

NOISE ACTION PLAN
2013-2018





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1. FOREWORD



London Luton Airport is proud of its noise management record, developed through active engagement with the London Luton Airport Consultative Committee (LLACC), local community groups, airlines, other operators and our air traffic control provider. Unlike many major UK airports, the majority of London Luton's noise policies and interventions have been developed voluntarily, in a bid to ensure that we protect our local communities from excessive aircraft noise.

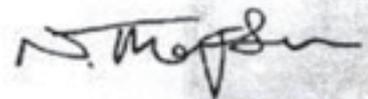
Reviewing the Noise Action Plan has provided an opportunity to consider our progress with respect to noise

management and seek views from the local community. It has also given us the chance to enhance our voluntary noise management strategy and to identify 55 actions to ensure noise impacts are managed, measured and communicated effectively. The majority of these actions were developed as part of the first version of the government approved Noise Action Plan 2010-2015. The list has been further expanded to incorporate a new suite of planning conditions that have been set as part of planning permission to develop the airport.

We also continuously look at new ways to mitigate the impact of aircraft noise on

the local community, such as the RNAV 1 trials that were carried out in June 2013, and were aimed at ensuring aircraft stay on a more tightly defined flight path, chosen to avoid populated areas as far as possible.

In developing the Noise Action Plan in 2009 there was widespread consultation; an initial 16 week process saw active engagement from stakeholders, neighbouring local authorities, community groups and local residents at our public exhibitions. A subsequent review of the Noise Action Plan in 2014 was also subject to further scrutiny through a four week consultation by the independent LLACC members. I would like to thank all stakeholders and community members who took the time to submit representations. Such participation is vital in helping the airport go beyond the requirements of best practice and legislation to mitigate and reduce noise impacts. By listening to local people, I believe we have been able to find an appropriate balance between the social, economic and environmental realities of our operations. We look forward to working with the LLACC and our aviation community to deliver against the commitments set out in this document.



Neil Thompson
Operations Director - London Luton
Airport Operations Ltd.



NOISE ACTION

2. INTRODUCTION AND CONTEXT



This Noise Action Plan has been prepared in response to the Environmental Noise Directive (2002/49/EC) which requires all Member States within the European Union to produce Noise Maps and Action Plans for the main sources of environmental noise, including airports. This Plan addresses the period 2013 - 2018, whilst the previous approved Noise Action Plan addressed the period 2010 - 2015.

The requirements of the Environmental Noise Directive (2002/49/EC) are transposed into the Environmental Noise (England) Regulations 2006 (as amended) and build upon the Government's aim, as set out in the Aviation Policy Framework (March 2013), "to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise".

The Regulations require the preparation of Strategic Noise Maps, which were initially submitted to DEFRA in 2007, and revised in 2012 (based on aircraft movements in 2011). This Noise Action Plan has been developed having regard for the results of the 2012 noise mapping and in accordance with the Environmental Noise (England) Regulations 2006 (as amended) and associated guidance updated by DEFRA in July 2013.

London Luton Airport Operations Limited, as operator of London Luton Airport, is the competent authority for developing this Noise Action Plan. This Noise Action Plan will be formally submitted to the

Secretary of State for Environment, Food and Rural Affairs and will be published in its final format once formal adoption has been confirmed by DEFRA. Whilst the original Noise Action Plan (2010-2015) was subject to a comprehensive consultation process, this reviewed version (2013-2018) remains broadly in line with the original but has been revised to include updated noise mapping and progress on noise actions, as advised by DEFRA, with no requirement for extensive consultation. However, the LLACC has been involved in the development and consultation process throughout.

Aircraft noise issues remain high on the agenda of many who live around airports and the aviation industry recognises that it needs to better understand specific issues that disturb the public. London Luton Airport is committed to being a good neighbour and endeavours at all times to minimise the impact of its operations on local communities. Continued and enhanced consultation with the community is essential so that an appropriate balance can be struck between the socio-economic benefits of airport operations and its environmental impacts. This Noise Action Plan, once adopted by DEFRA, will provide a meaningful framework for London Luton Airport and its Consultative Committee to build upon its established voluntary approach to the proactive management of aircraft noise in and around the airport.





3. LONDON LUTON AIRPORT

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In 2011 (which is the assessment year for this Noise Action Plan), London Luton Airport handled 9.5 million passengers. In addition to passenger activity, the airport is also an important international centre for business aviation, cargo and aircraft maintenance.

London Luton Airport has one runway which is 2160m in length and has six main Noise Preferential Routes (NPRs), three departing in an easterly direction and three departing in a westerly direction. There are two arrival routes, one arriving from a westerly direction and one from the east.

The closest residential areas to the airport are those located to the south and south-west of Luton but with more densely populated areas to the north and north-west. There are a number of small villages within relatively close proximity. Breachwood Green and Whitwell are located to the east and are predominantly affected by easterly departures and westerly arrivals. Residential areas to the west, such as Slip End, Caddington, Flamstead and Markyate are generally affected by easterly arrivals or westerly departures.

In addition to aircraft noise originating from London Luton Airport, the surrounding areas are also affected to varying degrees by road traffic noise, as well as overflights travelling to and from other UK airports.



NOISE ACTION

4. PUBLIC CONSULTATION



This Noise Action Plan has been developed with the support of the LLACC, NATS (our air traffic control provider) and airline partners.

During the drafting of the initial Noise Action Plan in 2009, London Luton Airport held a 16 week consultation exercise to seek the views of key stakeholders and the local community, from 28th September 2009 to 17th January 2010. During the consultation period representatives from London Luton Airport attended meetings with Planning and Environmental Health Officers from neighbouring local authorities and other key stakeholders and community groups on request. In addition London Luton Airport hosted two public exhibitions to give local residents the opportunity to ask questions about the Noise Action Plan and our approach to noise management.

According to guidance updated by DEFRA in July 2013, the airport involved LLACC members in a further four week consultation when the Noise Action Plan was updated to incorporate the results from noise mapping undertaken in 2012. This consultation ran from 25th June to 23rd July 2014.

A schedule of all those individuals and organisations that were notified of the consultation in 2014 can be found in Appendix A, and a list of those that replied can be found in Appendix B. Feedback received during the consultation is summarised in Appendix C, along with a reasoned justification for the response to the issues raised.

Copies of the final Noise Action Plan (2013 -2018) will be sent to key stakeholders and those who participated

in the consultation process once it has been formally adopted by DEFRA. It will also be published on the airport community website at www.london-lutoninthecommunity.co.uk/noise-action-plan.

London Luton Airport, through its Consultative Committee, remains committed to public engagement and communication with respect to noise management. This consultative approach will be sustained throughout the life of this Noise Action Plan.





5. LEGISLATIVE AND POLICY FRAMEWORK

NOISE ACTION





Whilst not an exhaustive list, the following section sets out a summary of the relevant international, national and local legislation and policy for aircraft noise management. Where appropriate, the local policy and voluntary restrictions (or 'limit values') outlined below have been agreed with the local planning authority and the LLACC.

International

ICAO Regulatory Framework

The International Civil Aviation Organisation (ICAO) is the agency of the United Nations which oversees the civil aviation industry. ICAO adopts standards, protocols and recommended practices relating to all aspects of international aviation. Concerning noise, it seeks to adopt a 'balanced approach' which includes reducing noise at source; the use of operational noise abatement procedures, land use policies and management, and restricting and banning the operation of certain aircraft.

ICAO sets noise emissions standards for all aircraft types known as 'chapters'. These standards are being progressively strengthened to prohibit aircraft that do not meet certain noise emission standards, with Chapter 2 aircraft the latest to be phased out for use in commercial aviation.

ICAO have recently resolved the new more stringent noise emission standard for new aircraft, "Chapter 14". Effective from December 2017, it will require such aircraft to be quieter than Chapter 3 and 4.

European

Directives relating to the management and control of environmental noise have been issued by the European Commission (EC). These are legislative acts which require Member States to achieve a specified

result without necessarily determining a means of how it can be achieved.

European Directives 2006/93 and 2002/30

This legislation enabled Member States to phase out Chapter 2 aircraft and restrict marginally compliant Chapter 3 aircraft (discretionary).

Environmental Noise Directive (2002/49/EC)

Directive 2002/49/EC is the Environmental Noise Directive (END) whose aims are 'to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.' To that end, the following actions are required for implementation progressively:

- the determination of exposure to environmental noise, through noise mapping, by methods of assessment common to the Member States;
- ensuring that information on environmental noise and its effects is made available to the public; and
- adoption of action plans by the Member States, based upon noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good.

In accordance with the END, London Luton Airport was identified as a major airport and consequently Strategic Noise Maps have been produced (Appendix E) and this Noise Action Plan prepared. Annex V of END (Appendix F) specifies those elements that a Noise Action Plan must include.

National

The UK Government has enacted several policies and regulations relating to the management and control of environmental noise and noise from aircraft and airports. These are summarised below:

The Environmental Noise (England) Regulations 2006 (as amended)

The Environmental Noise (England) Regulations 2006 (as amended), 'the Regulations', came into force in 2006 and transpose the requirements of the END into English law. The Regulations also name the competent authorities responsible for their delivery. Under the Regulations, the competent authority for preparing Strategic Noise Maps and a Noise Action Plan for London Luton Airport is London Luton Airport Operations Limited, the airport operator.

Strategic Noise Maps for London Luton Airport have been produced and submitted to the Secretary of State for Environment, Food and Rural Affairs. Those related to 2006 activity were published in March 2009, and those relevant to this Noise Action Plan for 2011 activity were published in December 2013 by DEFRA. They are included here in Appendix E and at www.defra.gov.uk/noisemapping.

The Regulations state that Noise Action Plans must:

- Meet the objectives of Article 1(c) of the END;
- Be designed to manage noise issues and effects, including noise reduction if necessary;
- Aim to preserve quiet areas in agglomerations;
- Address priorities which must be identified having regard to guidance;
- Apply to the most important areas as established by strategic noise maps;
- Meet the requirements in Schedule 4 of END

In March 2009, DEFRA published guidance for airport operators to produce airport Noise Action Plans and this guidance was updated in July 2013. This Noise Action Plan has been prepared having regard for this guidance, as required by the Regulations.

Aviation Policy Framework

The Aviation Policy Framework (APF) was published in March 2013 and fully replaced the 2003 Air Transport White Paper (ATWP) as government's policy on aviation, alongside any decisions government makes following the recommendations of the independent Airports Commission. The Government have advised in the APF that they want to strike a fair balance between the negative impacts of noise (on health, amenity (quality of life) and productivity) and the positive economic impacts of flight. The Government's overall policy on aviation noise is "to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise." This is consistent with the Government's Noise Policy, as set out in the Noise Policy Statement for England (NPSE) which aims to avoid significant adverse impacts on health and quality of life. The noise commitments are similar to those given in the ATWP.

Civil Aviation Act 1982 (as amended including the Civil Aviation Act 2006)

The Civil Aviation Act 1982 is the principal legislation within the UK for the control of aircraft operations. The Act provides a legislative means of avoiding and limiting the effect of noise from aircraft arriving and departing at UK airports. These include the enforcement of aircraft noise emission standards and operational procedures as well as the provision to enable airport operators to use charging mechanisms to encourage the use of aircraft that are quieter or with lower emission levels.

The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003

These regulations were transposed from EC Directive 2002/30/EC which builds on ICAO's Balanced Approach. The Regulations apply to all city airports and other civil airports within the UK which have more than 50,000 civil aircraft movements a year and give airport operators the scope to restrict marginally compliant aircraft.

Aeroplane Noise Regulations 1999

These regulations provide a set of statutory instruments that describe various methods that are implemented by the Civil Aviation Authority (CAA) that allow noise certified aircraft to use UK airports. The Regulations refer to ICAO noise certification standards and noise limits. The Regulations also provide a list of aircraft that are exempt from noise certification by ICAO.

Transport Act 2000

This Act sets out guidance and good practice for noise mitigation procedures and stakeholder consultation in relation to any changes to local airspace use. The Act looks at engaging with local authorities and states that the CAA must consider environmental noise impacts.

National Planning Policy Framework (NPPF) Noise Policy Statement for England

In March 2012, the Government discarded the advice on planning and noise, recorded in PPG24, and issued the National Planning Policy Framework. That, in the section addressing "Conserving and enhancing the natural environment", mentioned noise in framework paragraph 123, which advised that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;

- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development. Including through the use of conditions
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in land uses since they were established; and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Paragraph 123 refers to reference 27 which is the early publication in March 2010, of the Noise Policy Statement for England (NPSE). It set out the long term visions of Government noise policy to;

“Promote good health and a good quality of life through the effective management of noise within the context of Government Policy on sustainable development”.

The long term vision is to be supported by the following aims:

Noise Policy Aims

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

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

The guiding principles of sustainable development specified were:

- Ensuring a Strong Healthy and Just Society
- Using Sound Science Responsibly
- Living within Environmental Limits
- Achieving a Sustainable Economy
- Promoting Good Governance



Local

A range of policy instruments are available at a local level to manage and minimise the effects of aircraft operations.

Planning Conditions

London Luton Airport operates under a planning consent granted in 1998, associated with the permission to build a new terminal building.

In September 2012, however, a revised Masterplan was published following public consultation, outlining the proposal to improve passenger facilities and enable the airport to accommodate 18 million passengers per annum by 2031. A planning application was subsequently submitted and approved by LBC in June 2014. The planning permission contains a new suite of planning conditions and obligations detailed below, the provisions of which will provide further controls over the airport operations.

- a) Prior to commencement of the development details shall be submitted to the Local Planning Authority of a Noise Control Scheme which shall control the noise of aircraft both during the day (0700 - 2300) and the night (2300 - 0700) period.
- b) For the Night Quota Period (2330 to 0600) the scheme shall be based on the Noise Quota count system (QC System) utilised by other UK airports including Heathrow Airport.
- c) The scheme shall include sanctions in relation to operators of aircraft which land or take-off in breach of the QC System and shall include exclusion of aircraft movements with a QC value in excess of QC2 during the night time period (2300 to 0700), six months or more after commencement of the development. An "aircraft movement" shall be either a landing or take-off by an aircraft.
- d) The scheme shall include details of the procedures to be adopted and shall include measures with the purpose of phasing out of night time (2300 to

0700) operations by aircraft with a QC value of greater than one on either departure or arrival.

e) The scheme including the QC System shall be monitored and reviewed on a regular basis. Such a review shall take place, not later than the first and fourth year after introduction and every subsequent five years.

f) For the Night Quota Period (2330 - 0600) this shall have the following limits incorporated into the scheme:

i) Total annual movements by aircraft (per 12 month period) shall be limited to 9,650;

ii) The total annual noise quota in any 12 month period shall be limited to 3,500 which, using all reasonable endeavours, shall be reduced at each review until it reaches a point where it does not exceed 2,800 by 2028.

g) For the early morning shoulder period (06.00 - 07.00) this shall have the following limit incorporated into the schemes:

i) Total annual movements by aircraft in any 12 month period shall be limited to 7000.

h) The actual and forecast total number of aircraft movements for the preceding and next 12 month periods shall be reported to the Local Planning Authority every three months

i) Within six months of the commencement of development and in accordance with the approved Noise Control Scheme the maximum Noise Violation Limits (NVL) for all aircraft, as recorded by departing aircraft at the fixed noise monitoring terminals, shall be reduced to values which are determined by the noise classification of individual aircraft as follows:

Aircraft Classification on Departure
NVL (dBA)
QC 4 (daytime only) 85
QC 2 82
QC 1 79
QC 0.5 and below 76

j) Within six months of the commencement of the development, a progressive reduction in the daytime

(0700 - 2300) maximum NVL by the noisiest aircraft shall be implemented, as follows:

i) 85 dB(A) from the date of the commencement of development

ii) 82 dB(A) from 1st January 2015

iii) 80 dB(A) from 1st January 2020

k) The area enclosed by the >57dB(A) Leq16hr (0700-2300) contour shall not exceed 19.4 sq km for daytime noise, and the area enclosed by the >48dB(A) Leq8hr (2300-0700) contour shall not exceed 37.2 sq km for night-time noise, when calculated by the Federal Aviation Authority Integrated Noise Model

version 7.0.d (or as may be updated or amended). Within five years of the commencement of development a strategy shall be submitted to the Local Planning Authority for their approval which defines the methods to be used by London Luton Airport Operations Ltd (LLAOL) or any successor or airport operator to reduce the area of the noise contours by 2028 for daytime noise to 15.2km² for the area exposed to >57dB Leq16hr (0700-2300) and above and for night time noise to 31.6 km² for the area exposed to >48dB Leq8hr (2300-0700) and above. From the 1st January 2014 forecast aircraft movements and consequential noise contours (Day, Night and Quota Periods) for the forthcoming calendar year shall be reported on the 1st December each year to the Local Planning Authority, which shall utilise the standard 92 day summer contour.

l) Within six months of the development hereby permitted commencing a Noise Control Monitoring Scheme for the airport shall be submitted to and approved in writing by the Local Planning Authority. The submitted scheme or scheme review as applicable shall include, but shall not be confined to, the following:

i) Details of the fixed noise monitoring terminals and track keeping system (vertical and horizontal).

ii) Details of the complaint handling system.

- iii) Sanctions to be imposed on infringement by aircraft in respect of noise limits and track keeping.
- iv) Arrangements for the verification of the submitted information.

Within six months of either commencement of development or the approval of the scheme by the Local Planning Authority, whichever is the later the scheme shall be implemented as approved. Such a review shall take place, not later than the first and fourth year after introduction and every subsequent five years.

Ground Noise

Before any part of the development hereby permitted is commenced a scheme concerning ground noise associated with aircraft at the airport shall be submitted to and approved in writing by the Local Planning Authority. The submitted scheme shall include, but not be confined to, the following:

- i) Measures to limit the ground running of aircraft propulsion engines within London Luton Airport between 2300 and 0700
- ii) Preferential use of stands and taxiways for arriving/departing aircraft between 2300 and 0700
- iii) Steps to limit the use of auxiliary power units (including the provision of fixed electrical ground power to stands and or suitably quietened ground power units)
- iv) No ground running of aeroplane engines for testing or maintenance purposes between 2300 and 0700 and designation of areas for such testing between 0700 and 2300.

Within six months of either commencement of development or the approval of the scheme, (or whichever is the later) by the Local Planning Authority, the scheme shall be implemented as approved. A review shall take place, not later than the first and fourth year after introduction and very subsequent five years.

Additional actions relating to the planning conditions have been outlined in Section 8.

Luton Local Plan

Luton Local Plan 2011 - 2031 is being developed by LBC, and sets out policies and specific proposals for the development and use of land within the Borough of Luton. These policies set the context for future development of London Luton Airport and highlight the importance of controlling aircraft noise.

The pre-submission consultation is anticipated to begin in 2014, submission in April 2015 and adoption in late 2015.

London Luton Airport Development Brief

The London Luton Airport Development Brief was adopted by Luton Borough Council as Supplementary Planning Guidance in 2001 after extensive public and stakeholder consultation. The Brief maps out the likely future developments at London Luton Airport and the environmental issues that would need to be considered when preparing future proposals for growth at the airport.

The Development Brief, alongside other local plan policies, has also been saved so remains valid until the evolving LDF process is concluded.

Local Development Control/Planning Conditions

London Luton Airport works closely with local planning authorities to ensure that careful consideration is given to planning decisions in noise sensitive areas.

The LLACC also monitors wider development planning matters to discourage local planning authorities from permitting inappropriate development in noise sensitive areas.

London Luton Airport Consultative Committee

The LLACC is the formal mechanism for the airport to interact and exchange information with communities in the vicinity. Its membership includes

representatives from local authorities, community groups, airport users and other interested parties. The Committee meets quarterly and is supported by the Noise and Track Sub Committee. Both the Consultative Committee and the Noise and Track Sub Committee are well attended, with current members listed in Appendix A.

The LLACC and its membership have assisted in the development of this Noise Action Plan and will play a full role in monitoring the implementation and effectiveness of the actions outlined in Section 8.

Voluntary Controls and Policies

London Luton Airport's noise management strategy includes a variety of policies and voluntary controls, developed and implemented with the support of the LLACC.

London Luton Airport published its first voluntary Night Noise Policy in 1988. Since then the policy has been reviewed and updated regularly. A new Night Noise Policy (Issue 8), effective 1st April 2010 can be found at Appendix D. This latest Night Noise Policy includes a scheduling ban at night for any aircraft classified above QC2 and a further reduction in the night noise violation limit from 85dB(A) to 82dB(A).

In addition to the Night Noise Policy, London Luton Airport has other voluntary controls on aircraft operations, including daytime noise violation limits, currently 94dB(A), as well as restrictions on ground operations.

These voluntary controls demonstrate our commitment to the positive management of aircraft noise.



6. NOISE AND NOISE MAPPING



What is noise?

Noise is generally defined as unwanted sound. Although it is recognised that noise perception is very subjective, there are a number of internationally recognised terms to describe and measure aircraft noise, which are explained in the Glossary. These metrics form the basis of noise analyses conducted at major airports worldwide.

What are Noise Maps?

Typically, aircraft noise is presented on noise maps. London Luton Airport regularly publishes noise maps which illustrate the noise levels from airport operations and the areas affected in the form of noise contours. A noise map is rather like a weather map for noise but it shows areas which are relatively louder or quieter. Just as a weather map might have isobars joining points of equal air pressure, a noise map can have contours joining points having the same noise level.

What are the Noise Maps for?

Noise maps have two main purposes. Firstly, they can be used to provide information on noise levels that can be linked to population data to estimate how many people are affected. Secondly, they inform decisions in relation to proactive management of noise. Noise maps have also been used as the basis to inform the Noise Action Plan process.

How is noise measured?

Since 1989 the standard approach that has been used for measuring noise levels is the A-weighted equivalent noise level, L_{eq} contour. This takes into account all aircraft movements and is based on an average summer day. This measure is recognised by UK Government and has been used in all relevant planning, transport and environmental policies over recent years. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all aircraft movements, both departures and arrivals, that occurred in that period.

In the UK, the noise impact of an airport is primarily described in terms of the L_{Aeq} averaged over the 16 hour period from 0700 - 2300, for an average day between the 16th June and 15th September. London Luton Airport also produces contours for the 8 hour night period between 2300 and 0700 for an average summer night, over the same period as the day time period, using the $L_{Aeq,8h}$ indicator.

Since 2002, London Luton Airport has also produced noise contour information for an average night each quarter, together with comparative values from

the previous quarter and the equivalent period the previous year. This data is presented quarterly to LLACC (via NTSC) within the Airfield Environment Report.

The Environmental Noise (England) Regulations 2006 (as amended) require major airports (as well as major agglomerations, roads and railways) to produce Strategic Noise Maps using L_{den} noise contours, a different noise measurement. The L_{den} noise metric is itself derived from three sets of contours:

- L_{day} : average 12 hour period from 0700 - 1900
- $L_{evening}$: average 4 hour period from 1900 - 2300
- L_{night} : average 8 hour period from 2300 - 0700

How is noise monitored?

At London Luton Airport noise and track monitoring is provided by the Topsonic Aircraft Noise and Track Monitoring System. This system is designed to monitor air traffic within a radius around the airport (set at around 25 miles), and generally up to an altitude of 12,000ft. It downloads noise data from three fixed noise monitors located within the neighbouring communities. This system enables us to:

- identify noise infringements and to subsequently impose penalties where relevant;
- monitor track-keeping and liaise with operators to optimise procedures;
- better investigate complaints of disturbance relating to specific incidents; and
- identify actual flown tracks of aircraft.





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How do we handle complaints?

London Luton Airport investigates, logs and responds to all concerns relating to aircraft activity. General information is available on the London Luton Airport website and complaints can be submitted by telephone, email, post, or through an online form.

In 2011, 76% of complaints were received by e-mail, 23% by telephone, 0.5% by fax and 0.5% by post. Complaint statistics are reported quarterly to the LLACC and trends are identified. The noise complaints handling system is kept under continual review to ensure the local community receives timely feedback in relation to concerns raised.

Noise Mapping Results

As explained above, noise maps have been produced in terms of the five noise metrics (L_{den} , L_{night} , $L_{Aeq,16hr}$, L_{day} and $L_{evening}$) for aircraft movements in 2011, as required by the Regulations.

It should be noted that there are limitations to the maps and it is accepted that noise levels presented by the maps do not necessarily reflect the exact noise level which would be experienced at any given point. The data set out below has been taken from the Airport Noise Action Planning Data Pack published by DEFRA. The Strategic Noise Maps can be found at Appendix E.

L_{den} Results

The 55 L_{den} contour extends to the A1(M) at Stevenage to the east of the airport, incorporating Bendish, St Paul's Walden and the northern edge of Breachwood Green. To the west there are two distinctive spurs, one along the extended centreline of the runway, into south

Caddington and the other stretching towards the south west between Markyate and Flamstead. Parts of Slip End and South Luton are also included in this contour.

The 60 L_{den} contour extends over the southern half of Breachwood Green to the east and as far as Pepsal End and Junction 10 of the M1 to the west, incorporating areas of South Luton.

The 65 L_{den} contour area covers predominantly rural areas to the east, and extends as far as Capability Green Business Park, Kidney Wood and Luton Airport Parkway station to the west.

Much of the area within the 70 L_{den} contour remains within the airport boundary, just crossing the East Luton Corridor approach road to the west of the airfield.

The 75 L_{den} contour remains almost entirely within the airport boundary.

L_{night} Results

Within the L_{night} contours, the 48 L_{night} contour extends to Rush Green, just west of the A1(M) at Stevenage, incorporating the northern edges of St Paul's Walden and Breachwood Green to the east. To the west the spur along the extended

centreline of the runway reaches into the south of Caddington, whilst the spur extending towards the southwest covers areas such as the west of Slip End, and extends to an area just north of Flamstead.

The 51 L_{night} contour incorporates the centre of Breachwood Green and extends to an area just north of St. Pauls Warden to the east, and Slip End, Junction 10 of the M1 to the west. This contour also incorporates areas of Wigmore and South Luton.

The 54 L_{night} contour covers predominantly rural areas with the exception of areas of Wigmore and South Luton.

The 57 L_{night} contour, incorporates areas of South Luton to the north and Capability Green Business Park to the west.

Again the 60 L_{night} contour, the 63 L_{night} contour and the 66 L_{night} contour extend across predominantly rural areas and the airport, with the exception of some parts of South Luton.

The Strategic Noise Maps produced in terms of L_{den} , $L_{Aeq,16hr}$, L_{day} , $L_{evening}$ and L_{night} as required by the Regulations are summarised in tabular form below:

Table 1: Noise contour areas (km²)

Contour, dB (A)	Area of Air Noise Contours (km ²)				
	L_{den}	$L_{Aeq,16hr}$	L_{day}	$L_{evening}$	L_{night}
48	-	26.6	-	-	-
51	-	15.3	-	-	-
54	-	8.7	23.3	25.2	17.6
55	33.2	-	-	-	-
57	-	5.0	13.3	14.3	9.9
60	12.8	2.4	7.9	8.5	5.8
63	-	1.3	4.5	4.9	3.0
65	5.2	-	-	-	-
66	-	0.8	2.1	2.4	1.5
69	-	-	1.2	1.3	0.9
70	1.6	-	-	-	-
75	0.7	-	-	-	-

Table 2: Estimated total number of people and dwellings above various noise levels, L_{den}

Noise Level, (dB)	Number of Dwellings	Number of People
≥ 55	6,450	14,300
≥ 60	1,800	4,700
≥ 65	350	1,000
≥ 70	0	0
≥ 75	0	0

Table 3: Estimated total number of people and dwellings above various noise levels, L_{day}

Noise Level, (dB)	Number of Dwellings	Number of People
≥ 54	5,050	11,300
≥ 57	2,550	6,200
≥ 60	950	2,500
≥ 63	300	800
≥ 66	< 50	< 100
≥ 69	0	0

Table 4: Estimated total number of people and dwellings above various noise levels, $L_{evening}$

Noise Level, (dB)	Number of Dwellings	Number of People
≥ 54	2,950	7,000
≥ 57	1,150	3,000
≥ 60	450	1,200
≥ 63	< 50	< 100
≥ 66	0	0
≥ 69	0	0

Population and dwellings lying within contours

The estimated total number of people and dwellings exposed above various noise levels from aircraft using London Luton Airport are shown in Tables 2 to 6. Population and dwelling counts have been rounded as follows:

- The number of dwellings has been rounded to the nearest 50, except when the number of dwellings is greater than zero but less than 50, in which case the total has been shown as "< 50".

- The associated population has been rounded to the nearest 100, except when the associated population is greater than zero but less than 100, in which case the total has been shown as "< 100".

The noise mapping results indicate that no residential properties are located within the 69dB(A) $L_{Aeq 16h}$ contour area.

Non-Residential Noise Sensitive Buildings

The Regulations require airport operators to determine the number of noise

sensitive buildings within the various contour bands, including housing, hospitals and schools. Table 7 summarises the estimated number of non-residential noise sensitive buildings and has been verified by Luton Borough Council, Hertfordshire County Council and Central Bedfordshire Council.

All of the above noise sensitive properties are schools, with no hospitals located within the various noise contour areas. The results indicate that no non-residential noise sensitive buildings are located within the 69dB(A) $L_{Aeq 16h}$ contour area.

Table 5: Estimated total number of people and dwellings above various noise levels, $L_{Aeq,16h}$

Noise Level, (dB)	Number of Dwellings	Number of People
≥ 54	4,550	10,300
≥ 57	2,150	5,400
≥ 60	800	2,100
≥ 63	150	400
≥ 66	< 50	< 100
≥ 69	0	0

Table 6: Estimated total number of people and dwellings above various noise levels, L_{night}

Noise Level, (dB)	Number of Dwellings	Number of People
≥ 48	5,000	11,400
≥ 51	2,400	6,000
≥ 54	900	2,400
≥ 57	300	900
≥ 60	< 50	< 100
≥ 63	0	0
≥ 66	0	0

Table 7: Estimated total number of non-residential noise sensitive buildings at various noise levels, $L_{Aeq,16h}$

Noise Level, (dB)	Number of Buildings
≥ 54	3
≥ 57	1
≥ 60	0
≥ 63	1
≥ 66	0
≥ 69	0



7. IDENTIFICATION OF AIRCRAFT NOISE PROBLEMS



The 2009 consultation process identified a range of issues important to local residents. Many of the consultation responses came from people some distance outside the Strategic Noise Map contour areas we were required to consider in accordance with the Environmental Noise (England) Regulations 2006 (as amended). This has influenced our approach to noise management and the development of this Noise Action Plan.

It is clear that aircraft noise affects people in different ways and that the issues raised vary from one location to another. Having reviewed the consultation responses and the Strategic Noise Maps, London Luton Airport identifies the following as the noise problems that affect, or are important to the most people, without detracting from those issues raised by others during the consultation process. These problems have also been identified by the LLACC in its consultation response.



Night Operations

Noise generated from night operations is recognised as being an issue of great concern for some local people. Table 6 shows that 900 dwellings experienced noise levels of 54 dB or greater in 2011. However, representations received in the public consultation exercise illustrate that night noise is clearly also an issue for people outside of this contour area.

Noisier Aircraft

It is recognised that a small number of aircraft attract a disproportionate number of complaints. These relate primarily to the very small percentage of older generation jets in contrast to the vast majority of London Luton Airport movements, involving modern, quieter aircraft operated primarily by the low cost airlines.

Track-keeping

A range of views were presented by consultees on the issue of track-keeping. Some local people support the proposed use of tracks and P-RNAV technology, whilst others advocate a policy of dispersion of aircraft to spread the noise across a wider area. Many consultees also raised concerns about aircraft straying 'off track' in certain locations.

Arriving Aircraft

The routes flown by arriving aircraft, as well as the noise levels of arriving traffic, are identified as a problem to a number of local people.

Preservation of Quiet Areas

The Defra NAP guidance advises that airport operators will need to consider whether any elements of the proposed airport action plan might conflict with any existing quiet areas in agglomeration. At the time of publishing this action plan no quiet areas have been identified in nearby agglomerations.

Aircraft from London Luton Airport, Heathrow and Northolt, as well as other smaller airfields all however overfly the Chilterns Area of Outstanding Natural Beauty (AONB). Whilst the Chilterns is not classified as a quiet area under the terms of the END (as it is not in an agglomeration), consultees identified the need to preserve its tranquillity

Westerly Departures

Westerly departures see London Luton Airport traffic overfly areas of South Luton, as well as other built up areas such as Slip End, at relatively low levels. This issue in particular is seen as a priority for both London Luton Airport and the Consultative Committee.

To address this issue, the airport has worked with National Air Traffic Services (NATS) and Airline operators to develop ways to help improve westerly departure track-keeping. Following extensive analysis and simulation work, live flight trials using RNAV1 procedures were carried out in the period March - June 2013. This established it was possible to provide significant environmental benefits by avoiding the direct overflight of all of the most densely populated areas south of the airport by using latest navigation technology. Work on this is ongoing and is anticipated to result in tighter track-keeping for westerly departures, subject to approval from the Directorate of Airspace Policy following a formal Airspace Change Proposal consultation process

Mitigation and Compensation

Mitigation and compensation for noise impacts was highlighted as a problem by the LLACC and other consultees. The DEFRA guidance also raises the issue of compensation, and requires airport operators to take account of the principles that are to be found in current legislation and guidance, including the Aviation Policy Framework, published in March 2013.



8. MANAGING AIRCRAFT NOISE



London Luton Airport has adopted a proactive voluntary approach to noise management, which seeks to minimise the effects of aircraft noise. This approach has been developed through working closely with the LLACC, airlines and other operators, community groups and other key stakeholders.

London Luton Airport is committed to:

- 1) **Monitor** - monitor noise effectively and report this to the LLACC and other interested parties in an agreed and recognised format.
- 2) **Manage** - develop and deliver policies, procedures and measures which will help to minimise the effects of aircraft noise and encourage improvements from airlines and other operators.

3) **Listen and communicate** - we will engage, listen and respond to complaints and feedback in a timely manner. We will continue to improve our own methods of communication so that noise matters are clearly understood by those with an interest.

4) **Review and improve** - we will continue to review our approach with a view to delivering further improvement, where necessary.

This Noise Action Plan sets out how we intend to build on existing policies and procedures, with the intention of further improving noise management at London Luton Airport, taking into consideration ICAO's Balanced Approach.

Progress made since publishing the last Noise Action Plan

In addition to ongoing commitments made relating to the monitoring, management and communication of noise-related issues, the following has been achieved since the previous Noise Action Plan was initially produced in 2010. Each action identifies the noise problem it was designed to mitigate.

A	Night operations
B	Noisier aircraft
C	Track-keeping
D	Arriving aircraft
E	Preservation of quiet areas
F	Westerly departures
G	Mitigation and compensation

Action	Noise problem
Lden noise contours were produced in 2013 based on an annual average 24 hour period and presented to LLACC (via NTSC).	A-F
A new mobile noise monitor has been acquired which can be left in community locations for extended periods to measure aircraft noise and compare with published noise data.	A-F
Quarterly Airfield Environment Office Reports have been made available to view on the London Luton Airport website as well as the LLACC website.	N/A
Progress against Noise Action Plan actions is monitored and reported to the LLACC (via NTSC), providing statistics annually in the Annual Monitoring Report.	A-G
The Night Noise Policy was reviewed in 2010.	A-D
The Engine Ground Running policy was reviewed in 2013 to minimise disturbance during the night and late in the evening.	A
The day noise violation limits have been reviewed and changes incorporated into the new planning conditions. These will come into effect in 2015.	B
A noise insulation scheme was implemented for non-residential noise sensitive buildings in 2013.	G
A new departure code of practice to minimise noise impacts was produced and circulated in 2011.	A, C, F
LLAOL have worked with the LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which may enhance the noise environment. RNAV1 procedures were trialed in 2013 for westerly departures along the Brookmans Park departure route, and an Airspace Change Proposal submitted to the CAA in 2014.	A-F
A target of 90% was set for CDA compliance with Air Traffic Control.	A-D
The noise violation limit was lowered from 85dB(A) to 82 dB(A) in 2010.	A-F
FLOPC was set up to formally engage with air traffic control and airline/other operators, in order to help improve noise management/track keeping.	N/A
The format of the Annual Monitoring Report was reviewed in 2013 to incorporate Noise Action Plan progress.	N/A
The noise complaints handling system was reviewed in 2013, and improvements planned for 2014.	N/A
The communication material was reviewed in 2013, including the noise information pack and the London Luton Airport website with respect to noise/noise management. Updates were made to the website, however the majority of the communication material was found to be fit for purpose until the new planning conditions come into effect at which time they will be re-written.	N/A
A web-based noise and track system (Travis) was introduced for public access on the London Luton Airport website in 2012.	N/A
Improved communication with transient and non-based operators/users to ensure environmental and operational procedures are understood and adhered to.	A-F
Actively participate and support the work of the industry and Airport Operators Association with respect to its 'Sustainable Aviation' programme	N/A
Liaise with London Heathrow and other airports with respect to non-London Luton overflying traffic, where necessary	C, D, E, F
Work with LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which may enhance the noise environment	A-F

Noise Action Plan

The London Luton Airport Noise Action Plan includes 55 practical measures that will manage or mitigate the effects of aircraft noise, ensure noise is effectively monitored and that the results of this monitoring are communicated. These measures will build on our established noise management programme, taking into consideration issues identified from the Strategic Noise Maps and the consultation process. As a result, they will seek to address problems that have been highlighted by people outside of the area identified in the Strategic Noise Maps and broadly address the key areas of concern relating to aircraft noise.

To this end, London Luton Airport believes that our proactive and voluntary noise management strategy, in conjunction with

this Noise Action Plan, is comprehensive and results in an acceptable level of aircraft noise, as defined in the Regulations and supporting guidance.

Each measure includes a timescale for implementation and identifies the problem(s) it has been designed to address. It is also proposed that key performance indicators and targets, where appropriate, are agreed with the NTSC.

As per Action 13, the Annual Monitoring Report (AMR) now reports progress against each action in this Noise Action Plan. For further information on how the points are actioned or why the timescale has altered, please refer to the AMRs which are displayed on London Luton Airport's website here: <http://www.londonluton.co.uk/en/content/8/243/annualmonitoring-report.html>

The majority of actions overleaf were developed as part of the first version of the Noise Action Plan, with the support of a special LLACC Working Group, as well as pre-consultation advice from the NTSC, major based airlines, other operators and the air traffic control provider.

London Luton Airport will work with the Consultative Committee to ensure it delivers against these commitments and that the Noise Action Plan remains effective. The Noise Action Plan will be regularly reviewed as the development progresses and updated where necessary.





Action		Noise problem *	Timescale
MONITOR			
1	Operate and maintain a noise and track-keeping system to monitor aircraft operations, reporting statistics quarterly to the LLACC (via NTSC)	A-F	Ongoing
2	Produce L_{den} noise contours annually, based on an annual average 24 hour period and present to LLACC (via NTSC)	A-F	Ongoing
3	Undertake regular analysis of aircraft activity and noise to identify where a review of procedures may help minimise disturbance	A-F	Ongoing
4	Monitor % compliance of Continuous Descent Approaches (CDA) both day and night, reporting quarterly to LLACC (via NTSC)	A, C, D	Ongoing
5	Undertake community visits with a portable handheld noise monitoring device, on request	A-F	Ongoing
6	Present quarterly night contours to LLACC (via NTSC)	A-F	Ongoing
7	Investigate, log and respond to all complaints relating to London Luton Airport aircraft activity, reporting in-depth statistics quarterly to the LLACC (via NTSC)	A-F	Ongoing
8	Quarterly Airfield Environment Office Reports to be available to view on the London Luton Airport website as well as the LLACC website	N/A	Ongoing
9	Monitor helicopter operations to/from London Luton Airport to ensure they avoid, where possible, the most densely populated areas	C	Ongoing
10	Calibrate noise and track-keeping system and INM noise contour model on an annual basis	N/A	Ongoing
11	Monitor the track-keeping compliance and follow up with operators, as necessary	C	Ongoing
12	Monitor the number of marginally compliant Chapter 3 aircraft (approximately 10% of total movements during 2009)	B	Ongoing
13	Monitor and report progress against Noise Action Plan actions to LLACC (via NTSC), providing statistics annually in the Annual Monitoring Report	A-G	Ongoing
14	Review the voluntary Night Noise Policy in consultation with the LLACC (via NTSC)	A-D	2015

* Each noise action has been developed to address noise problems identified from the Strategic Noise Maps or issues raised during the public consultation exercise. (See Section 7)

- | | |
|---|-----------------------------|
| A | Night operations |
| B | Noisier aircraft |
| C | Track-keeping |
| D | Arriving aircraft |
| E | Preservation of quiet areas |
| F | Westerly departures |
| G | Mitigation and compensation |



Action		Noise problem *	Timescale
MANAGE			
15	Encourage daytime operations through higher landing fees at night	A, B	Ongoing
16	Fine any departing aircraft exceeding noise limits, to encourage airlines to operate the quietest aircraft types	A, B	Ongoing
17	Discourage residential development close to the airport boundary or areas affected by aircraft noise, in liaison with Local Authorities	A-F	Ongoing
18	Divert all noise violation limit penalties from airport operations to support the noise management programme and Community Trust Fund. Penalties will be reported to LLACC via NTSC on a quarterly basis.	A-G	Ongoing
19	Liaise regularly with airline operators via a 'Flight Ops' Committee to ensure adherence to existing standard procedures and encourage innovation	A-F	Ongoing
20	Review operational procedures in relation to noise with support of the 'Flight Ops' committee and NTSC	A-F	Ongoing
21	Work with operators to encourage the voluntary phase out of noisiest aircraft	A, B, D, E, F	Ongoing
22	Continue to review procedures for helicopter operations with the support of air traffic control	C	Ongoing
23	Work with operators on the voluntary phase out of marginally compliant Chapter 3 high aircraft i.e. hushkitted aircraft	A, B, D, E, F	2014
24	Explore with the 'Flight Ops' Committee/NTSC penalties for flying off track after the introduction of RNAV-1 departure routes	C	2014
25	Work with airlines, air traffic control, NATS and other stakeholders to introduce new technologies and environmental improvements	A-F	Ongoing
26	Review the Engine Ground Running policy to minimise disturbance during the night and late in the evening	A, E	Ongoing
27	Operate within planning limits	A-F	Ongoing
28	Actively participate and support the work of the industry and Airport Operators Association with respect to its 'Sustainable Aviation' programme	N/A	Ongoing
29	Liaise with London Heathrow and other airports with respect to non-London Luton overflying traffic, where necessary	C, D, E, F	Ongoing
30	Work with the LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which will improve the noise environment	A-F	Ongoing
31	Agree key performance indicators and targets for noise 'actions', where appropriate, with the LLACC (via NTSC)	A-G	Ongoing
32	Assess the impact of London Luton Airport traffic on the Chilterns AONB and explore potential for operational improvements	E	Ongoing

	Action	Noise problem *	Timescale
LISTEN AND COMMUNICATE			
33	Attend public meetings on request, where appropriate, to discuss the airport's operations	N/A	Ongoing
34	Provide an information pack to first time complainants and those wishing to relocate into the area	N/A	Ongoing
35	Formally engage with air traffic control and airline/other operators to help improve noise management/track keeping	N/A	Ongoing
36	Host visits from local residents and MPs to discuss community concerns and to demonstrate the Noise and Track-Keeping system	N/A	Ongoing
37	Prepare an Annual Monitoring Report, in conjunction with Luton Borough Council, incorporating detailed statistics on all aspects of the airport's operations including passenger throughput.	N/A	Ongoing
38	Provide information in the Annual Monitoring Report on progress made on actions set out in the Noise Action Plan	N/A	Ongoing
39	Establish a committee with Environmental Health Officers of Local Authorities (Herts, Beds and Bucks) to discuss the impact of the airport's operations and the Noise Action Plan	N/A	Ongoing
40	Continue to offer email, telephone and website as options for complaints and enquiries	N/A	Ongoing
41	Invite members of the public to visit the Environment Office to review noise and track information	N/A	Ongoing
42	Engage effectively and proactively with the LLACC and NTSC	N/A	Ongoing
43	Engage with local planning authorities to ensure they are informed about noise matters	N/A	Ongoing
44	Review communication material, the noise information pack and the London Luton Airport website with respect to noise/noise management	N/A	2015
45	Hold community surgeries to give local people an opportunity to discuss issues in person with representatives from the Community Relations and Environment Department	N/A	2014
46	Improve communication with transient and non-based operators/users to ensure environmental and operational procedures are understood and adhered to	N/A	Ongoing

As part of our planning permission granted in June 2014, the airport will further manage aircraft noise in a pro-active way by introducing the following new noise mitigation initiatives. The timescale for delivery of these initiatives is subject to the development proceeding as planned. Once the full Noise Control Scheme has been approved by Luton Borough Council, details will be made available on London Luton Airport's website.

	Action	Noise problem *	Timescale
47	<p>Develop and implement a Noise Control Scheme to control the noise of aircraft both during the day (0700 - 2300) and night periods (2300-0700), including a Noise Quota System for the night period (2330 -0600) to include:</p> <ul style="list-style-type: none"> • Sanctions in relation to operators of aircraft which land or take off in breach of the QC System • Exclusion of aircraft movements with a QC value in excess of QC2 during the night time (2300-0700) • Details of the procedures to be adopted and measures with the purpose of phasing out night time (2300 to 0700) operations by aircraft with a QC value greater than 1 on either departure or arrival. <p>For the Night Quota Period (2330 - 0600) this shall have the following limits incorporated into the scheme:</p> <ul style="list-style-type: none"> • Total annual movements by aircraft (per 12 month period) shall be limited to 9,650; • The total annual noise quota in any 12 month period shall be limited to 3,500 which, using all reasonable endeavours, shall be reduced at each review until it reaches a point where it does not exceed 2,800 by 2028. <p>For the Early Morning Shoulder Period (06.00 - 07.00) this shall have the following limit incorporated into the schemes:</p> <ul style="list-style-type: none"> • Total annual movements by aircraft in any 12 month period shall be limited to 7000. <p>Review the Noise Control Scheme no later than the first and fourth year after introduction, and every subsequent five years.</p>	A, B	2014
48	Report actual and forecasted aircraft movements for the preceding and next twelve months every three months to Luton Borough Council.	A-F	2014
49	Implement a progressive reduction in the daytime maximum noise violation limit (NVL) in line with the requirements of the planning conditions (See Section 5)	B	2014
50	Develop a strategy to be submitted to Luton Borough Council for their approval which defines the methods to be used by London Luton Airport Operations Ltd (LLAOL) or any successor or airport operator to reduce the area of the noise contours by 2028 for daytime noise to 15.2km ² for the area exposed to >57dB Leq16hr (0700-2300) and above and for night time noise to 31.6 km ² for the area exposed to >48dB Leq8hr (2300-0700) and above.	A-F	2018
51	Report forecasted aircraft movements and consequential noise contours (Day, Night and Quota Period) for the forthcoming calendar year annually, which shall utilise the standard 92 day summer contour. Where the area enclosed by the 57-72dB(A) Leq16hr (0700-2300) contour could exceed 19.4 sq km for daytime noise, or the area enclosed by the 48-72dB(A) Leq8hr (2300-0700) contours could exceed 37.2 sq km for night-time noise, an action plan will be put in place to ensure this level isn't breached.	A-F	2014
52	<p>Develop a Noise Control Monitoring Scheme and submit to Luton Borough Council for approval, to include:</p> <ul style="list-style-type: none"> • Details of the fixed noise monitoring terminals and track keeping system (vertical and horizontal) • Details of the complaints handling system • Sanctions to be imposed on infringements by aircraft in respect of noise limits and track keeping • Arrangements for the verification of the submitted information <p>Review the Noise Control Monitoring Scheme no later than the first and fourth year after introduction, and every subsequent five years.</p>	A-F	2014
53	<p>Develop a Ground Noise Scheme and submit to Luton Borough Council for approval, to include:</p> <ul style="list-style-type: none"> • Measures to limit the ground running of aircraft propulsion engines between 2300-0700 • Preferential use of stands and taxiways between 2300-0700 • Steps to limit the use of auxiliary power units (including the provision of fixed electrical ground power to stands and or suitably quietened ground power units) • No ground running of aeroplane engines for testing or maintenance purposes between 2300-0700, and designated areas for such testing between 0700-2300. <p>Review the Ground Noise Scheme no later than the first and fourth year after introduction, and every subsequent five years.</p>	A	2014
54	Develop a Noise Insulation Scheme for residential as well as non-residential buildings.	F	2014
55	Reduce the night time noise violation limit to 80 dB(A) by April 2015	A, B	2015



9. LONG TERM STRATEGY AND OTHER CONSIDERATIONS



Long term strategy

In March 2013, the Government published the Aviation Policy Framework, giving a high-level strategy setting out the Government's overall objectives for aviation. Those highlighted are:

- To ensure that the UK's air links continue to make it one of the best connected countries in the world. This includes increasing our links to emerging markets so that the UK can compete successfully for economic growth opportunities.
- To ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions.
- To limit and where possible reduce the number of people in the UK significantly affected by aircraft noise.
- To encourage the aviation industry and local stakeholders to strengthen and stream line the way in which they work together.

In October 2005, London Luton Airport published a draft Masterplan for public consultation, setting out a response to the White Paper. This was later withdrawn and a revised Masterplan was published in September 2012 following public consultation. This outlines the plans to increase capacity to 18 million passengers per annum by 2031 through the consented development.

Quiet areas

London Luton Airport operates in the vicinity of a second round agglomeration, Luton and Dunstable. The Defra NAP guidance advises that airport operators will need to consider whether any elements of the proposed airport action plan might conflict with any existing quiet areas in agglomeration. At the time of publishing this action plan no quiet areas have been identified in nearby agglomerations.

AONB

London Luton Airport acknowledges that local people have highlighted the importance of protecting the tranquillity of the Chilterns AONB. We will therefore work with National Air Traffic Services (NATS) to consider improved aircraft routes, provided they do not add to the environmental burden on more densely populated areas. In doing so we will have to work within the current constraints of the London Terminal Maneuvering Area, which includes Heathrow departure routes and the Bovingdon Hold.

Airspace changes

During 2008, NATS held a major public consultation with respect to proposed airspace changes to the Terminal Control North (TCN) region. TCN is one of the most complex areas of airspace in the world, with routes in and out of major airports including Heathrow, Stansted, London Luton and London City, as well as smaller airports such as Southend and RAF Northolt.

The proposals sought to improve safety and reduce delays, including changes to the locations of the holds for Stansted and London Luton, but also changes to some departure and arrival routes around London Luton Airport.

Following consultation the proposed airspace changes were put on hold. The London Airspace Management Programme (LAMP) was subsequently launched and will be undertaken in phases. London Luton Airport, with the support of key stakeholders, will consider the implications of any phase of the LAMP on operations and this Noise Action Plan as the programme develops.

Navigation Technology

Area navigation (RNAV1) technology was trialled in 2013 along the Runway 26 Brookmans Park departure routes, and consultation on this airspace change proposal launched in April 2014. This technology will enable aircraft to be routed away from centres of population such as Hemel Hempstead and St. Albans, and follow the route more accurately.

Following positive feedback received during this consultation, a formal airspace change proposal was submitted to the CAA. Subject to approval the use of RNAV1 along this departure route will be adopted, and London Luton Airport will continue to consider the use of this technology along other departure and arrival routes from London Luton Airport.

A further enhancement of performance-based navigation capabilities is anticipated later this year when new SID design criteria is expected to be approved by the International Civil Aviation Organisation (ICAO), and by the CAA for use in the UK. This will involve the introduction of a new design criterion for Required Navigation Performance (RNP1) SIDs which will incorporate designs with path terminators known as Radius to Fix (RF). Once the design criteria has been published, consideration will be given as to the suitability for use along routes from London Luton Airport.

Financial Information

Detailed costs for the period of the noise management strategy are not available at this stage, but London Luton Airport estimated that expenditure was approximately £230,000 in 2011.

Activity	Estimated Cost (£)
Staff costs	90,000
Equipment (including maintenance and licenses)	80,000
Publications and communication	25,000
Consultancy	30,000
Auditing and calibration	5,000
Total	230,000

During the course of the Noise Action Plan period, London Luton Airport will collect noise violation limit penalties which will be used to support the Community Trust Fund and the environmental management programme.

10. CONCLUSION

NOISE ACTION



This Noise Action Plan has been produced with regard to the European Noise Directive and the DEFRA guidance and builds on London Luton Airport's established voluntary approach to noise management. It has carefully considered the responses received during the public consultation process, which has enhanced London Luton Airport's understanding of the problems associated with its operations and provided a context to strengthen our approach to noise management.

It includes 55 actions that will further improve noise management at London Luton Airport, representing a robust and acceptable approach to addressing noise matters. Unlike other major airports, a large proportion of these measures are voluntary in nature, demonstrating our commitment to take a proactive approach to noise management and seek to minimise the adverse effects of our operations.

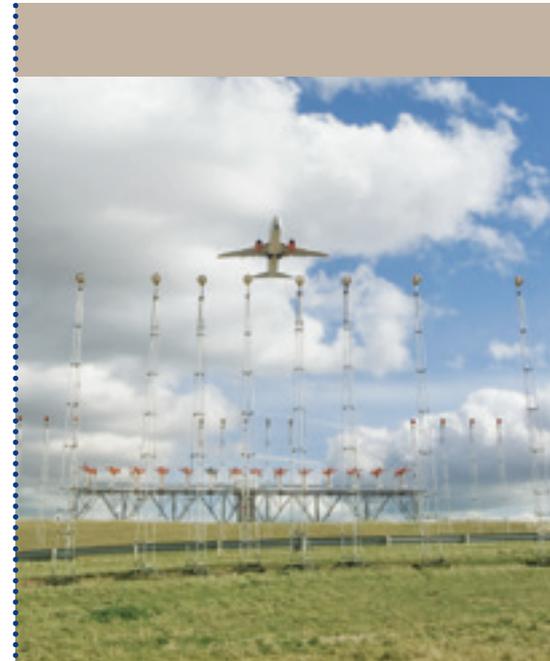
The strategy includes a range of instruments, including operational controls,

financial penalties and mitigation, where appropriate. It highlights the need to monitor our operations carefully and to report this information transparently and in a way it can be easily understood. It also stresses our commitment to engage in an open and honest way.

In line with the Environmental Noise Directive (END) 2002 and associated regulations, we will formally review our Noise Action Plan every five years. This will follow the END five year cycle starting from 2013 - 2018. We are however committed to continue to review and deliver improvements where possible and necessary.

The successful delivery of this Noise Action Plan requires the cooperation and support of our air traffic control provider, NATS, airlines and other operators. However, it also requires support from the local community and other key stakeholders, to ensure that noise management is considered in the context of the ICAO Balanced Approach.

We will continue to listen and engage. With the support of the LLACC we will seek to deliver improvements in the noise performance at London Luton Airport whilst maximising the wider benefits that a major international airport can bring to the local region.





11. APPENDICES





NOISE ACTION



APPENDIX A.

KEY STAKEHOLDER LIST

London Luton Airport held a 4 week consultation exercise to seek the views of key stakeholders from 25th June to 23rd July 2014. The following were consulted.

London Luton Airport Consultative Committee Membership

LLACC Independent Chairman

Aylesbury Vale District Council

Buckinghamshire County Council

Central Bedfordshire Council

Dacorum Borough Council

Hertfordshire County Council

Luton Borough Council

North Hertfordshire District Council

St. Albans City and District Council

Stevenage Borough Council

Bedfordshire Association of Town and Parish Councils

Buckinghamshire and Milton Keynes Association of Local Councils

Hertfordshire Association of Parish and Town Councils

Luton and District Association for the Control of Aircraft Noise (LADACAN)

London Luton Airport Town & Villages Communities Committee (LLATVCC)

People Against Aircraft Intrusive Noise (PAIN)

Breachwood Green Society

Airline Operators

Bedfordshire & Luton Chamber of Commerce

National Air Traffic Services - London Luton Air Traffic Control

Airport Union Representative

Freight Airline Representative

Noise and Track Sub-Committee Membership

LLACC Independent Chairman

Hertfordshire County Council

Central Bedfordshire Council

National Air Traffic Services - London Luton Air Traffic Control

Luton and District Association for the Control of Aircraft Noise (LADACAN)

Aylesbury Vale District Council

easyJet Airline Company Limited

North Hertfordshire District Council

Dacorum Borough Council

Luton Borough Council

St Albans District Council

Hertfordshire Association of Parish & Town Councils

People Against Aircraft Intrusive Noise (PAIN)

London Luton Airport Town & Villages Communities Committee (LLATVCC)



APPENDIX B. SCHEDULE OF RESPONDEES

During the consultation period (25th June to 23rd July 2014), responses were received from the following:

LLACC Independent Chairman

London Luton Airport Town & Villages Communities Committee (LLATVCC)

Luton and District Association for the Control of Aircraft Noise (LADACAN)

Buckinghamshire and Milton Keynes Association of Local Councils

Aylesbury Vale District Council

Hertfordshire County Council

St. Albans City and District Council

Dacorum Borough Council



APPENDIX C .

SUMMARY OF CONSULTATION RESPONSES

In line with the requirements for Noise Action Plans, as set out in DEFRA's Guidance for Airport Operators to produce airport noise action plans under the terms of the Environmental Noise (England) Regulations 2006 (as amended), this table provides a summary of the consultation responses received from 25th June to 23rd July 2014, identifying common themes and factors that were raised and a reasoned justification for the response to the issues raised. Please note that this is not an exhaustive list of all responses received, but all responses were considered and incorporated where possible.

Description of Comments Received	London Luton Airport Response	Change to the DNAP?
Actions listed as complete should be removed.	LLAOL are required to demonstrate what progress has been made since the last NAP. A separate section has however now been created to differentiate between ongoing/planned actions and completed actions to make this clearer.	Yes
There is not enough information in the Noise Action Plan regarding steps to mitigate and respond to the expected increase in flight frequency required by the recently issued planning conditions.	A Noise Control Scheme must be submitted to Luton Borough Council for approval prior to the commencement of the new development proposed at London Luton Airport. This scheme will incorporate further mitigation measures, however the details of the Noise Control Scheme have not yet been finalised and cannot therefore be incorporated into the NAP. The NAP will be regularly reviewed as the development progresses and updated where necessary. Commitments made in the Noise Control Scheme will however be detailed on the London Luton Airport website once approved, and this explanation has been added to the Noise Action Plan.	Yes
Too many of the NAP's actions are without quantitative targets for a meaningful improvement in the noise climate.	Aside from the limits set out in the recent planning conditions, further quantitative information will be provided in the Noise Control Scheme once this has been approved by Luton Borough Council.	No
Some actions listed as complete have resulted in good discussions through the consultative committee, but further improvements are possible.	The list has been reviewed and some actions previously listed as 'complete' have been changed to 'ongoing' to ensure that further improvements are sought where possible.	Yes
Not all of the actions have specifically identified responsible bodies attached to them.	LLAOL are responsible for implementing all of the actions in the Noise Action Plan.	No
There is no information on the fines to be set for infringements.	These are subject to approval through the Noise Control Scheme and may change over time. They therefore have not been detailed in this document, however a commitment has been added to Action 18 to report penalties to LLACC via NTSC on a quarterly basis.	Yes
The commitment made to reduce the night noise NVL to 80dB should be specifically included here.	This has been added as Action 55.	Yes
Track-keeping seems to continue to be a problem. Should further actions be detailed to tackle this?	London Luton Airport continues to monitor track-keeping and follow up with the operators when infringements occur. The proposal to implement RNAV1 navigation technology along the Runway 26 Brookmans Park departure route will improve track-keeping and RNAV1 will be considered for all other routes. The action to fine operators when a track-keeping infringement occurs should further incentivise operators to keep within the swathe. No further actions are considered necessary at this time.	No

APPENDIX C .

SUMMARY OF CONSULTATION RESPONSES CONTINUED

Description of Comments Received	London Luton Airport Response	Change to the DNAP?
<p>It is important to take account of planned and potential future new development when considering the numbers of residents who will potentially be subject to noise nuisance as a result of airport activities.</p>	<p>Action 17 states LLAOL will 'Discourage residential development close to the airport boundary or areas affected by aircraft noise, in liaison with Local Authorities.' The recent planning permission and its conditions and obligations take account of the numbers of people potentially affected by noise now and in the future, and the Noise Control Scheme will also take this into account.</p>	<p>No</p>

APPENDIX D.

NIGHT NOISE POLICY (ISSUE 8)

Department:
Airfield Operations

Authority:
Airport Operations Director

Distribution:
Aircraft Operators

UK Aeronautical Information
Publication (UK AIP)
Luton Based Handling Agents,
Airport Operations, London Luton
Airport, Consultative Committee,
London Luton Airport Noise and Track
Sub-Committee Upon Request

Effective Date:
1st April 2010 to 31st March 2015

Review Status:
Amended 1st February 2010

Issue	Date	Description
1	28th March 2002	First Issue
2	5th April 2002	Insertion on policy for departing aircraft below 34,000 kg
3	26th April 2002	Amendments following Night Jet Working Group Consultation
4	13th May 2003	Authority title changed to Airport Services Director
5	1st October 2003	Amendment to Aerodrome Flying Training Restrictions at night
6	4th September 2006	Amendments incorporating review of Night Noise Working Group
7	21st February 2007	Amendments incorporating review of Night Noise Working Group
7	1st December 2008	Policy extended to March 31st March 2010 without amendment
8	1st February 2010	New policy incorporating NTSC review and Noise Action Plan objectives

1. Purpose

1.1 London Luton Airport Operations Limited (LLAOL), operator of London Luton Airport, is licensed by the Civil Aviation Authority (CAA) for 24-hour operations under its Public Use Aerodrome License issued in accordance with the Air Navigation Order (1995).

1.2 LLAOL's commitment is to voluntarily minimise the effect of night noise on the surrounding community, whilst balancing the economic and social benefits of its night operations with the consequential noise impact. The Night Noise Policy seeks to set out those controls and procedures implemented to minimise night noise impact, as well as detailing monitoring

activities and how this information will be shared and communicated.

1.3 For the purpose of the Night Noise Policy night is defined as:

**2300 - 0559 Local Time
(Monday to Saturday)**

2300 - 0659 Local Time (Sunday)

Additional controls are in place for an 8 hour night noise contour period (2300 - 0700) and flying training restrictions apply between 2000 and 0800.

2. Background

2.1 LLAOL originally published its Night Jet Policy with the specific aim of accelerating the removal of Chapter 2 aircraft from its night

operations. This objective was successfully achieved and that policy expired to coincide with the implementation of national regulations regarding Chapter 2 aircraft from the 1st April 2002. Since 2002, LLAOL has published further versions of the Night Noise Policy.

2.2 This Night Noise Policy (Issue 8) seeks to build on this approach, taking into consideration the views of community and aviation stakeholders, as well as forming an important component of the London Luton Airport Draft Noise Action Plan.

2.3 With regards to night noise, LLAOL operates within Condition 11 associated with the planning consent granted in 1998. This

requires the airport to operate in such a manner that the night noise contours do not exceed the impact, which occurred in 1984 in terms of land area affected. In particular, the area within the 48 dB(A), LAeq,8h contour for an average summer's night shall not exceed 85 km². If results show that the 1999 predicted values have been exceeded, an action plan will be implemented to avoid the possibility of exceeding the 1984 values.

2.4 LLAOL will continue to comply with the planning conditions and, in particular in the context of this Policy, Condition 11.

2.5 In September 2009, LLAOL published its first Draft Noise Action Plan (2010-2015) for public consultation, which was prepared in response to the Environmental Noise Directive (2002/49/EC), transposed into UK law under the Environmental Noise (England) Regulations 2006 (as amended). The final Draft Noise Action Plan was submitted to the Department for Environment, Food and Rural Affairs (DEFRA) and the Department for Transport in late January 2010. Subject to formal adoption by DEFRA, London Luton Airport will publish the final Noise Action Plan shortly thereafter. Once published, the Noise Action Plan will set out London Luton Airport's noise management strategy. This Night Noise Policy forms part of the Noise Action Plan and will be appended to it.

3. Monitoring

3.1 LLAOL has developed a programme of noise monitoring to understand further the impact of its operations on the local community and is committed to report the results to the London Luton Airport Consultative Committee (LLACC)

and/or its Noise and Track Sub Committee (NTSC), as well as to other interested parties, in an agreed and recognised format.

3.2 LLAOL will continue to maintain a noise and track-keeping system to monitor aircraft operations.

3.3 LLAOL will continue to monitor the noise of departing aircraft at fixed monitors at each end of the airport runway and report the results quarterly to the LLACC and/or NTSC.

3.4 LLAOL will continue to monitor the number of aircraft movements at night and report them quarterly to the LLACC and/or NTSC, and on an annual basis in the Annual Monitoring Report, produced in collaboration with Luton Borough Council.

3.5 LLAOL will continue to monitor and respond to any complaints made to the airport about its night operations and report details of these complaints, quarterly, to the LLACC and/or NTSC.

3.6 LLAOL will prepare LAeq,8h noise exposure contours for an average night in each quarter (Jan-Mar; Apr-Jun; Jul-Sep; and Oct-Dec) for the night contour period (2300-0700). These contours will commence at 48 dB(A) and show increasing values in 3 dB(A) steps, and will be reported to the LLACC and/or NTSC.

3.7 LLAOL will continue to produce annually noise contours for the average summer's night (mid-June to mid-September) based on actual movements and similar contours predicted for the forthcoming summer in accordance with Condition 11 attached to the 1998 planning consent.

3.8 LLAOL will monitor and report night time Continuous Descent Approach

(CDA) performance quarterly to the NTSC and work with operators and National Air Traffic Services (NATS), through the Flight Operations Committee (FLOPC), to improve compliance rates. LLAOL will agree a night time CDA target with NATS and monitor progress with the support of FLOPC and report to NTSC.

3.9 LLAOL will provide its aircraft operators and pilots with noise and track keeping data at the quarterly FLOPC meetings in order to monitor trend data, with a view to improving track-keeping performance, particularly at night.

4. Control Measures & Procedures

4.1 LLAOL will develop and implement policies, procedures and control measures to minimise the effects of aircraft noise and encourage improvements from airline and other operators.

Night Operating Charges

4.2 LLAOL will continue to encourage daytime operations through levying higher night operating charges. These will be published in the London Luton Airport Charges and Conditions of Use document (available at <http://www.london-luton.co.uk/en/content/8/160/operations.html>).

APPENDIX D.

NIGHT NOISE POLICY (ISSUE 8)

Noise Violation Limits

4.3 LLAOL will continue to apply surcharges on the Landing and Navigation Service Charge in respect of any landing immediately prior to a take-off. From 1st April 2010, the night noise violation limits will be lowered. The following surcharges will be levied if maximum noise levels are recorded at any of the monitors during the night period:

2300 - 0559 Monday to Saturday
& 2300 - 0659 on Sunday;

>82 - 85 dB(A) - 300% surcharge
>85 - 88 dB(A) - 500% surcharge
>88 dB(A) - 600% surcharge

Operational Controls - Chapter 2 Aircraft

4.4 LLAOL will comply with the Aeroplane Noise Regulations 1999, which state that 'with effect from 1st April 2002, all subsonic jet aircraft with a maximum take off weight of more than 34,000 kg and a capacity of more than 19 seats operating to airports in the EEA must comply with Chapter 3 noise standards regardless of the age of the aircraft'. Aircraft hushkitted or modified to Chapter 3 standards comply with these requirements.

4.5 There are special agreed EC Provisions, which LLAOL will have to comply with and these provide exemptions to certain aircraft registered in developing nations and meeting specified criteria. The UK is also obliged by the EC Directive to recognise exemptions granted by other states in respect of Chapter 2 aircraft registered in those states. Details of exempted aircraft are available from the CAA's Economic Regulation Group, CAA House, 45-59 Kingsway, London, United Kingdom.

4.6 Additionally the CAA would normally be prepared to grant exemptions in respect of Chapter 2 aircraft visiting the UK solely for the purposes of maintenance provided that the aircraft operates empty on both inbound and outbound sectors. Chapter 2 aircraft under such exemptions may be permitted to operate into Luton.

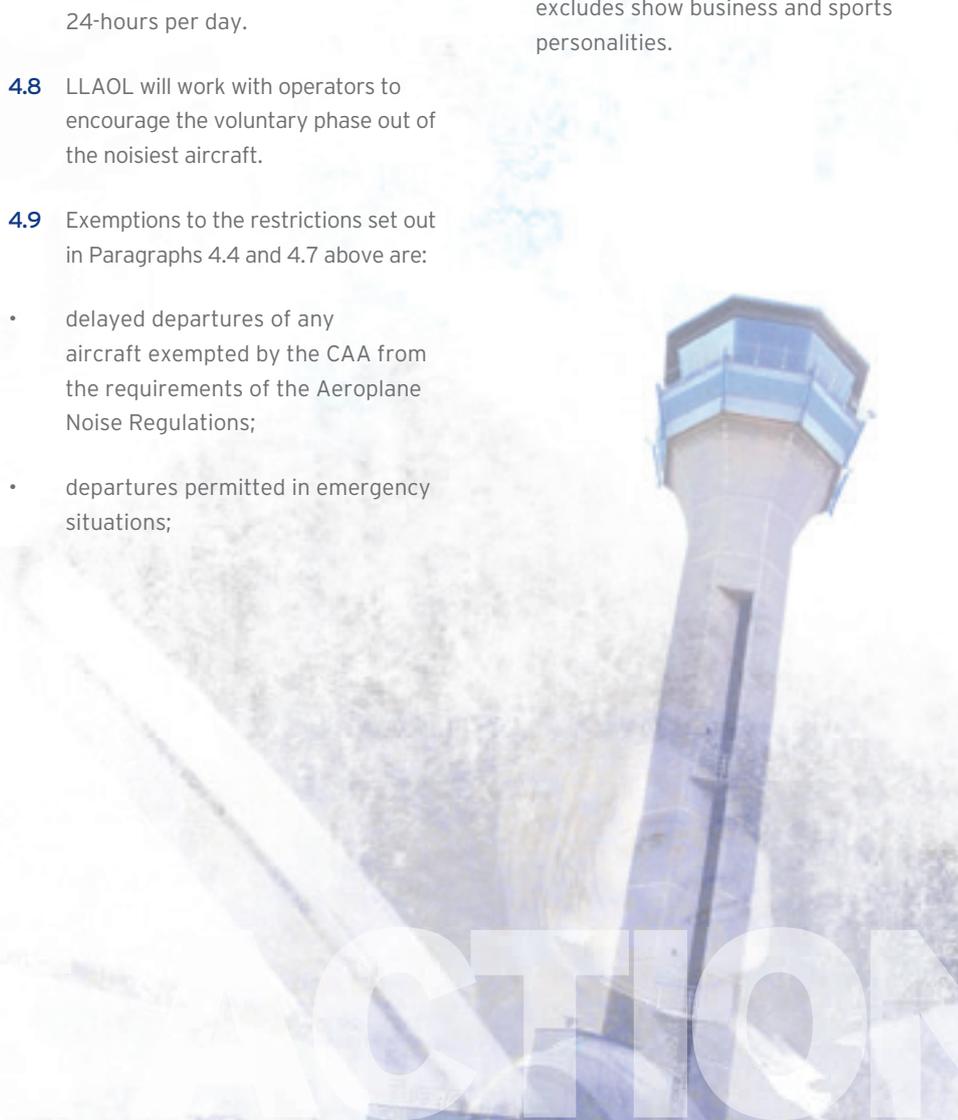
4.7 In addition, LLAOL extended the restriction described above to aircraft with a maximum take-off weight of more than 11,600 kg between the hours of 2300 to 0559 Monday to Saturday and from 2300 to 0659 on Sunday for departure movements only. Arrival movements remain unrestricted 24-hours per day.

4.8 LLAOL will work with operators to encourage the voluntary phase out of the noisiest aircraft.

4.9 Exemptions to the restrictions set out in Paragraphs 4.4 and 4.7 above are:

- delayed departures of any aircraft exempted by the CAA from the requirements of the Aeroplane Noise Regulations;
- departures permitted in emergency situations;

- relief flights where urgent need exists;
- military and support aircraft for military operational reasons;
- delays to aircraft which are likely to lead to serious congestion at the aerodrome or serious hardship or suffering to passengers and/or animals;
- off schedule movements from major disruption of air traffic; and
- VIP flights, which include flights by members of the Royal Family, UK Government Ministers and Service Chiefs of Staff, and members of foreign Royal Families, Heads of State and senior ministers, but excludes show business and sports personalities.



NOTICE

4.10 Details of any such exemptions will be reported quarterly to the LLACC, although for security reasons LLAOL may be unable to supply full details.

Operational Controls - Flying Training¹

4.11 Flying Training will not be permitted between the hours of 2000 and 0800. This means no jet aircraft training or air testing can be undertaken between these hours. All aircraft movements to and from London Luton Airport between these hours will be expected to be associated with an arrival and/or a departure. NPR exempt aircraft will not be subject to this restriction.

4.12 In exceptional circumstances Operators can apply to LLAOL for permission to carry out Flying Training or Air Tests. The conditions under which LLAOL may grant exceptional permission for Flying Training or Air Tests are;

- Delays to aircraft which are likely to lead to serious congestion at the aerodrome or serious hardship or suffering to passengers and/or animals where an Air Test is required to enable a planned flight to operate a service.
- Unplanned technical repair of an aircraft scheduled to operate a passenger or cargo revenue service.
- VIP flights, which include flights by members of the Royal Family, UK Government Ministers and Service Chiefs of Staff, and members of foreign Royal Families, Heads of State and senior ministers, but exclude show business and sports personalities.

Operational Controls - Noise Scheduling Ban

4.13 Effective 1st April 2010, LLAOL will extend its scheduling ban to include QC4/QC8/QC16 type aircraft, with no aircraft scheduled to arrive or depart between the hours of 2300 to 0559 Monday to Saturday and 2300 to 0659 on a Sunday, with the exception of those exemptions listed in Paragraph 4.9 above.

Operational Controls - Engine Ground Running

4.14 The use of the term 'engine run' is a generic term that applies to any combination of the following:

- Aircraft Engine Ground Run - any engines start up not followed immediately by the departure of the aircraft concerned (including engine dry running and cross bleed starts).
- Auxiliary Power Unit (APU) Run - any APU start up that is not immediately connected with the pre-flight or post flights sequence for an aircraft.
- Ground Power Unit (GPU) Run - any GPU start up that is not immediately concerned with the pre-flight sequence for an aircraft departure or post flights sequence, this includes GPU maintenance runs of greater than two hours.

4.15 Engine ground running and the testing of engines will not normally be permitted during the night period as shown below, unless the aircraft concerned is required for a London Luton Airport service departing during the first wave of flights of the day. Positioning flights are not included within this category.

- Weekdays - between 2300-0559 hours local
- Saturdays, Sundays and local Public Holidays - between 2300-0659 local

4.16 Applications for engine runs are required to be submitted to the airport through the Airport Operations Centre with a minimum of 1 (one) hours prior notice being given before the planned commencement of the engine run. Applications submitted with less than 1 hours notice will only be considered if the engine run is safety critical.

4.17 Approved ground running operations will be monitored by ATC and LLAOL. If the parameters contained within the Approval detail are not adhered to, the operation will be terminated by LLAOL through ATC.

5. Communication

5.1 LLAOL will circulate this Policy to the distribution list set out above, publish on its website and amend the London Luton Airport Charges and Conditions of Use document accordingly.

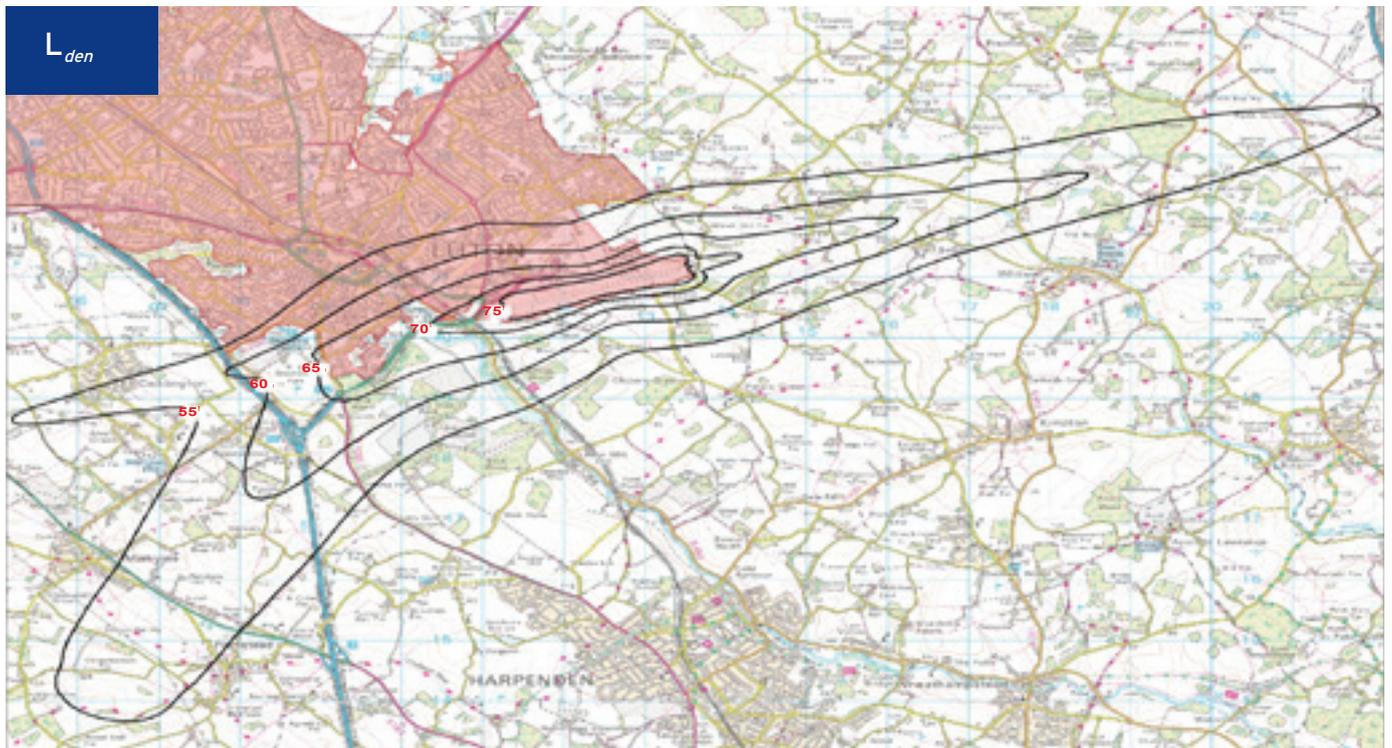
6. Notes

6.1 Any changes in legislation or regulation by the Government or other national authority shall take precedence over the clauses within this Policy. LLAOL will amend this Policy in light of new legislation and regulations.

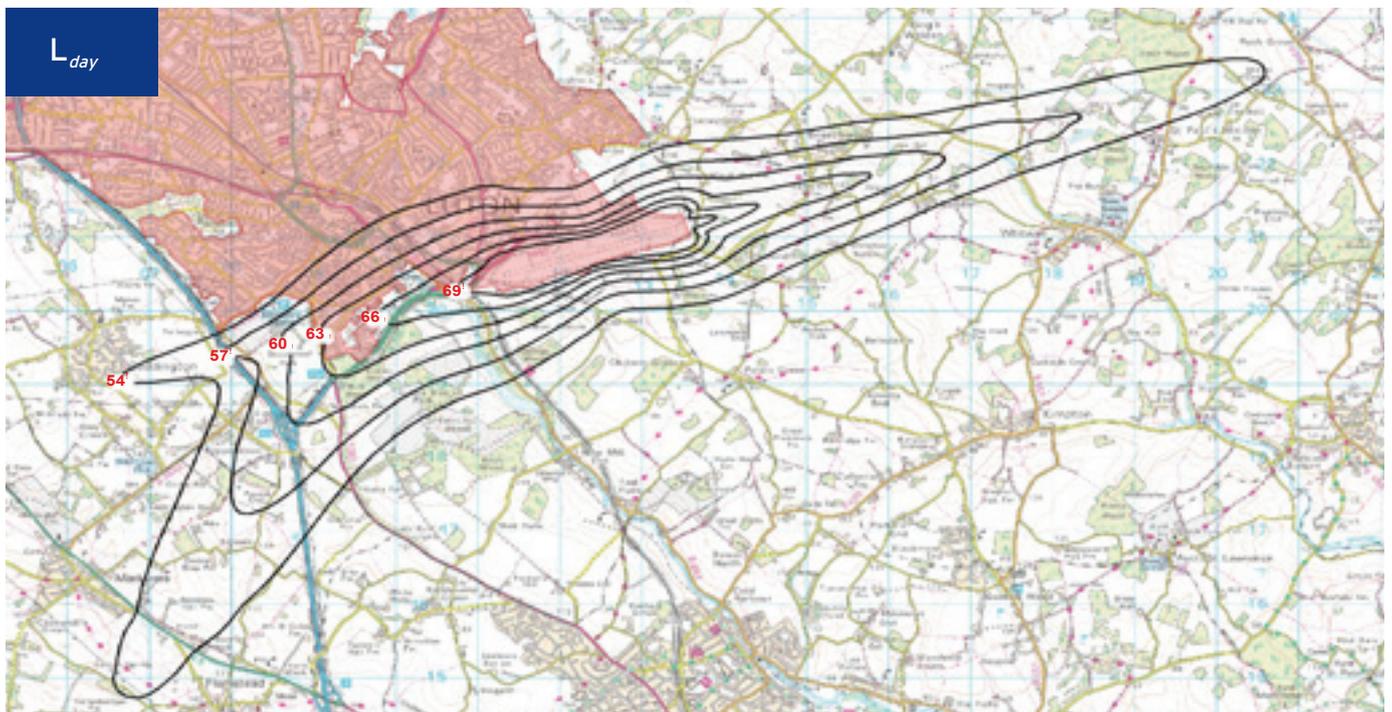
6.2 This Policy shall apply from 1st April 2010 to 31st March 2015, with an interim review in October 2012.

¹ The definition of flying training also includes air testing where aircraft under maintenance are technically required to conduct an actual flight, which may involve circuits at approved altitudes.

APPENDIX E. LONDON LUTON AIRPORT STRATEGIC NOISE MAPS 2011



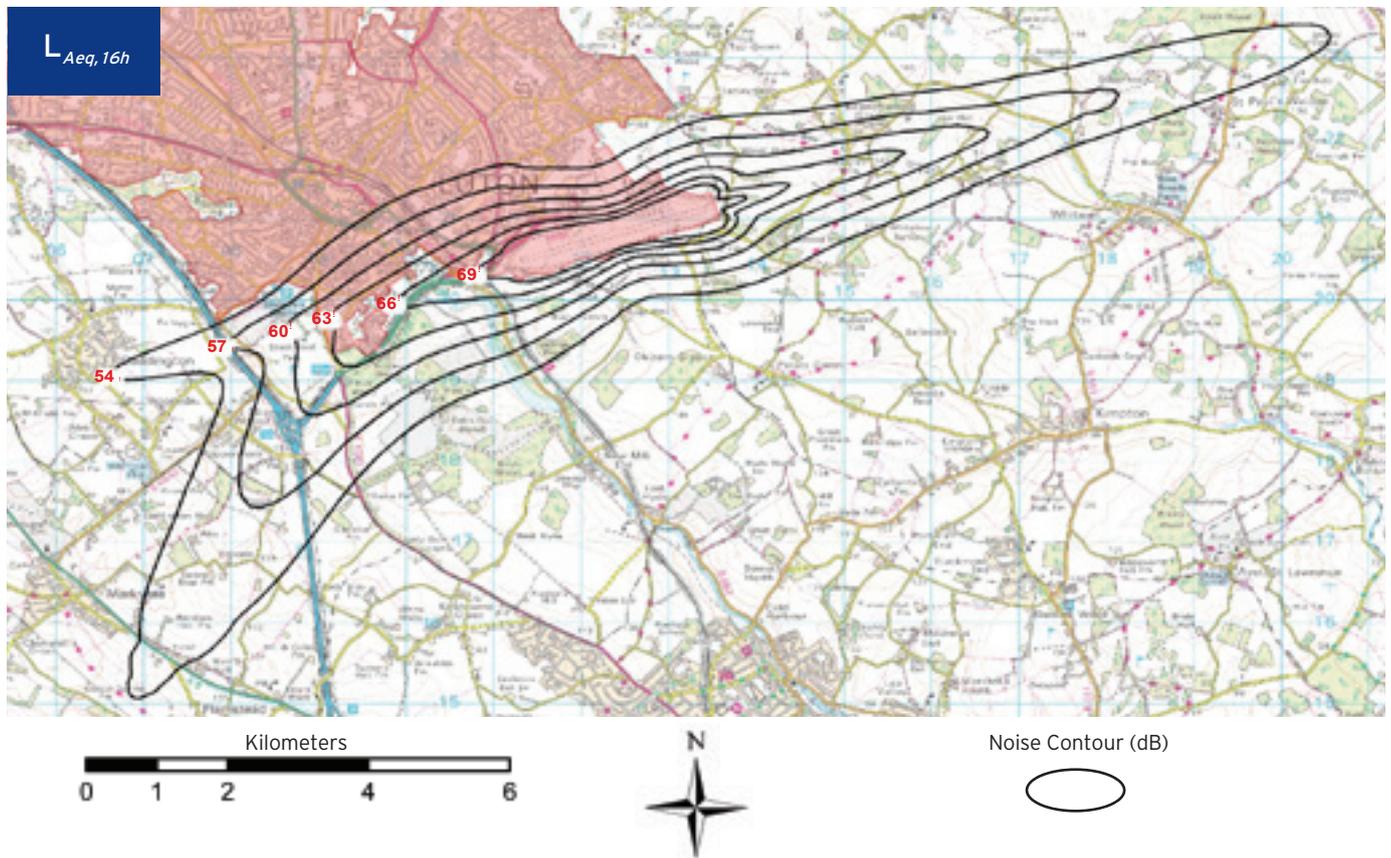
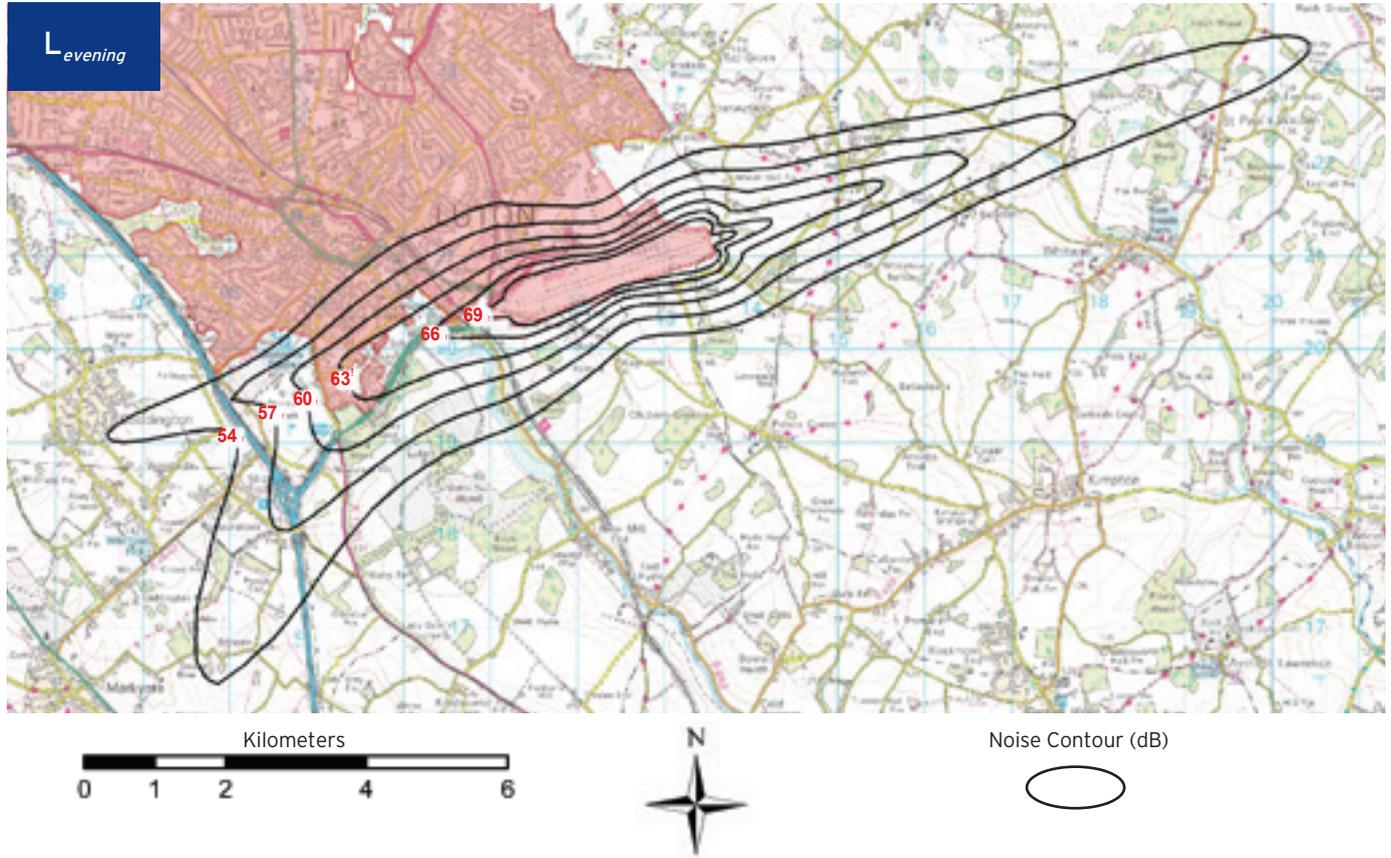
Noise Contour (dB)



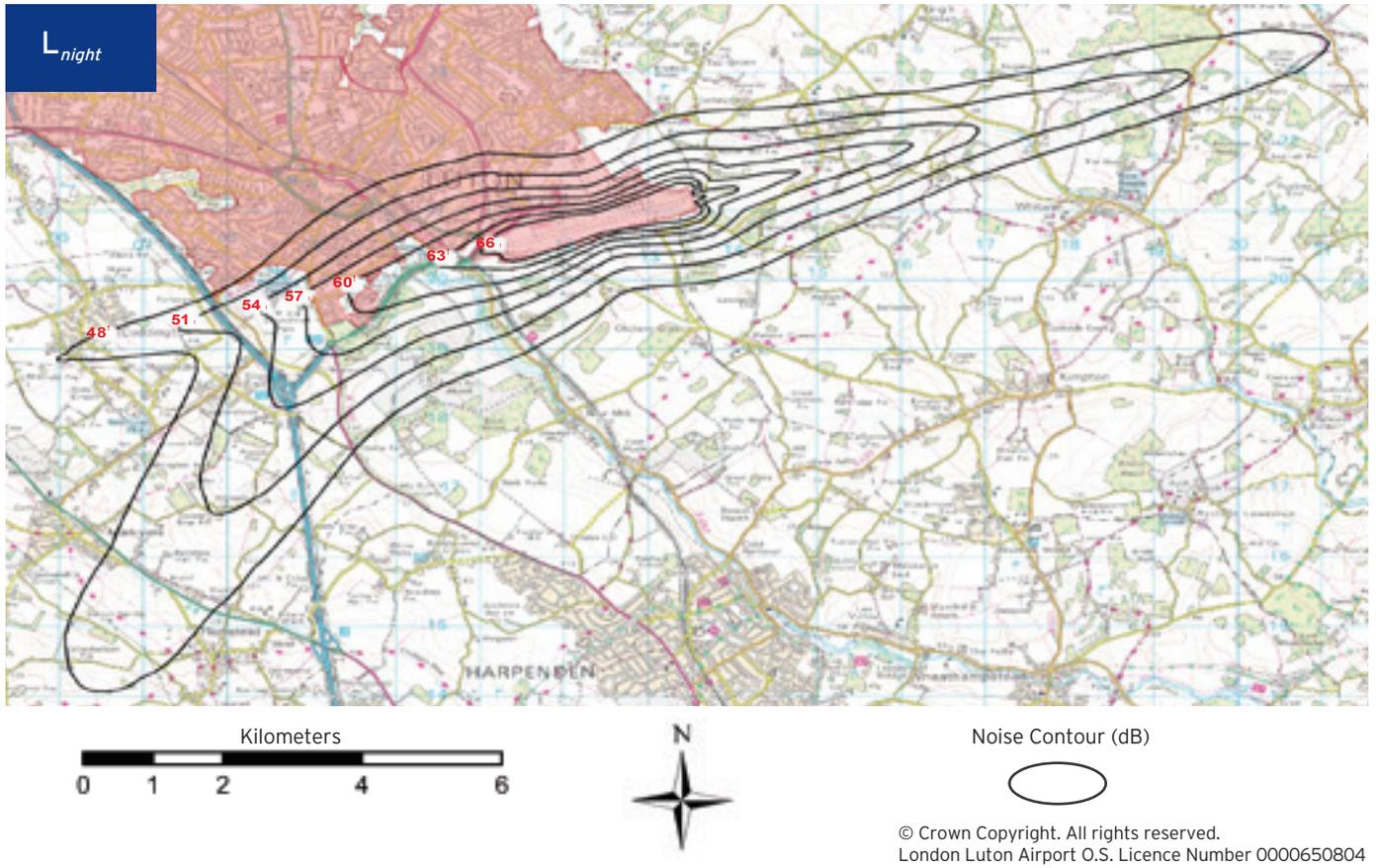
Noise Contour (dB)



APPENDIX E. LONDON LUTON AIRPORT STRATEGIC NOISE MAPS 2011



APPENDIX E. LONDON LUTON AIRPORT STRATEGIC NOISE MAPS 2011



APPENDIX F.

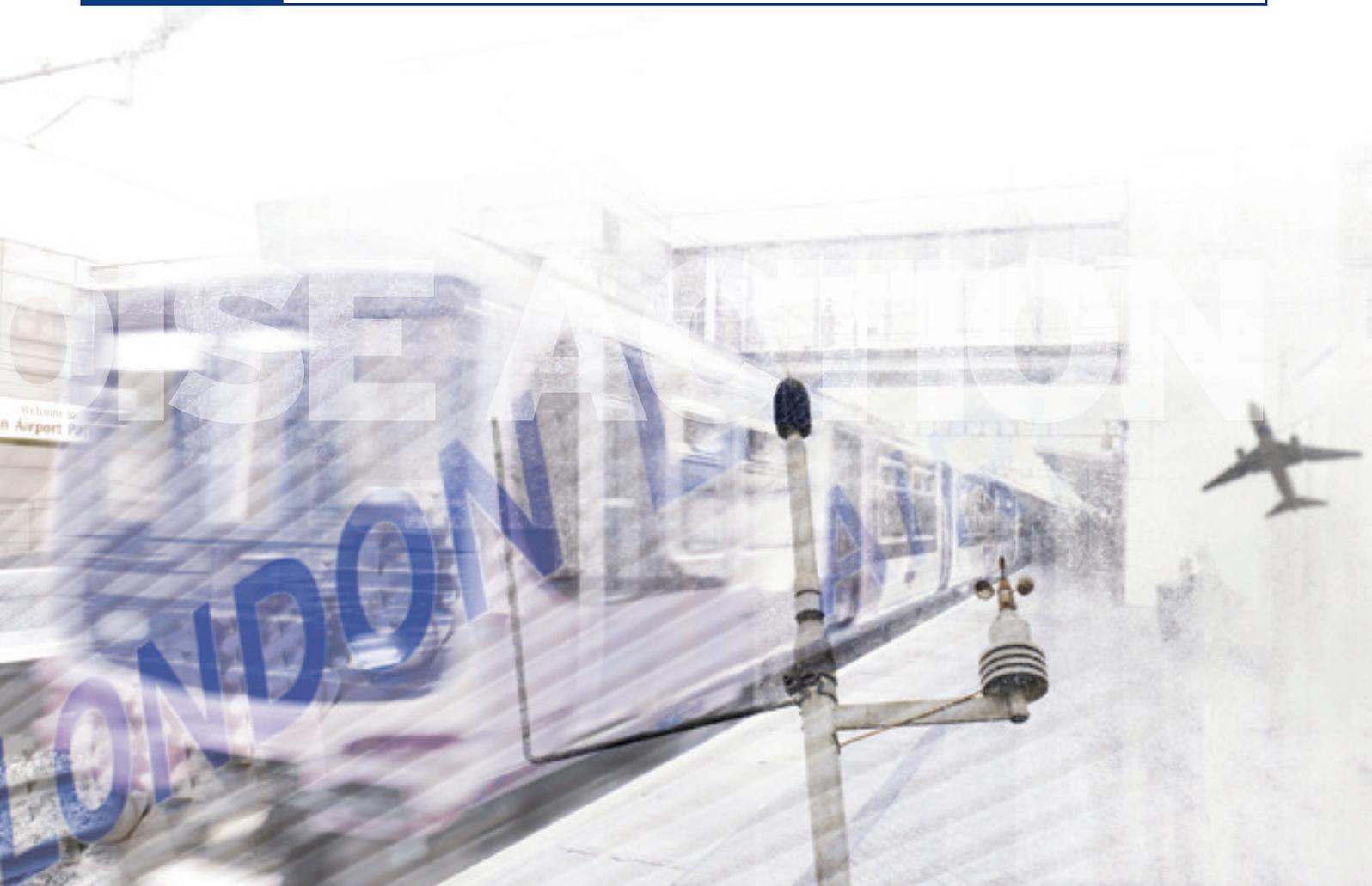
ANNEX V – EUROPEAN NOISE DIRECTIVE 2002/49/EC

Annex V from the END, as it applies to airports, states that an Action Plan must at least include the following elements:

- A description of the airport and any other noise sources taken into account
- The authority responsible
- The legal context
- Any limit values in place
- A summary of the results of the noise mapping
- An evaluation of the estimated number of people exposed to noise, identification of problems and situations that need to be improved
- A record of the public consultations organised in accordance with Article 8(7)
- Any noise reduction measures already in force and any projects in preparation
- Actions which the airport operator intends to take in the next five years, including measures to preserve quiet areas
- Long term strategy
- Financial information (if available): budgets, cost-effectiveness assessment, cost-benefit assessment
- Provisions envisaged for evaluating the implementation and the results of the action plan
- The Action Plan should contain estimates in terms of the reduction of the number of people affected (annoyed, sleep disturbed, or other)

GLOSSARY

Agglomeration	An area having a population in excess of 100,000 persons and a population density equal to or greater than 500 people per km ² and which is considered to be urbanised.
First Round Agglomeration	An agglomeration but having a population in excess of 250,000 persons. A schedule of first round agglomerations can be found in Schedule 1 of SI 2007/415.
dB(A)	A measure of sound pressure level ("A" weighted) in decibels as specified in British Standard BS EN 61672-2:2003. 'A' weighted sound pressure levels approximate the response of the human ear to sound.
$L_{Aeq,T}$	The 'A' weighted equivalent continuous sound pressure level which is a notional continuous level that, at a given position and over the defined time period, T, contains the same sound energy as the actual fluctuating sound that occurred at the given position over the same time period, T.
L_{day}	The L_{Aeq} over the period 0700 - 1900, local time (for Strategic Noise Mapping this is an annual average).
$L_{evening}$	The L_{Aeq} over the period 1900 - 2300, local time (for Strategic Noise Mapping this is an annual average).
L_{night}	The L_{Aeq} over the period 2300 - 0700, local time (for Strategic Noise Mapping this is an annual average).
$L_{Aeq,16h}$	The L_{Aeq} over the period 0700 - 2300, local time (for Strategic Noise Mapping this is an annual average).
L_{den}	The L_{Aeq} over the period 0000 - 2400, but with the evening values (1900 - 2300) weighted by the addition of 5 dB(A), and the night values (2300 - 0700) weighted by the addition of 10 dB(A).



All information in this document was correct at the time of printing.

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