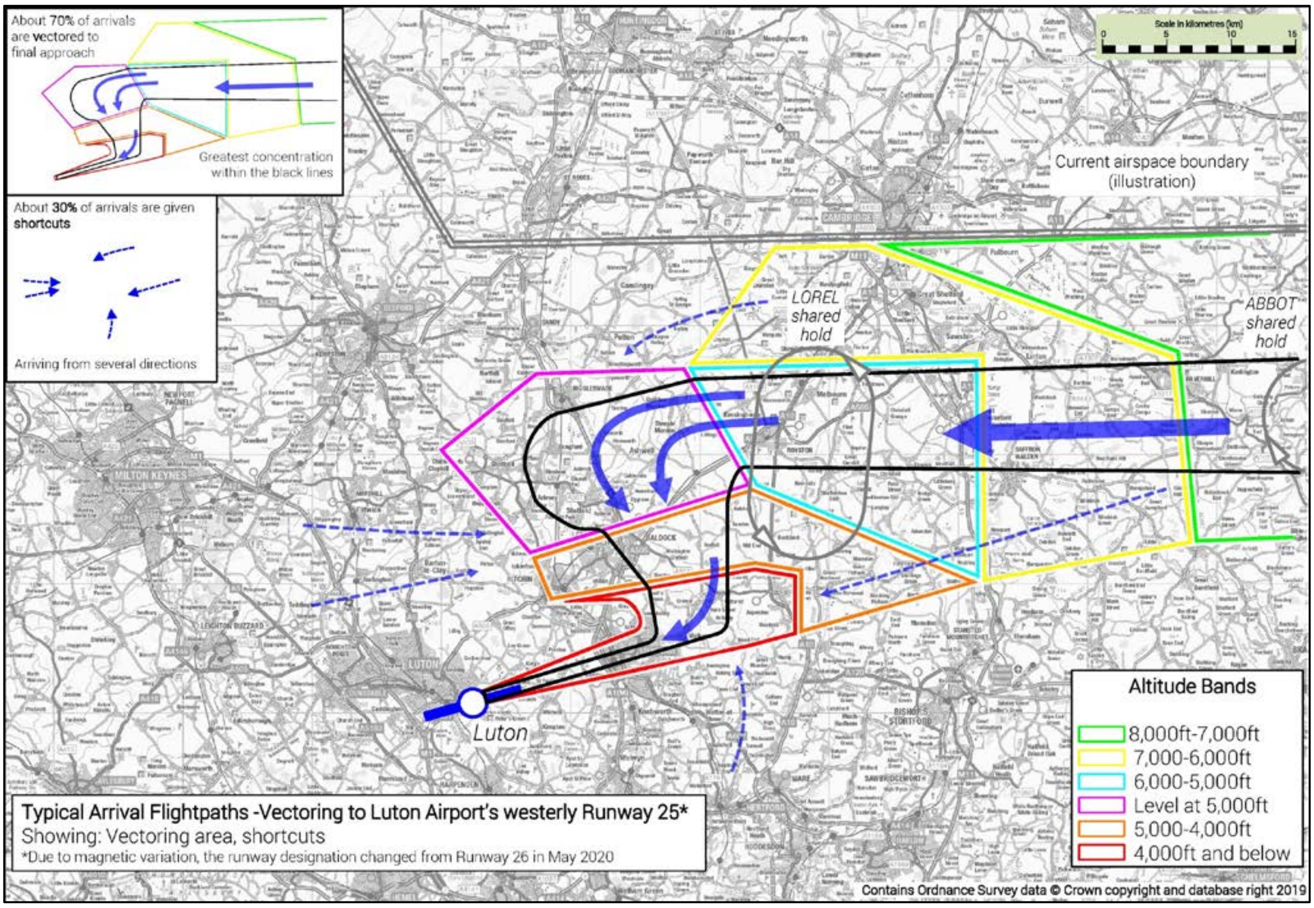
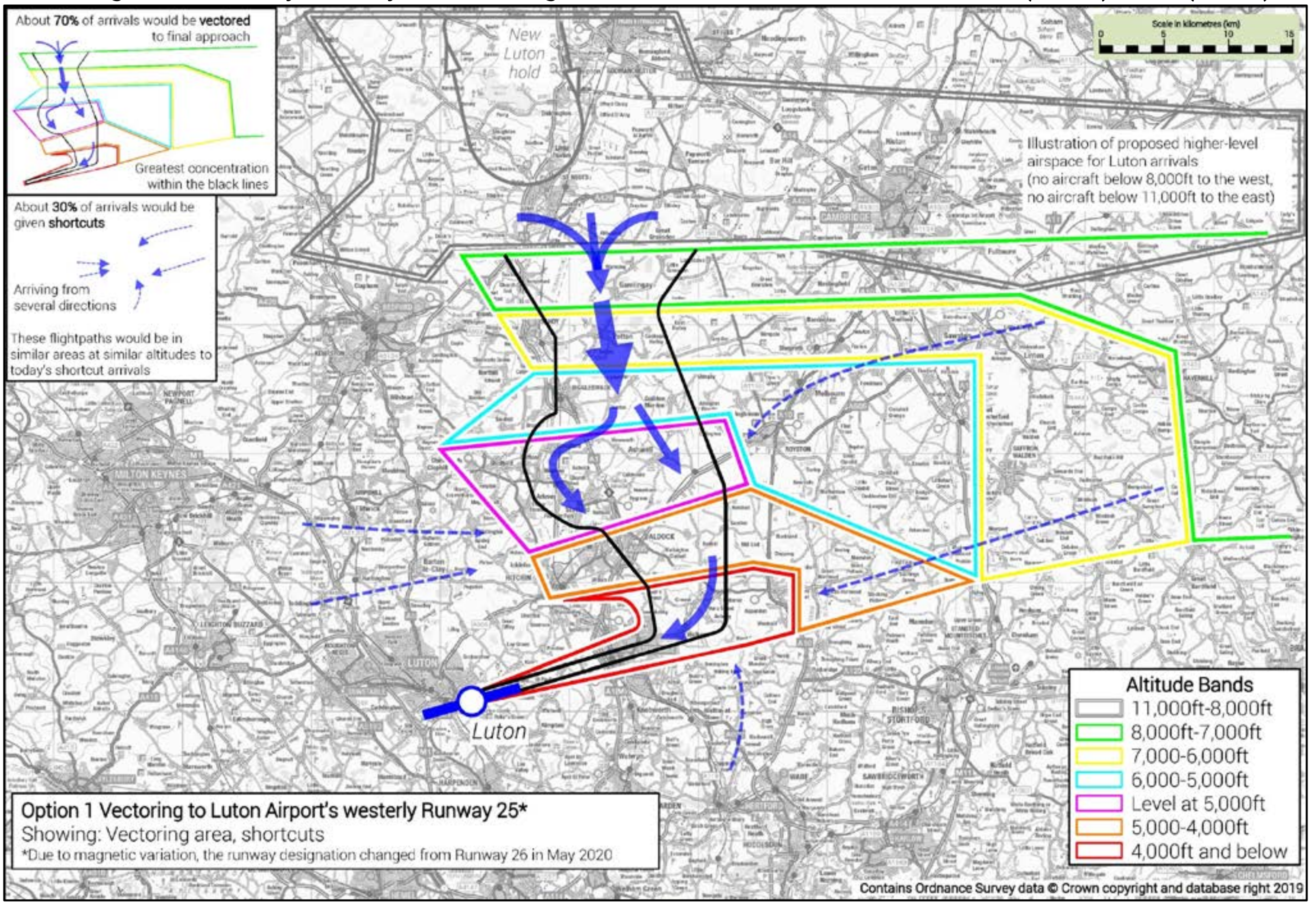


Figure 4 Westerly Runway 25 Flow Diagrams from 8,000ft: Current LLA arrivals (above), Final (below)



9. Plain English summary of technical changes under this proposal

9.1 This section briefly explains the changes this proposal will introduce, if approved and implemented. Please read it alongside Reference 10F (link to downloadable layered PDF maps).

9.2 LLA currently has 14 arrival routes that link the high-level cruise phase of flight to the arrival phase of flight. These are known as Standard Terminal Arrival Routes or STARs. Each STAR takes the flight from the high-level cruise routes to the current holding areas (named LOREL over Royston and ABBOT over Sudbury), from different directions. Sometimes there is more than one route from the same direction depending on the flight's technical specification.

9.3 Our ACP would change 10 of those 14 arrival routes. All 10 would start at similar places in the high-level cruise and follow similar paths, but would then follow new paths at the later end of the route, ending at the new hold which has the name 'ZAGZO'. As already noted in paragraph 4.1 and 4.2.2, about 30% of arrivals to LLA would follow existing shortcuts, so 70% of arrivals would follow a changed flight-path.

9.4 Two of the 14 routes would become redundant, and be removed. Two would remain unchanged and, like today, would be used rarely by some flights whose technical specification is lower than the vast majority of flights using LLA. This applies to about 1% of LLA arrivals, and the technical specification is called RNAV5. About 99% of LLA arrivals have, or exceed, the technical specification called RNAV1 so these flights would use the current routes today, and the new routes once implemented.

9.5 We need to ensure the new routes are protected, so we would establish Controlled Airspace (CAS) volumes to contain those routes.

9.6 Currently, LLA shares 2 arrival holds with Stansted (called LOREL and ABBOT, as above). However, they also share 5 outer holds (called LAPRA, LOGAN, BOMBO, VATON and UNDUG), which are rarely used under unusual circumstances such as an unplanned runway closure.

9.7 Three of these outer holds (LOGAN, VATON and UNDUG) will remain unchanged and be shared with Stansted. The other two (LAPRA and BOMBO) will become Stansted-only. LLA needs to have its own outer holds in similar places to LAPRA and BOMBO, so the new routes will have outer holds at places called WOBUN and MUCTE.

9.8 All of these routes and holds are annotated on pages 2, 3 and 4 of the map Ref 10F along with the typical 'Flight Level' (FL). Broadly speaking, FL100 is 10,000ft, FL110 is 11,000ft etc, however there are technical altimetry differences between Flight Level and Altitude.

9.9 For the avoidance of doubt, the proposed hold ZAGZO may be used daily and some holding may be expected during peak hours. We do not expect the hold to be 'full' at all altitudes from c.9,000ft-14,000ft unless there is an unusual event. The outer holds would be used rarely. It is not possible however to give a more precise description of how often, when, and in which holds holding may occur.

9.10 Also for the avoidance of doubt, we must establish contingency routes linking the hold to the runway should, for example, the pilot need to self-navigate to the runway following a technical problem (see Ref 10D p.29 para 7.17). These routes would be published but would only be used under very rare circumstances (such as radio failure). Other minor technical flight procedural updates are also planned with no noise or fuel impacts.

9.11 The technical table on the following page is taken from the ACP itself (Ref 10E) and lists all the changes.

Current	Proposed	Notes
TELTU 1L	TELTU 2L	New design increases validity indicator
LISTO 1L	LISTO 2L	New design increases validity indicator
BANVA 1L	UNDUG 1L	New design, from intermediate waypoint so validity indicator is 1
FINMA 1L	FINMA 2L	New design increases validity indicator
SILVA 1L	SILVA 2L	New design increases validity indicator
AVANT 1L	(withdrawn from LLA use)	AVANT STAR retained for Stansted traffic only, new route designator
BEDEK 1L	BEDEK 2L	New design increases validity indicator
BARMI 2A	BARMI 1L	New design from same waypoint, the route indicator has changed to L so the validity indicator must be reset to 1
RINIS 1A	RINIS 1L	New design from same waypoint, the route indicator has changed to L so the validity indicator must be reset to 1
TOSVA 1A	TOSVA 1L	New design from same waypoint, the route indicator has changed to L so the validity indicator must be reset to 1
XAMAN 1A	XAMAN 1L	New design from same waypoint, the route indicator has changed to L so the validity indicator must be reset to 1
LOGAN 2A	(no change)	For rare non-RNAV1 arrivals from the east. Shared with Stansted.
DET 2A	(no change)	For rare non-RNAV1 arrivals from all other directions, and for some intra-LTMA positioning flights. Shared with Stansted.
ABBOT 1Z	(withdrawn from LLA use)	ABBOT stack swap to LOREL retained for Stansted traffic only, new route designator (see next table)
(new)	ZAGZO 1X	RNAV1 Transition to Runway 07 final approach (contingency only)
(new)	ZAGZO 1Y	RNAV1 Transition to Runway 25 final approach (contingency only)
Initial Approach Procedures ILS07 and ILS25 Without Radar Control	Initial Approach Procedures ILS07 and ILS25 Without Radar Control (from ABBOT only)	LOREL content removed Disambiguation that these IAPs are from ABBOT only
DTY CTA21 [C]	DTY CTA21 [C]	Lateral and vertical dimensions changed (Hold containment)
(new)	DTY CTA25 [C]	New CAS volume (FINMA, SILVA and LISTO 2L STAR containment)
(new)	CLN CTA10. [C]	New CAS volume (BARMI, RINIS, XAMAN, TOSVA, UNDUG 1L, TELTU, BEDEK 2L STAR containment, vectoring area for LLA arrival sequencing)
(new)	CLN CTA11[C]	New CAS volume (BARMI, RINIS, XAMAN, TOSVA 1L STAR containment)
(new)	CLN CTA12 [C]	New CAS volume (BARMI, RINIS, XAMAN, TOSVA 1L STAR containment, MUCTE en route hold containment)

Table 4 Technical list of changes to routes and airspace

10. References

Drafting and Publication History

Issue	Month/Year	Changes this issue
Issue 1.0	07/2021	Published to CAA Portal

References

Ref No	Description	Hyperlinks
1	SAIP AD6 CAA web page – progress through CAP1616	Link to CAA portal Link to consultation site
2	Stage 1 Statement of Need	Link to document
3	Stage 1 Assessment Meeting Minutes	Link to document
4	Stage 1 Design Principles	Link to document
5	Stage 2 Design Options	Link to document
6	Stage 2 Design Principle Evaluation	Link to document
7	Stage 2 Initial Options Appraisal and Safety Assessment	Link to document
8	Stage 3 Consultation Document	Link to document
9	Stage 3 Full Options Appraisal	Link to document
10	Stage 3 Consultation Strategy	Link to document
10A	Stage 3 Step 3D Consultation Feedback Report and Technical Compliance Supplement	Link to report Link to supplement
10B	Stage 4 Step 4A(ii) The Final Airspace Design (technical map for use on computers, unsuitable for smartphones and tablets, open using the free Adobe Reader DC app to make use of switchable layers)	Link to map (for Public Evidence Session see 10F below)
10C	Stage 4 Step 4A(iii) Final Options Appraisal	Link to document
10D	Stage 4 Step 4A(i) Consultation Response Document	Link to document
10E	Stage 4 Step 4B Airspace Change Proposal application	Link to document
10F	Updated Map 4A(ii) Final Airspace Design (technical map PDF with switchable layers as per 10B above), improved annotations for Public Evidence Session	Link to map
11	Airspace change: Guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic, and on providing airspace information CAP1616	Link to document (Edition 4, March 2021)
12	Environmental requirements technical annex CAP1616A	Link to document
13	Definition of Overflight CAP1498	Link to document
14	Airspace Modernisation Strategy AMS CAP1711	Link to document
15	UK Government Department for Transport's 2017 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 (abbreviated to ANG2017)	Link to document

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