

London Luton Airport Operations Ltd. Western Airspace Development Team

London Luton Airport Western Airspace Extension:

Formal Proposal

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#### **Contents**

1. NATIONAL AIR TRAFFIC SERVICES (NATS)	2
2. EXECUTIVE SUMMARY	3
3. JUSTIFICATION FOR CHANGE AND ANALYSIS OF CHANGE OPTIONS	4
3.1. LONDON LUTON AIRPORT RUNWAY 08 ARRIVALS AND DEPARTURES 3.2. CONTROLLER RESPONSE	4 5 8
4. AIRSPACE DESCRIPTION	13
5. SUPPORTING INFRASTRUCTURE	14
5.1. P-RNAV/NAV AIDS 5.2. AIRSPACE SIZE 5.3. RADAR PRIMARY 5.4. SSR 5.5. RADIO	14 15 15 16 16
6. OPERATIONAL IMPACT	17
7. ENVIRONMENTAL IMPACT	19
7.1. CONTINUOUS DESCENT APPROACH (CDA)	21
8. ECONOMIC IMPACT	21
9. DAP REGULATORY REQUIREMENTS	22
9.1. ATS ROUTES 9.2. TERMINAL AIRSPACE 9.3. OFF-ROUTE AIRSPACE STRUCTURES	25 25 27
10. SUPPORTING MAPS	28
11. RECORD OF CONSULTATION	34
<ul> <li>11.1. CONSULTATION 2004</li> <li>11.2. BREAKDOWN OF CONSULTEES</li> <li>11.3. BREAKDOWN OF RESPONSES</li></ul>	34 34 35 35 36
12. CONSULTATION 2004 - TIMETABLE	36
13. CONSULTATION RESPONSE MATRIX	39
APPENDIX A: CONSULTATION PACK	
APPENDIX B: CONSULTATION RESPONSES	

APPENDIX C: LONDON LUTON AIRPORT CONSULTATIVE COMMITTEE PAPERS AND MINUTES





#### 1. National Air Traffic Services (NATS)

This airspace proposal has been prepared with the assistance of National Air Traffic Services who are the contracted provider of air traffic services for London Luton Airport.

The proposal offers safety, environmental and efficiency benefits whilst strategically deconflicting London Luton Airport's arriving and departing traffic during easterly operations. This proposal is also in accordance with the Eurocontrol Airspace Strategy for the ECAC States in that it resolves potential conflict by tactical separation.

#### 2. Executive Summary

#### Purpose of the Proposal

The purpose of the proposal to extend Luton Controlled Airspace is to enable arriving aircraft to be radar vectored north of the airfield downwind for runway 08, which will strategically deconflict them from traffic departing on Compton routeings.

#### **Benefits**

The airspace extension will improve efficiency and enhance the level of safety provided to aircraft through strategic deconfliction as well as allowing arrivals to conduct Continuous Descent Approaches to runway 08.

#### Environmental Assessment

An environmental assessment of the impact of the use of new airspace has been carried out by the Environmental Research Consultancy Division of the CAA (ERCD). There is a net reduction in the number of residents affected by the overflying of approaching aircraft of approximately 150,000 people (based on 2001 census data analysed by CACI Ltd.) However the proposed procedure will expose certain areas to noise disturbance from Luton arrivals during easterly operations where none existed before. London Luton Airport would seek to avoid the overflying of all large centres of population.

#### Consultation

An extensive consultation exercise has been carried out over a period of five months. Of the 254 consultees, 51 letters of support, 39 letters of objection and a further 17 responses with no comment were received.

#### London Luton Airport Consultative Committee

The proposal has been discussed in depth at London Luton Airport Consultative Committee meetings over the consultation period. Discussions have also taken place in respect of the proposal at Noise and Track Sub-Committee meetings and at the Noise and Track Working Group forum. Copies of submissions, minutes and attendees to the various meetings have been included in the attachments.

#### 3. Justification for Change and Analysis of Change Options

The proposed area of additional airspace is in the vicinity of Leighton Buzzard, Bedfordshire, northwest of Dunstable.

The additional airspace is to the northwest of the existing control area starting at an altitude of 3500 feet above mean sea level (amsl), extending up to 5500 feet amsl. This would enable Air Traffic Control to re-route easterly arrivals, which enter the Luton Controlled Airspace from the Lorel Hold / 'Luton Gate' near Royston. At present, these arrivals have to transit in an S-shaped pattern across Luton and south-westerly towards Hemel Hempstead to finally turn over an area in the vicinity of Whipsnade.

A consultation pack comprising of an introduction letter, ERCD Environmental Assessment, Options Matrix, Question and Answer Document, NATS Statement, CAP 725 - Airspace Change Process Guidance, Response Slip + SAE was sent to a total of 254 consultees.

The consultation pack was distributed on 14<sup>th</sup> June 2004, with an initial deadline for responses by the 27<sup>th</sup> September 2004. Following feedback from a number of consultees, many of which were parish councils, it was felt that this consultation period needed to be extended due to difficulties in arranging meetings over the summer months. On the 15<sup>th</sup> July the consultation period was extended to Monday 8<sup>th</sup> November 2004 for all consultees.

The proposed change will deliver strategic deconfliction of 08 arrivals and 08 Compton departure routes. In doing so, it reduces the complexity of route interaction, which reduces the possibility of ATC error or the impact of flight crew error.

#### 3.1. London Luton Airport Runway 08 Arrivals and Departures

The combination of the existing arrival route from LOREL and the Standard Instrument Departure route to Compton brings arriving and departing flights into potential conflict immediately south-west of Luton Airport. Tactical intervention is required by the Luton Radar Controller to ensure no losses of separation take place. This requires him or her to verbally co-ordinate with another controller at West Drayton, an early climb profile for the departing flight approval for which is dependant on the position and altitude of aircraft routeing north from Heathrow and Northolt. If this early climb is not approved the Luton Radar Controller typically, has around one minute in which to give the arriving flight further descent to 3000 feet in order to achieve purely radar separation because of the interaction with other routes in the vicinity of Bovingdon. The Luton Radar Controller additionally, may have to verbally co-ordinate with the Luton Tower Controller situated at Luton Airport.

It can therefore, be seen that the amount of intra-unit and inter-unit co-ordination required for just two flights is high, and the available timeframe short.

The controllers involved may of course, be handling several other flights that merit attention and therefore, the workload involved is high.

Whilst air traffic flow management procedures are applied to flights operating into and out of Luton, even traffic flows that are well within the airport's declared and agreed capacity, and within the associated airspace capacity, can create high workload for the controllers involved.

The proposed Western Airspace Change Proposal is designed to reduce controller workload by strategic de-confliction of routes where possible, combined with 'silent co-ordination' procedures between airspace sectors enabling controllers to transfer control of aircraft without the need to undertake verbal co-ordination. The proposed routeing i.e. to the north of Luton Airport, strategically de-conflicts arrivals from Compton departures and so removes all requirements for routine controller verbal co-ordination.

The Western Airspace Change Proposal and its associated procedures will enable NATS air traffic controllers to safely and more efficiently manage flight activity at London Luton Airport.

#### 3.2. <u>Controller Response</u>

#### National Air Traffic Services (NATS) London Terminal Control Centre – West Drayton, Operations Working Paper Controller Response

In order to ensure a safe and orderly handling of flights by ATC. A key element is the avoidance of overloading the individual controller. This is to ensure that their mental capacity is not impaired to the extent that the likelihood of making errors of judgement or failing to recognise errors or non-compliance by flight crew becomes unacceptably high.

Currently under normal operational conditions, Luton Tower must seek a release via a telephone call to Luton Radar for all CPT departures from runways 08, a procedure locally known as 'Check West' due to the interaction of the route with the existing arrival pattern. All other standard instrument departures are 'block' released without the need for any direct verbal co-ordination between Luton tower and Luton approach, known as 'free flow'. This is a locally adopted procedure. CPT is the most utilised departure route accounting for 27% of departures from runway 08 during 2003.

It may well be necessary prior to the departure being 'released', for radar to:

- Delay its departure due to existing conflictions.
- Amend the departure climb and restrict it initially to 3000 feet in order to procedurally separate this flight from an inbound being vectored for a right hand circuit onto runway 08 at or descending to 4000 feet so remaining within the confines of the radar manoeuvring area south of Luton airport.

These factors combine to increase the workload of both air traffic controllers and the flight deck, thus increasing the possibility for errors. Once a departure is airborne it may be necessary to co-ordinate early climb from London Control (TC NW) in order to provide vertical separation against inbound aircraft. Should the early climb not be approved or there are delays in contacting this particular sector via telephone, it could be necessary to descend the inbound flight to 3000 feet. This then adds to the controller workload especially when faced with the lack of lateral controlled airspace available to the west of Tring at 3000 feet, thus the controller must be proactive in recognising and resolving this confliction. This scenario also prevents any CDA compliance, thus increasing environmental impact.

Due to the lateral limits of the existing controlled airspace south west of Leighton Buzzard it is not possible to vector traffic safely via a left-hand circuit. With this in mind, current procedures dictate that left-hand downwind circuits should not be used. The need therefore exists to vector flights slightly to the west of Luton avoiding the departure climb out, then to continue vectors for a right hand circuit. This 'S' bend route for easterly arrivals is associated with a number of tight turns, increased speed control and stepped descents coupled with segments of level flight which causes an increase in workload for Air Traffic controller's and the flight deck which again increases the chance of error and prevents CDA.

Due to the constraints imposed by the current limits of controlled airspace, gliding activities at Dunstable/Halton and the existing interaction of arrival and departure routes, there is limited flexibility for radar controllers to accurately deliver successive inbound flights at pre co-ordinated distances apart as agreed with Luton tower.

Due to the interaction of the inbound route and CPT departures combined with the lateral limits of existing controlled airspace, there are very few opportunities to offer continuous decent approaches. Invariably the CPT departures are subject to stepped climb; the inbound's stepped descent and increased speed control. When these factors are taken into consideration, the proposed extension to the airspace under this proposal reduces the environmental impact overall on Luton's outlying neighbours.

This paper has sought to provide guidance on the operational impact of the use of current and future airspace and the points raised are highlighted below:

- Stepped climb and descent.
- Increased verbal co-ordination.
- Increased environmental noise nuisance.
- Increased fuel burn.
- Increased ATCO/flight deck workload.
- Increased chance of errors.
- Interaction with two standard instrument departures.
- The CPT standard instrument departure accounted for 27% of all departures in 2003.
- 'S' bend approach to remain within the lateral limits of controlled airspace.
- Unable to vector down wind left hand due to the lateral limits of controlled airspace.
- To strategically de-conflict interacting arrivals with CPT departures.
- Verbal co-ordination between Luton tower and Luton radar for every CPT departure.

- Verbal co-ordination between Luton radar and TCNW to obtain early climb for CPT departures whenever necessary.
- Early decent or late climb to avoid conflicting traffic.
- Lack of flexibility in delivering successive arrivals in pre co-ordinated range spacing.
- Very limited scope for applying continuous descent approaches.
- Reduced flexibility during periods of gliding at Dunstable/Halton.

TC Operations LTCC

#### 3.3. Analysis of Change Options

The **Options Matrix** displays all of the options that were considered, listing benefits and disbenefits.



#### Option 1

#### Procedure

Arrivals routed south of Leighton Buzzard, strategically de-conflicting Compton and Victor departures from runway 08 arrivals.

#### Requirement

It would be necessary to lower the controlled airspace in the area surrounding Houghton Regis, Totternhoe and Eaton Bray to an altitude of 2500 feet (currently 3500 feet) in order that that the correct 3 degree glide slope can be established at a shorter range.

#### Benefit

Strategic de-confliction of departure and arrivals routes, whilst enabling a CDA to be flown.

#### Disbenefit

This option whilst meeting the de-confliction requirement would impose further restrictions on gliding operations at the London Gliding Club at Dunstable Downs in that no flying would be possible above altitude 2500feet in parts of the existing delegated Luton CTA to the west north-west of Dunstable. The requirement to lower the airspace in this area would also bring aircraft lower to the ground thereby generating increased noise levels of densely populated areas.

The width of the CTR to the north of the runway 08 centreline being 3nm (ICAO Standard 5nm) is insufficient to complete an accurate turn from the downwind track on the final approach track with aircraft larger than those in the light or small vortex

weight category, with an increased risk of aircraft straying outside of controlled airspace.

#### Decision

Not supported on safety grounds.

#### Option 2



#### Procedure

Route arrivals overhead aerodrome as per present procedure and re-route departing flights via Compton SIDs, Victor and Uniform SDRs to north of aerodrome.

#### Requirement

It would be necessary to develop new Noise Preferential Routes to the north west of Luton and Dunstable to accommodate re-aligned Compton and Victor departure routes. The Luton Airport Control Area controlled airspace to the northwest of Luton would require a lower base altitude of 2500 feet (currently 3500 feet) in order to accommodate the necessary 3.3% climb gradient.

#### Benefit

Area of conflict between easterly arrivals and departures to south of airfield removed.

#### Disbenefit

A confliction point to the north of the aerodrome would remain between arriving and departing traffic.

The departure route would be realigned over more densely populated areas thereby increasing the public's exposure to aircraft noise.

A CDA could not be flown with this option.

#### Decision

Not supported on environmental and safety grounds.

#### Option 3



#### Procedure

Route arrivals north and west of Leighton Buzzard and to the south of Milton Keynes.

#### Requirement

Aircraft would maintain an altitude of 5000 feet from the Lorel Hold / "Luton Gate" to a position south of Milton Keynes and to the north and west of Leighton Buzzard before turning south towards the extended runway 08 centreline west of Cheddington to join the ILS.

#### Benefit

This option would enable most arriving aircraft to overfly less densely populated areas and would retain the strategic de-confliction of arriving and departing traffic. A CDA can be flown with this option.

#### Disbenefit

This option would require a significantly larger extension to the Luton Control Area controlled airspace and as a consequence would have a greater impact on other airspace users such as flying clubs, gliding clubs, flying schools, military aircraft and private flying.

The track distance for this option would be increased by approximately 3.5nm compared with the existing arrivals route and as a consequence there would be an increase in fuel usage.

Airspace change would result in Cranfield Airport having to divert traffic over Milton Keynes thereby affecting a significantly greater population with this option. Due to commercial sensitivity traffic figures for Cranfield are unavailable within this report but a detailed breakdown is available from David Wilkins – Managing Director, Cranfield Airport.

#### Decision

Following responses from the previous consultation and discussions with other airspace users this option is no longer supported due to the adverse environmental impact and significant negative impact upon other airspace users.



#### Option 3a

#### Procedure

Route arrivals north of Luton towards Leighton Buzzard.

#### Requirement

Aircraft would maintain an altitude of 5000 feet from the Lorel Hold until a CDA commences in the vicinity of Wingrave.

#### Benefit

This option would enable most arriving aircraft to overfly less densely populated areas than the current easterly arrivals route whilst retaining the strategic deconfliction of arriving and departing traffic. A CDA can be flown with this option. This option also minimises impact upon other airspace users. The track distance for this option could be up to 6nm shorter than the current arrivals route.

#### Disbenefit

If other airspace users and aerodromes are not considered this option overflies a greater population than option 3, although when these are considered the overall environmental impact is reduced.

#### Decision

On balance this is the supported option as there will be less environmental impact than any of the other options, optimises the safety benefits whilst minimising impact upon other airspace users.

#### Option 4



#### Procedure

Route arrivals north of Luton towards Leighton Buzzard.

#### Requirement

Aircraft would maintain an altitude of 5000 feet from the Lorel Hold until a CDA commences south-west of Leighton Buzzard.

#### Benefit

This option uses the smallest amount of additional airspace, thereby reducing impact upon other airspace users. Arrivals and departures are strategically deconflicted whilst enabling a CDA to be flown.

#### Disbenefit

Unacceptable risk of aircraft straying outside of controlled airspace due to confines of the airspace available for the turning manoeuvres.

#### Decision

This option is not supported on safety grounds.

#### 4. <u>Airspace Description</u>

The small extension of the Luton CTA is approximately 17nm<sup>2</sup> in size and is situated to the north of Aylesbury and to the south west of Leighton Buzzard.

The airspace will be used to route traffic arriving from the Lorel Hold / "Luton Gate" during easterly operations. This currently equates to approximately 50% of arrivals for 30% of the time.

It is intended to have the airspace available 24 hours a day, although during the quieter night period it is extremely infrequent for traffic to utilise the Lorel Hold, and consequently it will be a rare occurrence for arrivals to transit through the area of new airspace.

The current declared runway movement rate for London Luton Airport is 32 movements per hour, with an average of 258 movements per 24 hours in 2004.

#### 5. <u>Supporting Infrastructure</u>

#### 5.1. P-RNAV / NAV AIDS

NATS intends to introduce Precision Area Navigation arrival routes into Luton, which would include P-RNAV arrivals via the proposed western airspace extension for runway 08. Such routes are at the planning stage with introduction scheduled for 2008. Although at an early phase of examination, it is quite probable that an RNP 0.3 final approach procedure could be introduced after 2008 to replace the traditional Surveillance Radar Approach with greater accuracy encompassing a continuous descent profile. It however, is envisaged that the initial P-RNAV routes would be toward a final Waypoint along the down wind leg coinciding with a base turn, for concluding radar vectoring onto the ILS.

P-RNAV requires that any proposed route shall have excellent VOR and DME coverage. Luton has several of these facilities within close range; thus allowing for contingency should any ground based facility fail. Such VOR's with co-located DME include Barkway (BKY), Bovingdon (BNN), Brookmans Park (BPK), and Daventry (DTY). Operational coverage of these VOR's is as follows:

BPK 40 nm

BNN 60 nm

DTY 60 nm BKY 40 nm

LON 100 nm

NATS Systems would initially recognise a VOR or DME failure via their monitoring equipment (One can fail independently of the other). They would then inform Luton Radar and this failure would then be subject to promulgation via NOTAM. Information relating to a local failure would be broadcast via the Luton airport ATIS.

The Luton/Leighton Buzzard areas are within good satellite coverage for Global Navigation purposes.

Any P-RNAV arrival would be strictly monitored by Luton radar using both primary and secondary radar as an additional safeguard. Standard radar separation would be applied at all times, 1000 feet vertically and/or 3nm laterally, regardless of whether the initial approach was conducted via P-RNAV or radar vectors. Flights would remain at least 2 nm inside the boundary of Controlled Airspace to act as a buffer against flights operating outside the margins of the new airspace.

#### 5.2. AIRSPACE SIZE

In order to assess the actual dimensions required for the additional airspace, simulated radar exercises were conducted by NATS for all the proposed options. The airspace that offered the maximum benefit to NATS whilst affording the least impact to other airspace users was Option 3a. The addition of the extra airspace to the west of Leighton Buzzard ensures that flights are continuously flying within 'Controlled Airspace' allowing for aircraft speed and rates of turn during this phase of the flight and offers an element of contingency for the radar controller.

Flights will leave the LOREL gate under radar vectors remaining within existing Controlled Airspace and fly roughly west toward the proposed airspace streamed at a range apart dictated by Luton tower. This gap between successive flights shall be flexible, but never less than the prescribed lateral separation minima of 3 nm.

The only proximity to other 'Controlled Airspace' is vertically. Flights shall continue to fly above the vertical limit of the new airspace without any conflict to Luton inbound traffic. The proposed airspace adjoins Luton's existing Class D airspace.

The classification of the proposed airspace shall be class D and will allow access to other airspace users either by Letters of Agreement or via transit clearances made on a tactical basis, subject to prevailing traffic conditions and unit capacity. It is the intention however, to make the airspace available to other users as frequently as possible.

Promulgation of the introduction of the revised airspace shall be via an Aeronautical Information Circular, then included within the relevant AIRAC cycle. The dimensions of the new airspace will be updated in good time on navigational maps and charts. This will allow the flying community to be fully briefed in advance of the airspace changing classification. Consultation with local users and the military relating to the application by the sponsor for additional airspace has already occurred, so there will some familiarity of the proposal already.

#### 5.3. <u>RADAR PRIMARY</u>

Primary radar data from the Stansted 10 cm shall be the preferred choice; the alternative source would come from Debden. The airspace that forms part of the proposal has good proven primary and secondary radar coverage between 3000 feet and 6000 feet from both sources.

Data received on the ground is sent via 2 independent landline routes into LTCC. These two routes terminate in totally different areas of LTCC, prior to the data being processed independently then fed to the display. Should one line of data fail, a second stream will automatically replace the loss, thus data displayed to the controller would be uninterrupted. Should there be a total failure of the radar head, a failure message would be displayed to the controller **and data would be lost, this in** turn would cause the controller to select an alternative approved radar source from the display position, in this case from Debden. Details of any failure of the primary radar system would be alerted to LTCC Systems, they in turn would relay this confirmation to the controller concerned. A switch to an alternative radar source can be made swiftly by the controller with no interruption to service delivery.

#### 5.4. <u>SSR</u>

SSR codes used by flights inbound to Luton are allocated by one of 3 methods:

- 1. Domestic flights within the UK operating inside controlled airspace are issued with a code allocated for UK use only.
- 2. International flights are issued with codes as assigned by ORCAM.
- 3. Flights departing from or arriving at Luton from the FIR shall be issued tactically with a code in the range 4670-4677. These codes are unique to Luton and are not allocated by any other unit in the south of England

All international and domestically allocated codes are automatically displayed as the aircraft call sign on the radar to the controller. Local codes 4670-4677 are not call sign converted. Unless a particular aircraft does not transmit height data via its transponder, all flights will show either altitude or flight level to the controller.

Depending upon which secondary radar source at the control position is selected; SSR data is automatically displayed from that radar. Data received on the ground is sent via 2 independent landline routes into LTCC. These two routes terminate in totally different areas of LTCC, prior to the data being processed independently then fed to the display. Should one line of data fail a second data stream will automatically replace the loss, thus a seamless appearance of SSR data displayed to the controller. Should there be a total failure of the radar head, a failure message would be displayed to the controller and data would be lost, this in turn would cause the controller to select an alternative approved radar source from the display position. Details of any failure of the SSR system would be alerted to LTCC Systems, they in turn would relay this confirmation to the controller concerned. A switch to an alternative radar source can be made swiftly by the controller with no interruption to service delivery.

#### 5.5. <u>RADIO</u>

Radio coverage based upon actual field strength coverage plots for the new portion of additional airspace is as follows:

The field strength at a distance of 20Km from Luton Airport transmitter, (covering Leighton Buzzard) is approximately 57dBuV/m at 3000 feet.

The field strength at a distance of 62km from Stansted Airport transmitter, (covering Leighton Buzzard) is approximately 48dBuV/m at 3000 feet

The field strength at a distance of 20Km from Luton Airport transmitter, (covering Leighton Buzzard) is approximately 57dBuV/m at 5000feet.

The field strength at a distance of 62km from Stansted Airport transmitter, (covering Leighton Buzzard) is approximately 48dBuV/m at 5000 feet.

Therefore according to NATS theoretical model there is sufficient coverage to give good reception to flights in the vicinity of Leighton Buzzard from the Luton and Stansted transmitter sites at the altitudes to be used by Luton Radar.

With regard to system redundancy, there are main and standby Transmitters situated at both Luton and Stansted for the two Luton Radar frequencies (129.550 & 128.750). A shared spare frequency with Stansted of 132.050 is also available transmitting from Chedburgh and Stansted airport. In the event of a total mains failure a battery operated standby system automatically cuts in and normal RTF communication will be maintained for a limited time. An emergency handset is also installed which bypasses the headsets, speech control panel and the RTF control panel, but uses the same Receiver and Transmitter sites as the main equipment.

#### 6. Operational Impact

The need to de-conflict arrivals from departures has necessitated the application for the proposed airspace. Current traffic flows when Luton is landing on runway 08 see an interaction between the majority of flights arriving and departing. This impacts on controller and cockpit workload, thus creating a potential higher risk for errors. Aircraft inbound to Luton are unable to fly a normal left hand approach pattern due to a lack of airspace so must be vectored slightly to the west of the airport, then continue with a right hand circuit, described as an "S bend approach" during consultation. These flights potentially conflict with all westbound departures; currently 50% of the departing traffic from Luton.

It is the intention to de-conflict by positioning inbound aircraft from the LOREL gate, north of the towns of Luton and Dunstable for a left-hand circuit. Flights would remain at 5000 feet until at a range whereby Continuous Descent Approaches could be instructed.

The additional western airspace proposed in the vicinity of Wing from 3500 feet to 5500 feet would become 'Controlled Airspace Class D' under the jurisdiction of Luton Radar; currently this airspace is open to all flights and as such unregulated. Any flight wishing to enter and transit this 'new' Controlled Airspace would need permission from Luton Radar prior to any entry. Any flight wishing to operate below this level may do so freely and unregulated without regard to Luton Radar.

For 70% of the time when Luton is using runway 26, permission to transit shall normally be granted and flights within will not have any direct impact on Luton airport operations and Luton radar shall generally permit flights to transit, subject to unit capacity. For 30% of the time when Luton is using runway 08, airspace penetration shall be offered on a tactical basis, subject to prevailing inbound traffic, best endeavours to accommodate such requests will be made by Luton Radar as is currently the case with any request to penetrate existing controlled airspace.

The proposed Western Airspace Extension shall have no impact on flights already using Controlled Airspace in the vicinity. There will not be any impact on existing STAR's or SID's. The new inbound flight path has no impact on traffic flows elsewhere within Controlled Airspace because the altitude band involved is generally not used by flights from other airports. Any IFR flights using nominated holds within controlled airspace shall continue to remain well outside this proposed airspace extension. Capacity of the airspace is determined by the movement rate that Luton's runway and taxiway infrastructure can handle (Currently 32 per hour). Any additional traffic that unexpectedly exceeds the runway capacity (e.g. during a diversion situation) would be handled on a tactical basis by holding aircraft at LOREL and/or ABBOT until those flights could be accommodated via the proposed new flight path and airspace.

There are not currently any planned changes to inbound routes or STAR's (Apart from routeing inbound flights down wind left hand for runway 08 either via Radar vectors or using P-RNAV), nor to holds or Standard Instrument Departure routes as a result of the airspace extension. There is however, a long-term project within NATS to increase the general capacity of controlled airspace in the London area, so any changes if any, would eventually come under a separate consultation outside this proposal. Any future changes to routes or holds would allow for the presence of the new airspace.

The two airfields closest to the proposed airspace are involved with gliding, namely Dunstable and Halton. It is anticipated that Luton share access to the new airspace with the gliding community under local Letters of Agreement which will afford the 'right to use' with written procedures when Luton is landing on runway 26 and on a tactical basis when runway 08 is in use. Similar agreements and procedures are already in place with the gliding community for access to existing controlled airspace.

No statistical data exists relating to the number of general aviation or military flights that currently use the airspace proposed by the sponsor as it is unregulated, but all regular local airspace users have been thoroughly consulted prior to a formal application by the sponsor for additional airspace. The disused airfield at Wing, which lies within the new airspace, is commonly used as a landmark to aid navigation for VFR flights. Navigating between the Bovingdon VOR (BNN) to the Daventry VOR (DTY) also passes through this area. Due to the base level of the additional airspace, NATS perceives no requirement to introduce new VFR routes as the lowest level of the new airspace commences at 3500 feet with 'free' access to all users below this. IFR flights may continue to operate 'freely' below the proposed airspace or seek to transit the airspace via communication and subsequent tactical approval by Luton Radar.

Military helicopters frequently fly on a route to the north of the existing airspace using Aylesbury, Leighton Buzzard and the Toddington Service Station (Junction 12 M1 motorway) as turning points. The vast majority of these flights operate VFR below 3500 feet, so will remain unaffected.

Hot Air Ballooning also takes place in the vicinity of the proposed airspace; access can be requested and issued tactically to those balloons that are radio equipped. Below the base level of the airspace they will operate unrestricted.

Advance notification via an Aeronautical Information Circular (AIC) then publication in the AIRAC together with annotated changes to local navigational maps and charts shall ensure that all pilots intending to fly in the vicinity of the new airspace are fully aware of its creation, classification and dimensions. Pilots can therefore, during pre flight planning arrange their flight accordingly. Consultation with local users and the military relating to the application by the sponsor for additional airspace has already occurred, so there will some familiarity of the proposal. Additional navigational guidance and assistance from Luton radar can be requested once airborne and in the vicinity.

#### 7. Environmental Impact

The attached environmental assessment of the proposal was carried out by the Environmental Research Consultancy Division of the CAA (ERCD), and was included with the consultation pack. The aim of the study was to assess the potential environmental impacts associated with the new easterly approach swathe at London Luton Airport, in terms of aircraft noise and emissions.

The ERCD assessment concluded that:-

- ERCD has examined the potential noise impacts and aircraft emissions associated with the proposed extension to London Luton Airport's western airspace.
- Average aircraft noise levels, in the areas that lie beneath the proposed swathe, will be below the threshold for the onset of long-term average community annoyance (based on UK Government research), since these areas are well outside Luton Airport's 2003 average summer day 57dB(A) Leq contour.
- Based on noise estimates for Luton and Heathrow operations that currently overfly the regions covered by the proposed swathe, it is concluded that large parts of the proposed swathe are already exposed to noise levels of around 60 dB(A) Lmax from departing aircraft. Noise levels from overflights of arriving aircraft are estimated to be well below 60 dB(A) Lmax. Many areas of the proposed swathe will therefore have a degree of familiarity with aircraft noise events, the noise levels of which will be comparable (if not higher) in many cases to those from arriving aircraft on the proposed swathe.
- Based on noise footprints for representative aircraft types, plotted from 65 to 80 dB(A) Lmax, there will be net reductions in footprint area at the lower noise levels and no changes at the higher levels. The area reductions result from the use of CDA on the proposed approach swathe, an effective noise mitigation procedure that is not possible on the current approach path. There are also corresponding reductions in populations enclosed at the lower Lmax noise levels, and no changes at the higher levels. Many areas under the proposed swathe will be exposed to single event noise levels below 65 dB(A) Lmax.

- The 80 dB(A) Lmax footprints for the representative types studies are effectively identical for both the current and proposed scenarios, hence it can be concluded that no additional populations will be exposed to noise levels exceeding the established UK sleep disturbance threshold because of the proposed airspace extension.
- Aircraft fuel burn and CO<sub>2</sub> emissions will be reduced significantly for each flight if the new approach route is flown, again because of the CDA procedure that will be employed.
- Overall, it is therefore concluded that there will be net environmental benefits from the proposed airspace extension to London Luton Airport's western airspace.

Clarification was also sought from ERCD for the possible environmental drawbacks associated with the proposal. Whilst some areas would experience a reduction in overflying aircraft following the relocation of the current easterly approach swathe, some communities under the proposed swathe (e.g. Leighton Buzzard) would be exposed to a higher frequency of overflights.

The ERCD statement to cover the above is as follows:

At present, there are on average around 60 arrival movements on the current easterly approach swathe from the Lorel Hold during a typical easterly summer day (0700-2300 local time). Following the proposed airspace extension, these movements would be shifted to a new approach swathe to the northwest of the airport. Thus some communities, such as those in Leighton Buzzard, would experience an additional 60 overflights on days when the airport is operating in easterly mode (around 25-30% of the time). It should be noted that a proportion of Heathrow departures on the WOBUN SID (there are on average 125 flights per westerly day on this SID in total) currently overfly Leighton Buzzard, when Heathrow is operating in westerly mode. Also, some of the Luton departures on the OLNEY 1B SID (there are 30 flights per average westerly day on this SID in total) currently overfly Leighton Buzzard.

The additional overflights from arriving aircraft over Leighton Buzzard due to the Western Airspace Extension may cause a noticeable change to the noise environment for the communities there. In terms of the individual noise levels that would be experienced, if the aircraft are directly overhead (at 5000 feet amsl) it is estimated that maximum noise levels (Lmax) would be approximately 59 and 62 dB(A) for the B737-700 and B737-300 respectively, which are the two most common aircraft types that operate at Luton. To put these noise levels into perspective, noise levels experienced in a typical busy general office would be around 60 dB(A). A passing car 7 metres away and travelling at 60 km/h would generate an Lmax of about 70 dB(A). Also, research has indicated that aircraft noise events below 80 dB(A) Lmax are most unlikely to cause any measurable increase in the overall rates of sleep disturbance experienced during normal sleep. The expected noise levels from aircraft on the proposed arrival swathe in the vicinity of Leighton Buzzard would be well below that level.

Based on the above, typical noise levels from overflying aircraft that would be experienced in Leighton Buzzard due to the new easterly approach swathe are expected to be relatively low - no noisier perhaps than a passing car. However, it is recognised that even if the noise levels from the new overflights are low, some adverse reactions can still be expected as the mere presence of these aircraft can cause annoyance. It is impossible to predict the extent of these reactions as they will be highly subjective and dependent on each individual's sensitivity amongst many other non-acoustic factors.

A programme of noise monitoring was carried out in the Aylesbury Vale area to give an indication of ambient noise levels for the London Luton Airport, Noise & Track Sub-Committee, full details of which are included with Appendix C: London Luton Airport Consultative Committee Papers and Minutes. Following successful implementation a similar programme will be carried out to assess the true impact of the additional Luton Airport arrivals traffic.

#### 7.1. Continuous Descent Approach (CDA)

The definition for CDA is "A noise abatement technique for arriving aircraft in which the pilot, when given descent clearance below the Transition Altitude by ATC, will descend at the rate he judges will be best suited to the achievement of continuous descent, whilst meeting the ATC speed control requirements, the objective being to join the glide-path at the appropriate height for the distance without recourse to level flight."

CDA is the leading technique for reducing noise of arriving aircraft and the Western Airspace Extension proposal would allow a CDA to be performed, which is not currently possible on the current arrivals path. CDA's can also offer significant environmental benefits in terms of both fuel consumption and CO<sub>2</sub> emissions.

Analysis of CDA's will be performed via the airport's Topsonic Noise and Track Monitoring System and performance will be discussed with pilots and ATC at technical forums such as the Flight Operations Committee. Data on CDA performance for the new route will be reported in the Airfield Environment Office Quarterly Environment Report which is presented to the London Luton Airport Noise and Track Sub-Committee.

#### 8. Economic Impact

The ERCD Environmental Assessment examined fuel burn estimates using engine fuel-flow data from the *ICAO Engine Exhaust Emissions Data Bank (ICAO, 2004a),* and the average flight profiles of speed and thrust derived for the noise assessment.

The results of the emissions assessment are summarised in **Table 3.4** of ERCD report 0404. These indicate that, despite the slightly greater track distance to touchdown, the proposed route would allow a significant reduction in fuel consumption per flight because of the lower thrust settings associated with a CDA. Assuming an aviation fuel price of approximately US\$350 per metric tonne, this would translate to a cost saving per flight of around US\$11 for the B737-700 and US\$14 for the Airbus A300.

As stated in the TC Operations paper, with the constraints of the current airspace arrangement there is limited flexibility for radar controllers to accurately deliver successive inbound flights at pre co-ordinated distances apart as agreed with Luton tower. The current inefficiency of the airspace can cause delays to departing traffic and with inbound traffic having to hold at Lorel.

#### 9. DAP Regulatory Requirements

A key element of any change proposal is the need to demonstrate that the proposed airspace change complies with the DAP Regulatory Requirements. The Regulatory Requirements are derived from ICAO SARPS and ECAC/Eurocontrol requirements, and any additional requirements to satisfy UK Policy as notified and are detailed below:

a) The airspace structure must be of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments.

Prior to submission to the sponsor, NATS completed a series of simulated exercises evaluating the proposed scenario of flights leaving the LOREL gate and being vectored to the north of Luton for a left hand circuit onto runway 08. Various airspace dimensions were trialled prior to submitting option 3a as the most suitable. A thorough evaluation of Option 3a revealed the minimum additional airspace whilst affording elements of flexibility and contingency. Varying aircraft performances, speeds and rates of turn were taken into consideration. A non-radar procedure is not planned that will utilise this airspace.

# b) Where an additional airspace structure is required for radar control purposes, the dimensions shall be such that radar control manoeuvres can be contained within the structure, allowing a safety buffer. This safety buffer shall be in accordance with agreed parameters as set down in DAP letter 8AP/06/04/01 dated 11 August 2003, 'Safety Buffer Policy for Airspace Design Purposes Segregated Airspace.'

Flights will be radar vectored or P-RNAV routes designed to remain within the confines of the airspace and will be no closer than 2 nm minimum distance from its lateral boundaries. Flights will remain within the airspace vertical profile.

## c) The Air Traffic Management (ATM) system must be adequate to ensure that prescribed separation can be maintained between aircraft within the airspace structure and safe management of interfaces with other airspace structures.

Primary and Secondary radar will always be used. Flights under radar vectors and flying along P-RNAV routes inbound will remain at all times inside controlled airspace. Descent instructions shall be given commensurate with distance from touch down. Minimum radar separation at all times shall be observed (1000 feet vertically, 3 N.M. laterally and 2 N.M. inside the boundaries of controlled airspace). Radar and radio must be available and serviceable at all times and adequate staffing available subject to traffic volumes. The proposed extension does not interact nor overlap any existing Controlled Airspace.

## d) ATC procedures are to ensure required separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures.

ATC shall at all times maintain standard separation between all IFR flights operating within the confines of the proposed airspace (3 nm laterally and/or 1000 feet vertically) by the use of Primary and Secondary radar. Flights shall also be vectored to remain within 2 nm of the boundaries of the new airspace to ensure adequate separation from flights operating outside controlled airspace. IFR flights shall continue to 'over fly' the vertical limits of the new airspace (6000 feet and above) unimpeded by the creation of the Western Airspace Extension.

VFR and IFR flights shall be authorised to transit the proposed airspace subject to unit capacity and issued tactically, but their passage shall not delay or compromise separation against Luton inbound flights.

Any subsequent changes to neighbouring airspace, routes or holds shall take the formation of the new airspace into consideration.

### e) Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable.

The planned airspace shall be class D. This shall allow regulated access to any potential user provided they have a means of direct communication with Luton radar. The pilot in advance of any transit shall make a request via the R/T. Approval shall be given on a tactical basis, subject to unit capacity. It is proposed also to share access via Letter's of Agreement with the gliding community.

### *f)* There must be assurance, as far as practicable, against unauthorised incursions. This is usually done through the classification and promulgation.

Subject to DAP approval, an Aeronautical Information Circular will be published detailing in advance the change in classification of the Western Airspace Extension including its vertical and lateral dimension. Subsequently details will be included within the AIRAC and it boundaries indicated on navigational maps prior to an agreed introduction date. Pilots therefore will be made aware of the re-classification of the airspace during their pre flight planning so can arrange their flight accordingly.

Local airspace users have been party to consultation carried out by the sponsor so there already exists some familiarity with the proposal.

## g) Pilots shall be notified of any failure of navigational facilities and of any suitable alternative facilities available and the method of identifying failure and notification should be specified.

Any failure of a navigational aid shall be promulgated via NOTAM, and to ensure all potential users are aware of an unplanned failure a message shall be broadcast via the Luton Airport ATIS. Should any particular radar fail, another approved for use by Luton radar can be manually selected swiftly by the controller. LTCC Systems monitor navigational aids and notify ATC units of any failure.

h) The notification of the implementation of new airspace structures or withdrawal of redundant airspace structures shall be adequate to allow interested parties sufficient time to comply with user requirements. This is normally done through the AIRAC cycle.

See answer to f) above.

### *i)* There must be sufficient R/T coverage to support the ATM system within the totality of proposed controlled airspace.

Radio coverage based upon actual field strength coverage plots for the new portion of additional airspace is as follows:

The field strength at a distance of 20Km from Luton Airport transmitter, (covering Leighton Buzzard) is approximately 57dBuV/m at 3000 feet.

The field strength at a distance of 62km from Stansted Airport transmitter, (covering Leighton Buzzard) is approximately 48dBuV/m at 3000 feet

The field strength at a distance of 20Km from Luton Airport transmitter, (covering Leighton Buzzard) is approximately 57dBuV/m at 5000feet.

The field strength at a distance of 62km from Stansted Airport transmitter, (covering Leighton Buzzard) is approximately 48dBuV/m at 5000 feet.

Therefore according to NATS theoretical model there is sufficient coverage to give good reception to flights in the vicinity of Leighton Buzzard from the Luton and Stansted transmitter sites.

## *j)* If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered.

In this case, the proposed boundaries of the Western Airspace Extension are not adjacent laterally to any other regulated airspace apart from airspace already under the control of Luton. Controlled Airspace will continue to be seated above the vertical limits of the Western Extension. Flights inbound to Luton using the new portion of airspace will be below this airspace unless prior coordination has been affected with the controlling ATC sector.

# *k*) Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc.) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, the sponsor shall act to resolve any conflicting interests. The Directorate may offer to act as arbitrator if required.

NATS has conducted exploratory talks with the gliding community (The airfields at Halton and Dunstable are located adjacent to the proposed airspace and are active gliding sites). It is expected that Letter's of Agreement shall be constructed with these interested parties, to continue the shared usage of class D airspace in the vicinity of these airfields.

Below the vertical base of the proposed area of airspace, general aviation shall remain unaffected by its introduction. Flights wishing to penetrate the new class D airspace shall be permitted subject to ATC capacity, aircraft must carry a 2-way radio. Currently there are no regular parachute drops or microlight sites below the proposed area.

*I)* Airspace changes in respect of ATS Routes and Terminal Airspace structures are subject to additional requirements as specified in paragraphs 14.3-14.4 below.

#### 9.1. ATS Routes

a) There must be sufficient accurate navigational guidance based on in-line VOR/DME or NDB or by approved RNAV derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/Eurocontrol Standards.

The principal method of streaming flights toward final approach shall be via Primary and Secondary radar vectors which will ensure that flights remain within the confines of Controlled Airspace at all times.

Initially any defined P-RNAV routes would terminate at a Waypoint coinciding with a Radar instructed base leg turn. It is the intention to provide a P-RNAV route to an RNP 0.3 to replace with more accuracy the current 2nm surveillance approach procedure. All P-RNAV arrivals will be constantly monitored by Radar to ensure flights always remain within Controlled Airspace.

P-RNAV requires that any proposed route shall have excellent VOR and DME coverage. Luton has several of these facilities within close range. Such VOR's with co-located DME include Barkway (BKY), Bovingdon (BNN), Brookmans Park (BPK) London (LON) and Daventry (DTY). Operational coverage of these VOR's is as follows: BPK 40 nm BNN 60 nm

DTY 60 nm BKY 40 nm LON 80 nm The Luton area has good satellite coverage.

### b) Where ATS routes adjoin Terminal Airspace there shall be suitable link routes as necessary for the ATM task.

Flights approaching Luton shall always remain within the boundaries of all existing Controlled Airspace therefore, there is no requirement to establish any new link routes to gain access to the Western Airspace Extension.

#### 9.2. Terminal Airspace

a) The airspace structure shall be of sufficient dimensions to contain appropriate procedures, holding patterns and their associated protected areas.

Simulated trials conducted by NATS established the dimensions required for flights to remain within the boundaries of the planned Controlled Airspace subject of this proposal and take into consideration aircraft performance, speeds associated with this phase of the approach and rates of turn. There will not be any designated hold within or in close proximity.

# b) There shall be effective integration of departure and arrival routes associated with the airspace structure and linking to designated runways and published IAPs.

The proposed Western Airspace Extension is designed to remove the majority of conflicting arrival and departure routes and as such there will not be any confliction between departing and arriving flights within the proposed airspace. The extra airspace will facilitate a left-hand circuit on to runway 08, which is currently not possible.

### c) Where possible, there shall be suitable linking routes between the proposed terminal airspace and existing en-route airspace structure.

A link route is not required for arriving flights. Controlled Airspace currently exists both laterally and vertically allowing flights seamless access to the proposed Western Airspace Extension.

## d) The airspace structure shall be designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace.

Due to the base level of the proposed Western Airspace Extension, flights within its confines are totally assured terrain clearance. The highest ground in the vicinity lies a few miles to the south of the proposal along the Chiltern Hills with a maximum height on the order of 900 feet above sea level.

#### e) Suitable arrangements for the control of all classes of aircraft operating within (including transits) or adjacent to the airspace in question in all meteorological conditions and flight rules are in place or will be put into effect by change sponsors upon implementation of the change in question (if these do not already exist).

Access for the Gliding community shall be via procedures detailed within Letters of Agreement. Access for other potential users shall be granted on a tactical basis depending upon traffic levels and unit workload.

Aircraft requesting access must carry a two-way radio and have the means of communicating with Luton radar. Standard separation between IFR flights shall be maintained. Additional access will be available to potential users when Luton is on runway 26 (70% of the time). Flights may continue to operate freely below the vertical base of the proposed airspace. Notification of the impending airspace change shall be via, an AIC, then publication via the AIRAC. Navigational maps and charts will also be updated in good time. Local airspace users have already been consulted about the proposal.

# f) Change sponsors shall ensure that sufficient VRPs are established within or adjacent to the subject airspace to facilitate the effective integration of VFR arrivals, departures and transits of the airspace with IFR traffic.

Luton already has VRP's strategically located to afford access for VFR arrivals, departures and zone transits.

#### g) There shall be suitable availability of radar control facilities.

Primary and Secondary radar data from the Stansted 10 cm shall be the preferred choice; the alternative source would come from Debden. The airspace that forms part of the proposal has good proven primary and secondary radar coverage between 3000 feet and 6000 feet from both sources.

h) Change sponsors shall, upon implementation of any airspace change, devise the means of gathering (if these do not already exist) and of maintaining statistics on the number of aircraft transiting the airspace in question. Similarly, change sponsors shall maintain records on the numbers of aircraft refused permission to transit the airspace in question, and the reasons why. Change Sponsors should note that such records will enable ATS Managers to plan staffing requirements necessary to effectively manage the airspace under their control.

London Luton Airport operates a Topsonic Noise & Track Monitoring System, which records the radar tracks of all commercial aircraft activity in the vicinity of the proposed airspace. Reports of movements within the proposed airspace will be provided to NATS & to the London Luton Airport Consultative Committee on a quarterly basis. Reports of aircraft adherence to CDA will also be provided.

#### 9.3. Off-Route Airspace Structures

## a) If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered.

No additional operating agreements are required for the Western Airspace Extension. This proposed airspace is directly below existing Controlled Airspace and lateral boundaries do not adjoin, nor overlap any other Controlled or Regulated Airspace apart from airspace already under the control of Luton.

# b) Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc.) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, the sponsor shall act to resolve any conflicting interests. The Directorate may offer to act as arbitrator if required.

NATS has conducted exploratory talks with the gliding community (The airfields at Halton and Dunstable are located adjacent to the proposed airspace and are active gliding sites). It is expected that Letter's of Agreement shall be constructed with these interested parties, to continue the shared usage of class D airspace in the vicinity of these airfields.

#### 10. Supporting Maps

















#### 11. Record of Consultation

Attached is a record of the 2004 consultation.

In summary out of 254 consultees 107 responses were received with 51 supporting the proposal, 39 objecting to the proposal and 17 had no comment to make; this constituted an overall response rate of 42%, with 15% objecting to the proposal.

This compared with the previous 2002/3 consultation with 20 supports, 40 objections.

#### 11.1. Consultation 2004

Consultation packs sent out on 14<sup>th</sup> June 2004.

Closing date for responses: 8<sup>th</sup> November 2004 (extended from 27<sup>th</sup> September 2004)

Total Number of Consultees	254	
Support	51	
Objection	39	
No Comment	17	

#### 11.2. Breakdown of Consultees

	Consultee Interest	No. of Responses
Airlines	33	16
Other Airspace Users	80	24
Local Authority and Parish Councils	96	47
Campaign Groups	5	3
Community Groups	4	4
LLACC Individual LLACC Members	1 29	1 8
Others	6	4

#### 11.3. Breakdown of Responses

	Support	Objection	No Comment
Airlines	16	-	-
Other Airspace Users	9	6	9
Local Authority and Parish Councils	14	26	7
Campaign Groups	-	2	1
Community Groups	1	3	-
LLACC Individual LLACC Members	1 7	- 1	-
Others	3	1	-

#### 11.4. Main areas of concern

(reported by those consultees objecting to the proposal)

	Noise and Pollution	Additional Aircraft Noise	Current route safe, so why change?	New Route to aid Expansion	Impact on GA/Gliding Activities	No specified concern
Airlines						
Other Airspace Users					6	
Local Authority and Parish Councils	12	10	10	6		3
Campaign Groups	1		2	1		
Community Groups	2		2	1	1	
LLACC						
Individual LLACC Members		1				
Others						1

(NB objection responses included more than one area of concern)

#### 11.5. Consultation 2002 (Option 3)

Consultation packs sent out on 5<sup>th</sup> July 2002. Closing date for responses: 17<sup>th</sup> March 2003 (extended from 27<sup>th</sup> September 2002 and 2<sup>nd</sup> December 2002).

Total Number of Consultees	235
Support	20
Objection	40

With a total of 60 responses received back from official consultees, this constituted an overall 25% response rate.

#### 12. Consultation 2004 - Timetable

14 <sup>th</sup> June 2004	Start of Consultation Period	Consultation Pack sent out to a total of 254 consultees: Covering letter Environmental Assessment by ERCD Options Matrix Question and Answer document NATS Statement Airspace Charter Response slip and SAE	
21 <sup>st</sup> June 2004	London Luton Airport Consultative Committee (LLACC) Meeting	<ul> <li>Response slip and SAE</li> <li>Chairman undertook to arrange a Special Meeting of the LLACC to specifically discuss the WAE on 16<sup>th</sup> August 2004.</li> <li>Questions were presented to LLAOL who agreed to provide answers at the Special Meeting.</li> <li>Concerns were also raised that the deadline of 27<sup>th</sup> September 2004 for responses did not provide enough time for Parish Councils to arrange meetings over the summer period. An extension to the deadline was mere also are special was provided.</li> </ul>	
21 <sup>st</sup> July 2004	Letter to Consultees	Letter sent to all consultees, extending deadline from 27 <sup>th</sup> September 2004 until 8 <sup>th</sup> November 2004.	
16 <sup>th</sup> August 2004	LLACC Special Meeting	<ul> <li>Meeting convened purely to discuss the WAE.</li> <li>Attended by representatives from ERCD and NATS.</li> <li>Answers provided to the</li> </ul>	

2 <sup>nd</sup> September 2004	Noise & Track Working Group	<ul> <li>questions raised at the LLACC meeting on 21<sup>st</sup> June 2004</li> <li>Paper presented by the LLACC Independent Noise Consultant</li> <li>Members were given an open invitation by LLAOL to visit the Airport at any time to discuss specific concerns.</li> <li>Update on WAE, highlighting the extension of the informal</li> </ul>
		November 2004.
6 <sup>th</sup> September 2004	Noise & Track Sub- Committee (NTSC) meeting	<ul> <li>Update on WAE by LLAOL &amp; Casella Stanger (LLA Noise Consultants.</li> <li>LLAOL undertook to carry out a programme of noise monitoring during both easterly and westerly operations.</li> </ul>
9 <sup>th</sup> September 2004	Aylesbury Vale Local Council Meeting	LLAOL/NATS attended special meeting of Aylesbury Vale Local Council to
14 <sup>th</sup> September 2004	Meeting in Wingrave	LLAOL/NATS attended Public Meeting in Wingrave to discuss WAE with local residents. Meeting attended by approximately 150 members of the public.
16 <sup>th</sup> September 2004	Leighton Buzzard Meeting	LLAOL/NATS accepted invitation from Leighton Linslade Town Council to attend a Public Meeting to discuss the impact of the WAE on Leighton Buzzard. Meeting attended by approximately 300 members of the public.
20 <sup>th</sup> September 2004	LLACC Special Meeting	<ul> <li>Meeting prior to the main LLACC meeting to discuss and vote on the LLACC response to the WAE.</li> <li>LLAOL presented a Question &amp; Answer Document, responding to 54 Questions raised by members at the 16<sup>th</sup> August 2004 Special Meeting</li> <li>A further paper from the LLACC noise consultants (Jeff Charles – Bickerdike Allen Partners) on the proposal was also distributed.</li> <li>Following a vote the Option 3a proposal was supported by the LLACC (15 in favour, 2 against and 3 abstentions).</li> </ul>
28 <sup>th</sup> September 2004	PAVAN visit	Members of PAVAN visited the Airport to discuss the impact of Option 3a in the

		Aylesbury Vale.
30 <sup>th</sup> September 2004	BGA / LGC, RAF Halton, Cranfield Airport Meetings	Three separate meetings held with the BGA/LGC, Cranfield Airport & RAF Halton at LTCC, West Drayton, attended by LLAOL & NATS.
6 <sup>th</sup> October 2004	Letter & attachments to all consultees	Following agreement with the LLACC the Question & Answer Document, together with a NATS paper on the rationale to the airspace change and a paper presented by the LLACC independent noise adviser (Jeff Charles) was sent out to all consultees.
1 <sup>st</sup> November 2004	NTSC Meeting	<ul> <li>The Committee considered two papers, prepared by Casella Stanger and Bickerdike Allen, on additional noise monitoring exercises in relation to the WAE, together with additional density radar plots provided by LLAOL.</li> <li>The NTSC resolved that this information did not give reason for the LLACC to reconsider its earlier decision of support for Option 3a.</li> </ul>
3 <sup>rd</sup> November 2004	Cheddington Meeting	LLAOL/NATS invited to attend Public Meeting in Cheddington to discuss the impact of the WAE proposal for local residents. Meeting attended by approximately 30 members of the public.
8 <sup>th</sup> November 2004	BGA / NATS Meeting	Meeting held between BGA & NATS to discuss previously raised issues relating to additional airspace allocation for gliding activity.
8 <sup>th</sup> November 2004	Close of consultation period.	